

# 13th Health Sciences Research Assembly

December 1-5, 2021



## ABSTRACT BOOK



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# **13<sup>th</sup> Health Sciences Research Assembly**

December 1-5, 2021

## **INAUGURAL SESSION**

Wednesday, December 1, 2021 | 9:00 am | AKU Auditorium

Hybrid

- |               |   |
|---------------|---|
| 9:00-9:05 am  | Recitation from the Holy Qur'an   |
| 9:05-9:10 am  | Welcome Remarks   |
| 9:10-9:20 am  | Overview of activities in Medical College<br>Dr Asad Ali                              |
| 9:20-9:35 am  | Overview of Best Research Groups Award & Presentation of Award<br>Dr Sonia Haider     |
| 9:35-9:50 am  | Overview of Awards for Excellence in Research & Presentation of Award<br>Dr Uzma Khan |
| 9:50-9:55 am  | Overview of HSRA and Quick demo of HSRA portal<br>Dr Syed Hani Abidi                  |
| 9:55-10:00 am | Concluding remarks by<br>Dr Adil H. Haider, Dean, Medical College                     |

Program moderator: Dr Uzma Khan, Assistant Professor, Department of Emergency Medicine

# 13<sup>th</sup> Health Sciences Research Assembly

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## Graduate Student Oral Presentations

Wednesday, December 1, 2021 | 2:00 pm

(\*7 minutes each presentation)

**Moderator of the session: Dr Azhar Hussain, Director-Laboratories, Department of Biological and Biomedical Sciences**

Sr#	Presentation Title	Presenter(s)
1.	ANALYSIS OF HOST-SPECIFIC MIRNAS IN EBV-ASSOCIATED PROSTATE CANCERS.	Ali Salman Sheikh
2.	ROLE OF CHAMOMILE AND SAFFRON AND THEIR COMPONENTS IN THE TREATMENT OF DEPRESSION	Faiq Amin
3.	SCREENING FOR ARBOVIRUSES IN HEALTHY BLOOD DONORS IN SOUTHERN PAKISTAN.	Moiz Ahmed Khan
4.	IMPACT OF SODIUM GLUCOSE CO-TRANSPORTER TYPE 2 INHIBITORS ON ALANINE AMINO-TRANSFERASE LEVELS OF PATIENTS WITH TYPE 2 DIABETES HAVING NONALCOHOLIC FATTY LIVER DISEASE IN PAKISTANI POPULATION: A RETROSPECTIVE COHORT STUDY	Dr Asefa Shariq Ansari
5.	ACUTE MYOCARDIAL INFARCTION FROM A LOWER-MIDDLE INCOME COUNTRY – A SINGLE CENTER COMPREHENSIVE REPORT ON PERFORMANCE MEASURES AND QUALITY METRICS FROM NCDR	Farhala Muhammad
6.	RADIOGRAPHIC DETECTION OF PNEUMOTHORAX IN TRAUMA VICTIMS BY MACHINE LEARNING TOOL AND VALIDATION OF MACHINE LEARNING TOOL WITH RADIOLOGIST & EMERGENCY PHYSICIANS, A CROSS-SECTIONAL STUDY	Ayesha Abbasi
7.	VIDEO LINKED PHYSICIAN PEER REVIEW OF PEDIATRIC RADIOTHERAPY PLANS DURING COVID - 19 PANDEMIC AT A TERTIARY CARE UNIVERSITY HOSPITAL IN PAKISTAN.	Maria Tariq
8.	PULSE OXIMETRY CONTAMINATION AND DISINFECTION: A COMPARATIVE STUDY IN PUBLIC AND PRIVATE SECTOR HOSPITALS	Dr Maida Binte Khalid Quddusi

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# Basic Sciences

## 1.1

### **VASODILATOR EFFECTS OF AQUEOUS METHANOLIC AND AQUEOUS ETHANOLIC EXTRACTS OF CURRY LEAVES (MURRAYA KOENIGII) AND THEIR COMPARISON**

*Hasan Salman Siddiqi, Mahwish Fatima, Amber Palla*

*Department of Biological & Biomedical Sciences, Aga Khan University*

**Background:** Hypertension is a significant health care challenge due to detrimental outcomes. The management requires lifelong therapy. Its prevalence is on the rise due to lack of compliance to current management providing a justification for the search of new treatments that includes exploration of medicinal plants. The aim of this study was to investigate the traditional use of Curry leaves (*Murraya koenigii*) as an anti-hypertensive agent by testing the pharmacological effects of its aqueous methanolic and aqueous ethanolic extracts on isolated rat aorta and to compare the results.

**Study Design and Method:** The leaves of the plant were utilized to prepare the extracts. Aortae from Sprague-Dawley rats were placed in 5 ml isolated tissue bath assembly, filled with Krebs's buffer (37°C) bubbled with carbogen and connected to a force transducer and PowerLab attached with a computer. All the graphing, calculations and statistical analyses were performed using Graph-Pad Prism software version 4.00 for Windows.

**Results:** When tested on phenylephrine (PE, 1  $\mu$ M) and K<sup>+</sup> (80 mM)-induced vasoconstriction, both types of extracts caused a concentration-dependent relaxation. However, there was a difference in the extent of relaxation which was complete in the case of methanolic extract while ethanolic extract produced almost partial relaxation. When compared with verapamil which is a known Ca<sup>++</sup> antagonist, complete relaxation was seen in both types of induced vasoconstrictions.

**Conclusion:** These data indicate that both the plant extracts exhibit vasodilatory property. The vasodilator effect of the plant extract is mediated through inhibition of alpha-receptors as well as by inhibition of Ca<sup>++</sup> influx via voltage-gated membranous Ca<sup>++</sup> channels. Methanolic extract produces complete while ethanolic extract produces partial relaxation. Future studies are required to further elaborate the blood pressure lowering activity of the plant and to identify the components of the methanolic extract responsible for complete relaxation.

**Keywords:** Curry leaves, *Murraya koenigii*, vasodilator, antihypertensive

## 1.2

### **GENETIC ANALYSIS OF CCAAT/ENHANCER BINDING PROTEIN-ALPHA (C/EBPA) IN CYTOGENETICALLY NORMAL ACUTE MYELOID LEUKEMIA**

*Fareena Bilwani, Fatima Iqbal, Tariq Moatter, Naureen Allani, Mohammad Khurshid*  
*Department of Biological & Biomedical Sciences, Aga Khan University*

**Background:** Introduction: Acute myeloid leukemia (AML) is a myeloid malignancy that affects older adults and has a 5-year survival rate of ~25%. There is a variation in histopathology of AML due to a myriad of cytogenetic and genetic aberrations. A significant number of AML cases are cytogenetically normal (CN) and possess mutations in genes including NPM1, DNMT3A, TET2, IDH, C/EBP $\alpha$ , and FLT3. In the context of CN-AML, mutations in FLT3, NPM1, and C/EBP $\alpha$  are prognostically significant. Specific mutations have been identified in FLT3 and NPM1. However, efforts continue to identify frequently occurring mutations in Transcription-Activation Domains-1 (TAD1) and -2 (TAD2), DNA-Binding Domain (DBD), and Leucine Zipper Region (b-ZIP) of C/EBP $\alpha$ . This will help in identifying prognostically significant C/EBP $\alpha$  mutations.

**Study Design and Method:** To identify mutations in protein-encoding domains of C/EBP $\alpha$  in CN-normal AML cases.

**Methods:** Peripheral blood mononuclear cells (PB MNCs) of CN-AML cases with absence of mutation in NPM-1 and FLT-3 genes AML were identified. GC-rich intron-less C/EBP $\alpha$  was PCR-amplified using two sets of primers and subjected to Sanger Sequencing. Primer set-1 amplified TAD1 and partial TAD2 domains while primer set-2 amplified remaining TAD2, DBD and b-ZIP domains.

**Results:** Results: Mean age of patients was 33 years ( $\pm 11.65$ SD). Peripheral blood hemoglobin, WBC- and platelet-count at the time of diagnosis was 9.45g/dl ( $\pm 1.99$ SD), 45.18x10<sup>9</sup>/L ( $\pm 68.46$ SD) and 45.63 x10<sup>9</sup>/L ( $\pm 39.42$ SD) respectively. Mean peripheral blood blast count was 79.67% ( $\pm 16.1$ %SD). TAD1 and TAD2 domains were analyzed in six samples whereas DBD and b-ZIP domains were analyzed in eight samples. We did not find any genetic aberration in all four domains of C/EBP $\alpha$  in this selected group of CN-AML cases.

**Conclusion:** Conclusion: The data agrees with other studies where very few cases of CN-AML cases show genetic mutations in C/EBP $\alpha$ . We propose to identify alterations in epigenetic and post-translational profile of this molecule in CN-AML cases.

**Keywords:** Key Words: Acute Myeloid Leukemia, cytogenetically normal, CCAAT/enhancer binding protein- $\alpha$

### 1.3

#### **DOCKING PREDICTION OF LEVODOPA IN THE RECEPTOR BINDING DOMAIN OF SPIKE PROTEIN OF SARS-COV-2**

Abdul Mannan Baig  
Department of Biological & Biomedical Sciences, Aga Khan University

**Background:** Levodopa is a prodrug that is converted into dopamine, which replenishes the

deficient dopamine in the brain of patients suffering from Parkinsonism. We hypothesize that levodopa may interact with the receptor binding domain of the SARS-CoV-2 and may act as a physical impediment to the viral entry into the host cell.

**Study Design and Method:** Docking software's, Genomic databases, Automated Online databases

**Results:** Levodopa docks at the receptor-binding motif of the SARS-CoV-2

**Conclusion:** Levodopa and its structural analogs can prevent the host cell entry by SARS-CoV-2

**Keywords:** Drug docking, repurposing drugs in COVID-19

### 1.4

#### **CAN NEUROTROPIC FREE-LIVING AMOEBA SERVE AS A MODEL TO STUDY SARS-COV-2 PATHOGENESIS?**

Abdul Mannan Baig  
Department of Biological & Biomedical Sciences, Aga Khan University

**Background:** Of the single-celled eukaryotic microbes, Naegleria fowleri, Balamuthia mandrillaris, and Acanthamoeba spp. are known to cause fatal encephalitis in humans. Being eukaryotes, these cells have been used as a model for studying and understanding complex cellular processes in humans like cell motility, phagocytosis, and metabolism. It was hypothesized that if a receptor-dependent or phagocytosis-assisted SARS-CoV-2 uptake does occur in free-living amoebae (FLA), this model can provide an alternative to human cells to study cellular recognition and binding of SARS-CoV-2 that can help design drugs and treatment modalities in COVID-19.

**Study Design and Method:** Genome databases of N. fowleri, B. mandrillaris, and Acanthamoeba spp. were used to explore the expression of angiotensin-converting enzyme 2

(ACE2), androgen-regulated serine protease precursor (TMPRSS2), CD4, CD147, and Furin that are known to be cardinal for SARS-CoV-2 in recognition and binding to human cells.

**Results:** We show that, of the FLA, ACE2 and TMPRSS2 are not expressed in *Acanthamoeba* spp. and *B. mandrillaris*, but primitive forms of these cell recognition proteins were seen to be encoded in *N. fowleri*. *Acanthamoeba* spp. and *N. fowleri* encode for human-like Furin which is a known SARS-CoV-2 spike protein involved in host cell recognition and binding.

**Conclusion:** The ongoing pandemic caused by SARS-CoV-2 that infects multiple organs has emerged as a challenge to unravel its mode of infection and the pathogenicity resulting in eukaryotic cell death. Working with single-celled eukaryotic microbes *Acanthamoeba* spp. and *N. fowleri* provided us the opportunity to plan bioinformatic approaches to look into the likelihood of studying the known and alternative mode of infection of the SARS-CoV-2 in eukaryotic cells.

**Keywords:** ACE2; *Acanthamoeba* spp.; *Balamuthia mandrillaris*; COVID-19; *Naegleria fowleri*; SARS-CoV-2; TMPRSS2; Furin; model unicellular organisms.

## 1.5

### **POLYCYSTIC OVARIAN SYNDROME MODEL: APOPTOTIC CHANGES AND ROLE OF VITAMIN D**

Zehra Naseem, Arfa Azhar, Zehra Naseem,  
Ghulam Haider, Nida Farooqui, Sabah Farhat,  
Rehana Rehman

Department of Biological & Biomedical  
Sciences, Aga Khan University

**Background:** Caspase 3, a pro-apoptotic protein, plays a significant role during the process of programmed cell death. Vitamin D deficiency interferes with follicular growth, menstrual regularity and fertility and studies have shown that treatment with vitamin D supplementation may have valuable properties on insulin

resistance and menstrual disturbances among polycystic ovary syndrome (PCOS) patients. This research was aimed to observe apoptotic marker (Caspase 3) levels in different groups after treatment with Vitamin D in an animal model after inducing PCOS with Dehydroepiandrosterone (DHEA)

**Study Design and Method:** Thirty pre-pubertal female Sprague Dawley dams were recruited. The animals were distributed 10 each in control, PCOS and Vitamin D treated groups. In control group 0.2 ml of sesame oil was given. PCOS group was administered DHEA by the daily dose of 6 mg/kg for 30 days. In Vitamin D treated group, animals were injected 6 mg/kg/day DHEA daily and 120 ng 1, 25(OH) 2D<sub>3</sub>/100 g subcutaneously once a week. The occurrence of programmed cell death in PCOS by apoptotic marker (caspase 3) levels was assessed.

**Results:** The results of this study showed significant weight gain, obesity, changes in caspase 3 levels in PCOs group as compared to control and vitamin D treated group.

**Conclusion:** Administration of Vitamin D (120 ng 1, 25(OH) 2D<sub>3</sub>/100) reduced body weight as well as improved the caspase 3 levels in PCOS induced animals. The results support the effect of Vitamin D treatment for metabolic and reproductive characteristic features in PCOS females.

**Keywords:** Animal model; DHEA; Polycystic ovary syndrome; Vitamin D, Caspase 3



## 1.6

### **EARLY DIAGNOSTIC BIOMARKER(S) DEVELOPMENT FOR ALZHEIMER'S DISEASE**

*Bushra Amin, Dr Sara Khan, Dr Mohammad Wasay*

*Departments of Biological & Biomedical Sciences and Medicine, Aga Khan University*

**Background:** Alzheimer's disease (AD) is a growing threat to aging population round the globe including Pakistan. Absence of reliable biomarker delays diagnosis till advance stages of the disease where a significant and irreversible loss of critical neurons already occurred in the brain. Thus, early detection of devastating disease is a dire need and of high scientific interest. Recent genome-wide studies suggest adenosine triphosphate-binding cassette transporter A7 (ABCA7), as the strongest risk gene for AD (both for the early and late-onset). The expression of ABCA7 inversely co-relate with the accumulation of A $\beta$  plaque in the brain. Though, to date, no study has been performed for the detection of ABCA7 as the maker for AD, both nationally and internationally. We will use high-throughput proteomics to develop ABCA7 as early diagnostic marker for AD.

**Study Design and Method:** In this prospective study, mild-to moderate AD patient's (N $\geq$ 100) will be enrolled along with the age and gender-matched cognitively normal volunteers with comprehensive medical history and neuropsychological assessment. Saliva will be collected. Proteomic analysis will be performed for the system-wide variances in peripheral ABCA7. Immunochemical studies will further validate statistical levels of ABCA7 exclusive to AD patients.

**Results:** It is anticipated that the validated results of discovery and validation phase will possibly lead to the develop non-invasive and reliable diagnostic biomarker for the early detection of cognitive impairment in prodromal AD.

**Conclusion:** It is anticipated that the validated results of discovery and validation phase will possibly lead to the develop non-invasive and reliable diagnostic biomarker for the early detection of cognitive impairment in prodromal AD.

**Keywords:** Alzheimer's disease, bodily fluid biomarker, Adenosine triphosphate-binding cassette transporter A7, early diagnosis, cognition

## 1.7

### **NOVEL DRUG DEVELOPMENT TO ELIMINATE MEMORY DEFICITS IN ALZHEIMER'S DISEASE**

*Bushra Amin, Tashfeen Ahmed, Mohammad Wasay*

*Departments of Biological & Biomedical Sciences and Surgery, Aga Khan University*

**Background:** Alzheimer's disease (AD) is the 6th leading cause of early death and an emergent threat to aging population all over the world including Pakistan for which no cure is available. Immunotherapies, herbal and alternative medicines have been frequently suggested, yet lack effective evidence to support their use. In our previous studies we have highlighted protein deiminases (PAD) as novel therapeutic target for AD. Higher levels of PAD expression are reported in rat cerebrum at the early stages of neurodegeneration process. Moreover, abnormal activity of this enzyme and accumulation of deiminated proteins is frequently seen in the hippocampus of AD brain, also it further exacerbate inflammation and cause injury in brain circuitry at multiple regions. Thus, we hypothesize that halide-amines: the specific inhibitor of PAD can irreversibly inactivate this enzyme and may protect against neuronal loss.

**Study Design and Method:** In this prospective study we will generate rat model of Alzheimer's disease to mimic the neuronal loss in AD brain. The efficacy of our drug will be tested in 20, 40,

and 60- mg/Kg intraperitoneal doses for the restoration of brain circuitry.

Elimination/reduction of neuronal sclerosis, inflammation and gross changes in the structure of hippocampus will be investigated with proteomics analysis.

**Results:** The results will make us decide if PAD could be the novel therapeutic target for AD and halide-amines are the potential drug to eliminate memory deficits in AD.

**Conclusion:** The results will make us decide if PAD could be the novel therapeutic target for AD and halide-amines are the potential drug to eliminate memory deficits in AD.

**Keywords:** Alzheimer's disease, protein deiminases, evidence-based drug research, memory impairment, halide amines

## 1.8

### **HIGH-THROUGHPUT PROTEOMICS TO ELUCIDATE UNDERLYING MECHANISMS OF AGING**

*Bushra Amin, Dr Rena A.S. Robinson  
Department of Biological & Biomedical Sciences, Aga Khan University and Department of Chemistry, Vanderbilt University, USA*

**Background:** Aging globally effects cellular and organismal metabolism across a range of mammalian species, including humans. Large-scale quantitative proteomics has the potential to provide the near-global view of cellular macromolecules. Thus, for the complete understanding, we have used high-throughput mass spectrometry-based Proteomics for the elucidation of pathophysiological processes and for the monitoring of the dynamic changes across samples from varying conditions.

**Study Design and Method:** Isobaric tagging strategies, may allow as many as 24 samples to be multiplexed in a single analysis. We have recently developed an approach which has dual tagging nature, combines isotopic labeling with isobaric tagging (cPILOT), the capacity of

samples doubles. This study demonstrates the application of our approach in the elucidation of underlying molecular processes of Aging. This presentation will cover published findings. Pronounced variations in fat metabolism, mitochondrial dysfunction, and protein degradation was detected. Such changes are consistent in the liver across several mammalian species.

**Results:** We have identified 2,586 liver proteins, among which 45 proteins had significant ( $p < 0.05$ ) changes with aging. Seven proteins were differentially-expressed at all ages. Fatty acid binding protein, aldehyde dehydrogenase, enoyl-CoA hydratase, 3-hydroxyacyl CoA dehydrogenase, apolipoprotein C3, peroxisomal sarcosine oxidase, adhesion G-protein coupled receptor, and glutamate ionotropic receptor kinate are aging-sensitive proteins in liver.

**Conclusion:** Insights of aging-sensitive alterations in metabolism that affect protein expression in liver have been gained. The successful application of cPILOT register it as the most effective quantitative proteomics approach to study metabolic pathways involved in the physiopathological processes. The future directions and pathways involved in complex physiological process will be presented.

**Keywords:** Keywords: High-throughput Proteomics, Aging, Mass Spectrometry, Mitochondrial dysfunction, Fat metabolism, Protein degradation.

## 1.9

### **DEVELOPMENT OF NOVEL TAGS FOR ENHANCED SAMPLE MULTIPLEXING IN QUANTITATIVE PROTEOMICS**

*Bushra Amin, Jasmine Daniels, Rena A. S. Robinson*

*Department of Biological & Biomedical Sciences, Aga Khan University and Department of Chemistry, Vanderbilt University, Nashville*

**Background:** Large-scale quantitative proteomics can provide a near-global view of cellular protein abundance. To fully leverage mass spectrometry for the elucidation of disease processes high-throughput proteomics is necessary to monitor dynamic changes across samples from varying conditions. One way to do this, is with the use of isobaric tagging strategies, which allow as many as 12 samples to be multiplexed in a single analysis. Through an approach which has dual tagging nature, combines isotopic labeling with isobaric tagging (cPILOT), the capacity of samples doubles.

**Study Design and Method:** The goal of this study is to develop a single-step labeling approach to increase the multiplexing capacity of our combined precursor isotopic labeling and isobaric tagging (cPILOT) approach. The major challenge to making this approach work involve making amine tagging reagents specific to either N-terminal or lysine amine residues. To overcome this challenge, we built peptide libraries in our laboratory and evaluate their tagging efficiencies and specificities to optimize reaction conditions. Here, we are working on a novel peptide-libraries to incorporates amine specific chemistries which can be used to build libraries of tags to monitor changes in protein abundance from >20 samples simultaneously.

**Results:** This presentation will cover preliminary findings on effective peptide-libraries within our cPILOT approach and the reaction conditions necessary to use them as a single sample preparation labeling step.

**Conclusion:** With the development of this novel tag, we are able to multiplex as many as 60 samples at once. Progress in continue to further enhance this capacity for simultaneous analysis of 100 different samples.,

**Keywords:** Proteomics, Quantification, Multiplexing, Sample Tags, Simultaneous analysis

## 1.10

### **PHYLOGENETIC, DRUG- AND VACCINE-RESISTANCE PROFILES OF HEPATITIS B VIRUS SEQUENCES FROM CHILDREN WITH HIV-1 INFECTION IN PAKISTAN**

*Nida Farooqui, Fatima Mir, Dilsha Siddiqui, Aneeta Hotwani, Apsara Ali Nathwani, Syed Faisal Mahmood, Kamran Sadiq, Hammad Afzal, Saqib Ali Sheikh, Sharaf Ali Shah, Rashida Abbas Ferrand, Syed Hani Abidi*  
*Departments of Biological & Biomedical Sciences, Pediatrics and Child Health, Medicine, Aga Khan University, Department of Biosciences, The Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, Sindh AIDS Control Program, Ministry of Health, Sindh, Bridge Consultants Foundation, Karachi, Pakistan and Department of Clinical Research, London School of Hygiene & Tropical Medicine, London, UK*

**Background:** HIV-infected individuals are often found co-infected with hepatitis B virus (HBV). In 2019, an unprecedented HIV outbreak occurred in the pediatric population of Larkana, where a large number of children were tested positive for HIV acquired through contaminated needles. Several of these children were also found to be co-infected with HBV

**Study Design and Method:** Blood samples were collected from 321 HIV-positive children. The presence of HBV co-infection was detected using ELISA test. Reverse transcriptase gene was amplified and sequenced in HBV positive samples. The sequences were used to analyze the phylogenetic relationship among sequences, as

well as to perform drug- and vaccine- resistance mutations in the RT gene of HBV.

**Results:** Out of 321 samples, 75 were found to be HBV positive. Phylogenetic analysis revealed 63.5% of HBV sequences to be of sub-genotype D1, while the rest of the sequences were of sub-genotype D2. Cluster analysis revealed that sub-genotype D1 pre-dominantly had a domestic (Pakistani) transmission, while the sub-genotype D2 dataset showed a global transmission of infection which could be from multiple introductions. Drug resistance analysis revealed the prevalence of 236Y mutation, associated with resistance against Tenofovir in 2.8% of patients. Additionally, a total of seven vaccine escape mutations was also observed, among them the most common was 128V.

**Conclusion:** We found sub-genotype D1 to be prevalent in the cohort, primarily acquired through local transmissions. We also found minor drug resistance and major vaccine escape mutations in the HBV sequences. The study warrants that these patients must be monitored closely for the possible emergence of full-blown drug resistance or further transmission of vaccine-escape variants, which can become a major public health challenge in the future.

**Keywords:** HIV/HBV co-infection, phylogenetics, Larkana outbreak

## 1.12

### **ROLE OF NRF2 IN ISCHEMIA REPERFUSION INJURY OF THE HEART**

Sahar Khalid Zuberi, Hira Rafi, Sabah Farhat, Satwat Hashmi  
Biological & Biomedical Sciences, Aga Khan University

**Background:** Coronary heart disease, caused by narrowing of coronary vasculature, is a leading cause of death in low income countries like Pakistan. As a consequence of reduction in blood to the heart, ischemia reperfusion (IR) injury to cardiomyocytes ensues. Myocardial IR injury is a result of initial ischemic insult

followed by further damage due to reactive oxygen species (ROS) release during sudden outburst of oxygen during reperfusion. This study focuses on the role nuclear factor (erythroid-derived 2)-like factor 2 (Nrf2) that is activated as a result of insult to the myocardium that otherwise remains quiescent in the heart.

**Study Design and Method:** Animals were divided into two groups, mice that underwent IR surgery and its sham operated group (n=8 in each group). A murine model of IR injury was established whereby left anterior descending artery (LAD) was surgically ligated for 30mins followed by reperfusion. Samples were collected a week after surgery for tissue processing (H&E staining, modified Masson's trichrome staining, immunohistochemistry) and protein analysis (Western blot, total antioxidant capacity assay).

**Results:** Mice with IR injury exhibited dilation of left ventricle, thinning of the walls of the myocardium; and infiltration of inflammatory cells and deposition of fibrous tissue at the infarct site along with an increased infarct size (IR: 19.5±6.3%, Sham: 3.8±1.9%) and increased total antioxidant capacity (IR group: 58.1±25.5µM, Sham: 18.2±3.8 µM). Additionally, there was an upregulation of Nrf2 at the infarct site (IR: 68.73±0.81%, Sham: 60.17±3.47%) compared to sham in the infarcted region.

**Conclusion:** A week post myocardial IR injury, an increase in infarct size is accompanied by increased total antioxidant capacity and upregulation of Nrf2. This suggests a role of Nrf2 in modulation of oxidative stress in IR injury of the heart.

**Keywords:** Ischemia-reperfusion injury, oxidative stress, Nrf2

### 1.14

#### **A RAPID REAL-TIME POLYMERASE CHAIN REACTION-BASED LIVE VIRUS MICRONEUTRALIZATION ASSAY FOR DETECTION OF NEUTRALIZING ANTIBODIES AGAINST SARS-COV-2 IN BLOOD/SERUM**

*Syed Hani Abidi, Kehkashan Imtiaz, Akbar Kanji, Shama Qaiser, Erum Khan, Kiran Iqbal, Marc Veldhoen, Kulsoom Ghias, J. Pedro Simas, Zahra Hasan*

*Departments of Biological & Biomedical Sciences and Pathology & Laboratory Medicine, Aga Khan University, Instituto de Medicina Molecular | João Lobo Antunes, Faculdade de Medicina, Universidade de Lisboa, Lisbon, Portugal, Católica Biomedical Research and Católica Medical School, Universidade Católica Portuguesa, Lisboa, Portugal*

**Background:** Individuals recovering from COVID-19 are known to have antibodies against the Spike and other structural proteins. Antibodies against Spike have been shown to display viral neutralization. However, not all antibodies against Spike have neutralizing ability although they may be cross-reactive. There is a need for easy-to-use SARS-CoV-2 neutralizing assays for the determination of virus-neutralizing activity in sera of individuals. Here we describe a PCR-based micro-neutralization assay that can be used to evaluate the viral neutralization titers of serum from SARS-CoV-2 infected individuals.

**Study Design and Method:** The SARS-CoV-2 strain used was isolated from a nasopharyngeal specimen of a COVID-19 case. The limiting dilution method was used to obtain a 50% tissue culture infective dose (TCID<sub>50</sub>) of Vero cells. For the micro-neutralization assay, 19 serum samples, with positive IgG titers against Spike Receptor-Binding Domain (RBD) were tested. After 24 hours, infected cells were inspected for the presence of a cytopathic effect, lysed and RNA RT-PCR conducted for SARS-CoV-2.

PCR target Ct values were used to calculate percent neutralization/inhibition of SARS-CoV-2.

**Results:** Out of 19 samples, 13 samples gave 100% neutralization at all dilutions, 1 sample showed neutralization at the first dilution, 4 samples showed neutralization at lower dilutions, while one sample did not demonstrate any neutralization. The RBD ODs and neutralization potential percentages were found to be positively correlated.

**Conclusion:** We describe a rapid RT-PCR-based SARS-CoV-2 microneutralization assay for the detection of neutralizing antibodies. This can effectively be used to test the antiviral activity of serum antibodies for the investigation of both disease-driven and vaccine-induced responses.

**Keywords:** SARS-CoV-2; COVID-19; Spike; RBD; ELISA; PCR; neutralizing assay

### 1.15

#### **IN SILICO CHARACTERIZATION OF PUTATIVE EBV RECEPTOR(S) ON PROSTATE CANCER CELLS**

*Khalid Ahmed, Syed Hani Abidi*  
*Department of Biological & Biomedical Sciences, Aga Khan University*

**Background:** The Onset/progression of prostate cancer is attributed to genetic and environmental factors, as well as to microbes, such as viruses. We recently showed the presence of Epstein-Barr virus (EBV) in prostate cancer and linked it to high Gleason score. In this study, we have used data mining and bioinformatics approach to study putative cell receptors which might be used by EBV to infect prostate cancer cells.

**Study Design and Method:** For data mining, PubMed was used to identify receptors used by EBV to infect different cell types. This was followed protein expression analysis of these receptors on prostate cancer tissues using Human Protein Atlas. Subsequently, we employed molecular protein-protein docking

studies to characterize interaction and binding potential between putative host receptor and EBV glycoproteins.

**Results:** We have found that EBV uses complement receptors 1 and 2 (CR-1 and -2) to infect different human cells. Protein expression analysis showed that only CR1 is expressed on the prostate cancer cells. Our protein-protein docking analysis between CR1 and EBV proteins gp350 and gp42 showed strong interactions between CR1 and gp350 and gp42, where hydrogen bonds were found to be the main contributors in protein-protein interaction.

**Conclusion:** Our results show that CR1, expressed on prostate cancer cells, exhibit strong interaction with EBV glycoproteins, suggesting CR1 to be the putative receptor used by EBV to infect prostate cancer cells. While this observation needs to be confirmed in vitro, our preliminary results may suggest CR1 as novel therapeutic target to block EBV entry in prostate cells.

**Keywords:** Keywords: Prostate cancer, complement receptor 1, EBVgp350, EBVgp42

## 1.16

### **UPREGULATED TYPE I INTERFERON RESPONSES WITH DOWNREGULATED ANTI-INFLAMMATORY GENES IN TRANSCRIPTOMES OF INDIVIDUALS WITH ASYMPTOMATIC COVID-19 CASES ARE ASSOCIATED WITH IMPROVED CLINICAL OUTCOMES**

Zahra Hasan, Kiran Iqbal Masood, Maliha Yameen, Javeria Ashraf, Saba Shahid, Syed Faisal Mahmood, Asghar Nasir, Nosheen Nasir, Bushra Jamil, Najia Karim Ghanchi, Iffat Khanum, Safina Abdul Razzak, Akbar Kanji, Rabia Hussain, Martin Rottenberg  
Departments of Pathology & Laboratory Medicine, Medicine, Aga Khan University and Department of Microbiology and Tumor Cell Biology, Karolinska Institute, Sweden

**Background:** Understanding key host protective mechanisms against SARS-CoV-2 infection can help improve treatment modalities for COVID-19. We investigated biomarkers associated with differing severity of COVID-19, comparing cases with severe and mild Symptomatic disease with Asymptomatic COVID-19 and uninfected Controls.

**Study Design and Method:** We used a blood transcriptome approach using a RNA microarray chip that investigated 21,400 genes in each case. RNA extracted from COVID-19 patients in the early infectious phase was analysed for gene expression patterns. Healthy uninfected controls were used as a control group.

**Results:** There was a suppression of antigen presentation but upregulation of inflammatory and viral mRNA translation associated pathways in Symptomatic as compared with Asymptomatic cases. In severe COVID-19, CD177 a neutrophil marker, was upregulated while interferon stimulated genes (ISGs) were downregulated. In Asymptomatic COVID-19 cases there was a strong upregulation of ISGs and humoral response genes with downregulation of ICAM3 and TLR8. Compared across the COVID-19 disease spectrum, we found type I interferon (IFN) responses to be significantly upregulated (IFNAR2, IRF2BP1, IRF4, MAVS, SAMHD1, TRIM1), or downregulated (SOCS3, IRF2BP2, IRF2BPL) in Asymptomatic as compared with mild and severe COVID-19 with the dysregulation of an increasing number of ISGs associated with progressive disease.

**Conclusion:** These data suggest that initial early responses against SARS-CoV-2 may be effectively controlled by ISGs. Therefore, we hypothesize that treatment with type I interferons in the early stage of COVID-19 may limit disease progression by stimulating clearance of limiting SARS-CoV-2 and limiting viral replication in the host.

**Keywords:** SARS-CoV-2, type I interferon, COVID-19, ISG

## 1.17

### **IMPLEMENTATION OF STANDARDIZED BIOINFORMATICS PRACTICES, PIPELINES, AND DATA STRUCTURES IN SARS-COV-2 SEQUENCING LABORATORIES IN PAKISTAN.**

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**Background:** Genome sequencing of the SARS-CoV-2 virus has been a key tool for understanding the spread of COVID-19 at global, national and local scales, developing diagnostic tests and vaccines, and refuting misinformation during the pandemic. With the emergence of viral variants of concern (VOCs), sequence analysis has become essential activities for National Public Health Institutes (NHPs).

**Study Design and Method:** The goal of this project is to develop the processes and practices required to continually generate, analyze, and share high-quality sequence and contextual data with public repositories.

**Methodology:** Nasopharyngeal swabs of COVID-19 positive samples were collected from the clinical laboratories of Aga Khan University Hospital (AKUH) and transferred to Infectious Diseases Research Labs (IDRL) for nucleic acid extraction and library preparation using ARTIC V3 protocol. Sequencing was performed using Illumina's iSeq100. The FASTQ files generated by sequencer were then analyzed using locally deployed IDSeq pipeline based on mini-WDL SARS-CoV-2 consensus genome workflow. Quality control and clade categorization of IDSeq generated consensus genomes were checked by coverage, depths, number of Ns, mixed sites, frameshift, private and clusters of

mutations at Nextclade. Genomes with lower quality were then processed manually to improve quality depending on the number of mixed sites or frameshift mutations. High-quality genomes along with metadata were uploaded to GISAID and NCBI GenBank. Genomic epidemiology of SARS-CoV-2 was identified by building Pakistan-specific phylosurveillance map at Nextstrain to explore the real-time tracking of viral diversity and evolution.

**Results:** 19 samples were uploaded to GISAID and GenBank. For Phylogenetic tree, all available Pakistani sequences (1,109, dated 11th October 2021) were downloaded from GISAID. Nextstrain pipeline dropped 203 sequences based on length criteria, that is, sequences less than 27,000 bps were filtered out. 906 Pakistani sequences were included in the final tree. In November 2020, 20A had higher frequency (74%) in Pakistani population, other variants were 20B (8%) and 20D (17%). In April 2021, 20I Alpha UK variant became the most circulating variant. 21J (Delta) variant was found to be more prevalent in Pakistani COVID-19 positive cases in September 2021.

**Conclusion:** Genomic sequencing of SARS-CoV-2 is important to understand how the virus is evolving as it spreads. Rapid sharing of sequencing data while maintaining quality help in tracing and predicting early viral diversity. This study shows the capacity building strength of Pakistan to respond in pandemic, and contribute its due share in scientific community.

**Keywords:** mini-WDL, Delta variant, GISAID, Phylodynamics, Nextstrain

### 1.18

#### **TRANSLATIONAL STUDY: EFFECTS OF HERBS ON DEPRESSED ASSOCIATED WITH HYPERLIPIDEMIA PATIENTS IN AGA KHAN UNIVERSITY, PAKISTAN.**

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**Background:** Depression are one of the neuropsychological refers to constellation of sad mood, agitation, lack of interest and feelings of worthlessness. Many allopathic treatments are available in hospitality for the management of this disease to control their adverse effects. Although there is also the interest of developing countries to use alternative remedies for the treatment of psycho-neurological issues like depression. The present clinical trial was designed in the clinical trial unit of Aga Khan University, Karachi, Pakistan to determine the effect of chamomile and saffron tea bags as an adjuvant therapy in patients with mild to moderate depression using PHQ9 scale.

**Study Design and Method:** 100 depressed patients visiting the outpatient psychiatry clinic at the Aga Khan University, Karachi, Pakistan after obtaining written consent were selected and randomly divided in control and test groups. The test subjects were given herbal tea bags, prepared with 20mg of chamomile and 1mg of saffron to be taken twice daily for a period of 4 weeks only as adjuvant therapy to their prescribed medicine. The controls received nothing and were advised to continue taking their prescribed medication. Depression in all the subjects was evaluated by the PHQ9 scale and serum samples were taken for evaluation of fasting lipid profile and serum tryptophan levels, both before the initiation and after one month of completion of the study.

**Results:** revealed that one month of herbal tea intake as adjuvant therapy significantly reduced depression and fasting lipid profile in test

subjects than controls. However, analysis of tryptophan levels analysis through HPLC method is to underway and results are pending.

**Conclusion:** It is concluded from the present trial that the indigenous herbs have a potential to maintain blood lipid profile and alleviate of psycho-neurological deficits possibly through augmented tryptophan entry through blood brain barrier into brain; escalating serotonin synthesis.

**Keywords:** neurophysiological deficits, herbal products, saffron, chamomile, PHQ-9

### 1.19

#### **THE PRESENCE OF CONSTITUENTS IN CHICKEN MEAT CAN DEVELOP ANTIBIOTIC RESISTANCE IN HUMAN CONSUMERS.**

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**Background:** Harmful constituents of commercial, broiler chicken feed and the presence of these constituents in their meat can develop antibiotic resistance in human consumers.

**Study Design and Method:** The experimental study was conducted at the Pakistan Council of Scientific and Industrial Research laboratory, Karachi. Samples of commercial broiler chicken feed and meat were collected in 2015 from a large poultry farm that supplies chicken meat to various suburban areas of the city. Another set of organic chickens were bred in an animal house. The samples of feed, meat and droppings were then analyzed for the estimation of basic constituents and additives in the laboratory. Data was analyzed using SPSS 20.0.

**Results:** The constituents were measured in 26 samples of chicken meat from each group. Calories ( $p < 0.01$ ), amount of protein ( $p < 0.01$ ), total fats ( $p < 0.05$ ), cholesterol ( $p < 0.01$ ), saturated fats ( $p < 0.01$ ), monounsaturated



( $p < 0.05$ ) and polyunsaturated fats ( $p < 0.01$ ) were significantly increased in commercial broiler chicken compared to that of organic chicken meat. The commercial chicken feed was found to contain crude carbohydrate, crude protein, crude fat, crude fiber, antibiotics, toxicities of roxarsone, melamine, steroids and pesticides, vitamins, amino acids, premixes of vitamins. Additive constituents were also present in the commercial chicken meat. These components were absent in organic chicken meat and droppings which suggests that they were absent in their feeding contents.

**Conclusion:** Toxicities present in the chicken meat resultant from chicken feed may result in antibiotic resistance in human consumers.

**Keywords:** Antibiotics, Chicken feed, Conventional caged chicken meat, Melamine, Organic chicken meat, Roxarsone, Steroids,

## 1.20

### **INTRODUCTION OF SARS-COV-2 VARIANT B.1.1.7 IN PAKISTAN THROUGH INTERNATIONAL TRAVELERS**

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**Background:** With the emergence of COVID19, the SARS-CoV2 viral strains continue to emerge and have accumulated lot more mutations than

the first reported strain. Through genomic sequencing, surveillance of viral strains is continuously being monitored. However, PCR provides more rapid and feasible approach to identify the circulating strains in any population.

**Study Design and Method:** PCR based SARS-CoV2 testing of international travelers' coming to Karachi was performed from December 2020 to February 2021. Thirty-five positive cases were tested for S-Gene Target Failure (SGTF) on TaqPath™ COVID-19 (Thermo Fisher Scientific) and for mutations using the GSD NovaType SARS-CoV-2 (Eurofins Technologies) assays. Sequencing of few of these samples were performed using MinION device (Oxford nanopore platform) to confirm the sequencing results. Phylogeographic inferences were performed along with the data of patients' travel history details.

**Results:** Of the thirty-five tested cases thirteen isolates showed SGTF which were confirmed by PCR to be B.1.1.7 and four of them were further confirmed by WGS on MinION platform. The other strain identified from the sequencing data included B.1.36 and B.1.1.212 lineage isolate. Phylogeographic modeling estimated at least three independent B.1.1.7 introductions into Karachi, Pakistan, originating from the UK. B.1.1.212 and B.1.36 were inferred to be introduced either from the UK or the travellers' layover location.

**Conclusion:** We report the introduction of SARS-CoV-2 B.1.1.7 and other lineages in Pakistan by international travelers arriving via different flight routes. This highlights SARS-CoV-2 transmission through travel, importance of testing and quarantine post-travel to prevent transmission of new strains, as well as recording detailed patients' metadata. Such results help inform policies on restricting travel from destinations where new highly transmissible variants have emerged.

**Keywords:** SARS-CoV2; B.1.1.7; COVID19; Phylodynamics

### 1.21

#### **HUMORAL RESPONSES TO SINOPHARM VACCINATION SHOW DISCREPANCY BETWEEN SPIKE AND RBD SPECIFIC IGG ANTIBODIES**

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**Background:** Sinopharm vaccination for COVID-19 was rolled-out in Pakistan from February 2021. It is of consequence to understand humoral immunity against SARS-CoV-2. Antibodies against the Spike protein have been shown to be associated with an anti-viral effect. Further, IgG against the receptor binding domain (RBD) of Spike are associated with virus neutralization. We recruited individuals vaccinated with Sinopharm and followed them for up to 6 months. Sera from study subjects were tested for the presence of IgG to Spike and RBD protein of SARS-CoV-2.

**Study Design and Method:** Individuals vaccinated with Sinopharm were enrolled. Blood samples were drawn at 8, 12 and 24 after the first vaccination dose. All sera were tested for the presence of IgG antibodies against Spike and RBD proteins

**Results:** We recruited 312 study subjects (62 % female). The age range of study subjects was 20 – 101 years. Time of sampling was counted from first dose of vaccination. Follow up samples over the study period were available at 8 (n=221), 12 (n=108), 20 (n=62) and 24 (n=136) weeks post-vaccination.

In response to Spike protein, IgG responses were present across the time line in; 87% at 8 weeks, 72% at 12 weeks, 82% at 20 weeks and 90% at 24 weeks post-vaccination.

In response to RBD protein, IgG responses were present in 62% at 8 and 12 weeks, 73% at 20 weeks and 85% at 24 weeks. There was a positive correlation observed between IgG to Spike and RBD in each case.

**Conclusion:** There was a difference between the proportion of individuals who had antibodies to Spike as compared with those to RBD across the study period, with higher IgG positivity to Spike in each case. From between 8 and 12 weeks after vaccination, 62% of individuals had IgG to RBD and this increased to 85% at 24 weeks. Given that IgG to RBD is a correlate of protection against SARS-CoV-2, it reveals that approximately 40% of individuals did not have protective antibodies until upto 12 weeks. By 24 weeks all except 15% of cases had IgG to RBD. This rate of sero-conversion is lower than that observed for vaccines such as Pfizer and AstraZeneca. More studies are warranted to dissect immunity driven by Sinopharm. Our data indicates that Sinopharm induced IgG to SARS-CoV-2 is relatively delayed and warrants the need for people to maintain protective measures against acquiring the infection.

**Keywords:** Spike, SARS-CoV-2, IgG, neutralising antibodies

### 1.22

#### **SERO-PREVALENCE OF SARS-COV-2 ANTIBODIES IN CONTROLS AND COVID-19 CASES REVEAL INSIGHTS INTO PROTECTIVE IMMUNITY IN PAKISTANI POPULATION**

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**Background:** The outcome of the COVID-19 disease depends on the robust cellular and humoral immune responses. Serological studies

conducted in COVID-19 effected cohort have shown that the greatest amount of antibodies are produced against Spike (S) protein after infection with SARS-CoV2. However, antibodies to Spike have shown to be cross-reactive which can be attributed to 76% homology between SARS-CoV and SARS-CoV-2. While the antibodies against receptor binding domain (RBD) are shown to be more specific to SARS-CoV2. In this study, we have conducted the immune-surveillance, where antigen specific antibody levels are measured in our population

**Study Design and Method:** Study design is cross-sectional. We investigated IgG responses to S and RBD protein in SARS-CoV-2 PCR positive subjects (n=108), un-infected volunteers (n=288) with no known history of COVID-19 and in serum samples stored from pre-pandemic period (n=193). Virus neutralizing assays were conducted on a sub-set of sera (n=24).

**Results:** Cases tested positive for IgG to Spike were 91% for COVID +ve subjects, 36% for un-infected volunteers and 14.5% for pre-pandemic cases. Responses of IgG to RBD were further explored in all three cohorts and we observed that the positive cases were 60% for COVID-19 PCR positive subjects, 37% for un-infected volunteers and 14.8% for pre-pandemic cases. There was a positive correlation between IgG to S and RBD. IgG to RBD were associated with a neutralizing activity in sera from convalescent patients with COVID-19.

**Conclusion:** Positive antibody responses to SARS-CoV-2 antigen in un-infected volunteers may indicate that these individuals have had an exposure with the SARS-CoV-2 virus and remained asymptomatic indicating the true burden of disease in population. Positive IgG responses in pre-pandemic cases indicate cross-reactivity possibly against other coronaviruses which may provide immunity in the population

**Keywords:** Spike, Receptor binding domain, SARS-CoV-2, IgG

### 1.23

#### **CHANGING SARS-COV-2 VARIANTS IN KARACHI, PAKISTAN FROM ALPHA TO DELTA THROUGH COVID-19 WAVES THREE AND FOUR**

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**Background:** We investigated the presence of SARS-CoV-2 variants of concern (VoC) in Karachi, Pakistan between April and July 2021 in specimens received at the Aga Khan University Clinical Laboratories.

**Study Design and Method:** VoC were identified using a PCR based approach targeting lineage specific mutation.

**Results:** Of the 710 positive clinical isolates tested, around 63% comprised of were VoC comprising; Amongst the VoC detected; 36% were Alpha, 37% were Beta, 7% were Gamma and 21% were Delta variants. Although, Alpha variants remained the majority whilst, in the month of July the Delta strains increased to 43% of cases in July. Thirty-six per cent of all cases were admitted COVID-19 in-patient samples. Of the in-patient cases, 41% were Alpha, 28% were Beta, 8% were Gamma and 24% were Delta variants.

**Conclusion:** Overall, we report an increase of Delta variants in Karachi over the past two months which is concordant with the currently observed exacerbation in COVID-19 morbidity and mortality.

**Keywords:** SARS CoV2

### 1.25

#### **FREQUENCY OF SEVERITY OF EMERGING VIRUSES IN PAKISTAN: A CROSS-SECTIONAL STUDY**

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**Background:** To respond to global pandemics, United World of antiviral research (UWARN) consortium initiated multi-center clinical cohorts to characterize new emerging viruses and their pathogenesis. Pakistan has a unique geographic position with porous borders of Iran and Afghanistan, with continuous influx of refugees, therefore surveillance for new viruses becomes significant. UWARN study aim to develop clinical cohorts of COVID-19 and Dengue in in-patients and out-patients population ages between 1-75 yrs.

**Study Design and Method:** In a cross-sectional observational study, we examined the trend of COVID-19 and Dengue severity in patients aged 1-75 years, who visited the outpatient clinics or were admitted in Aga Khan University Hospital, during the period of March till October 2021.

**Results:** Out of 129 COVID-19 patients, male were 84 (65%) and the overall mean age was  $55.0 \pm 15.5$  years. Approximately, 46 (35.7%) patients had critical COVID-19 [as per World Health Organization (WHO) COVID-19 classification], 37 (28.7%) suffered from severe and 44 (34.1%) with non-severe infection.

The mean age observed in 50 Dengue infected patients was  $35.6 \pm 13.9$  years, with male to female ratio of 1.6:1. We observed that according to Pan American Health Organization (in collaboration with WHO) classification (2016), 46 patients had no warning signs, 3 patients presented with warning signs and 1

patient had severe Dengue. The severity of disease was more pronounced in male gender.

**Conclusion:** These clinical cohorts are valuable for in-depth analyses of viral variants and host transcriptomics across disease spectrum with geographic association of viral variants..

**Keywords:** COVID-19, Dengue, emerging viruses.

### 1.26

#### **4 IN 1! AN INTRIGUING LESION ON THE SCALP- A CASE REPORT**

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**Background:** Nevus sebaceous or organoid nevus is a benign skin adnexal tumour of salivary gland origin, that is congenital in nature and benign in course. It is known to be associated with many other benign and malignant lesions. As it may affect treatment and a patient's clinical course therefore it is of utmost importance to thoroughly sample this lesion and have sound knowledge of its clinical associations.

**Study Design and Method:** Not applicable, case report

**Results:** Written this as heading of case description

We received a specimen of a 35 year old lady who had a lesion on her scalp since birth. For the past two years, an ulcer developed on the site of this lesion which made the patient notice it. She visited a local doctor who referred her to a specialist, plastic surgeon. The surgeon resected the lesion with clear margins and sent it to the laboratory for adequate diagnosis.

On gross examination, it was a 3 x 2 x 0.5 cm skin covered tissue piece that showed an ulcer measuring 0.7 x 0.6 cm. The tissue was entirely submitted

On microscopy this skin covered tissue piece showed four distinct lesions, fortunately, all benign. We could appreciate an organoid nevus along with syringocystadenoma papilliferum, follicular infundibulum tumour and tubular apocrine adenoma. Malignant mimicker like basal cell carcinoma was ruled out by appropriated immunohistochemical stain workup.

**Conclusion:** Knowledge of the probability of encountering other benign or malignant lesions arising within a nevus sebaceous is essential for correct diagnosis, as they might be missed due to inadequate sampling, which may adversely affect patient management and follow up.

**Keywords:** Organoid nevus, adnexal tumour, congenital.

### 1.27

#### **EFFECTIVENESS OF NANO-HYDROXYAPATITE IN REDUCING BLEACHING RELATED TOOTH SENSITIVITY: A SYSTEMATIC REVIEW & META-ANALYSIS**

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**Background:** Vital tooth bleaching is popular, conservative treatment option, easily accepted by patients for improved esthetics. This has few demerits, but managing bleaching related tooth sensitivity remains clinical challenge. Various materials reduce this outcome, of which nano-hydroxyapatite (n-HAP) showed promising long-term protective effects. The current systematic review aims to evaluate the effectiveness of n-HAP in reduction of bleaching related hypersensitivity.

**Study Design and Method:** A detailed literature search carried out on various electronic databases (CINAHL-Plus, PubMed (NLM), EBSCO Dent & Oral Science, Cochrane central register of Controlled Trials). The objective was to assess effectiveness of n-HAP compared to placebo for reduction in hypersensitivity.

Secondary outcome of color change was noted. Risk of bias was assessed using Cochrane collaboration's tool. Meta-analysis was run on primary outcome.

**Results:** Out of total 4352 articles, five randomized control trials were selected for review. One trial reported significant difference between the two groups and favored n-HAP, where as one trial reported significant number of days without sensitivity favoring n-HAP. One trial reported significant difference in color change among the groups. Two trials were at low risk of bias, however three had moderate risk of bias. Meta-analysis forest-plot showed insignificant difference in reduction of bleaching related sensitivity with n-HAP (p-value= 0.17).

**Conclusion:** Use of n-HAP is equally effective in reducing bleaching related sensitivity and affecting tooth shade. However, results of this systematic review and meta-analysis should be cautiously interpreted as limited studies were available. Increased number of good quality RCTs are required to generate robust conclusions.

**Keywords:** n-HAP, bleaching, hypersensitivity

### 1.31

#### **NEUTROPHIL MIGRATION AND POLARIZATION IN HEAD AND NECK SQUAMOUS CELL CARCINOMA**

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**Background:** The immune system can play a pivotal role in identification and clearance of tumour cells or be counterproductive and enhance tumour progression. Presence of neutrophils in solid tumours, including the sixth most common cancer globally - head and neck squamous cell carcinomas (HNSCC), is associated with poor prognosis. The NF- $\kappa$ B regulated pro-inflammatory cytokine IL-8 promotes extravasation of neutrophils into

tissue. Neutrophil migration in response to IL-8 expression by HNSCC cells and polarization of these tumour-associated neutrophils (TAN) towards either an anti-tumor (N1) or pro-tumor (N2) phenotype may play a role in HNSCC.

**Study Design and Method:** To determine the possible molecular mechanism(s) underlying TAN recruitment in HNSCC.

**Results:** CD66b+ and CD16+ neutrophils isolated from healthy adult donors were cultured for Transwell migration assay with and without conditioned media (CM) collected from HNSCC SCC-9 and Cal-27 cells in the presence or absence of human IL-8 neutralizing antibody. CM collected from SCC-9 cells at 6 hours attracts neutrophils as compared to media alone and this migration is blocked by IL-8 neutralizing antibody as determined by flow cytometry count. No significant neutrophil migration was seen in response to CM from Cal-27 cells. To determine if HNSCC cells promote polarization of recruited neutrophils to a particular phenotype, CD66b+ and CD16+ neutrophils were cultured with and without CM from HNSCC cells and stained with N1 phenotype (TNF- $\alpha$ , ICAM-1) and N2 phenotype (CCL2, CCL5) markers for examination by flow cytometry. Neutrophils co-cultured for 5 hours with CM from both SCC-9 and Cal-27 cells express ICAM-1 and TNF- $\alpha$ , but not CCL2 or CCL5.

**Conclusion:** HNSCC cells recruit neutrophils by secreting cytokines such as IL-8. These neutrophils appear to exhibit N1 phenotype, but this preliminary result needs to be validated using CM from HNSCC cells from later time points as N1 versus N2 polarization may depend on the tumour microenvironment kinetics and signaling pathways involved.

**Keywords:** Head and Neck Squamous cell carcinoma, Pro- inflammatory cytokine IL8, Tumor associated neutrophils (TAN)

### 1.32

#### **EFFECTIVENESS OF NANO-HYDROXYAPATITE IN REDUCING BLEACHING RELATED TOOTH SENSITIVITY: A SYSTEMATIC REVIEW & META-ANALYSIS**

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Aga Khan University

**Background:** Vital tooth bleaching is a popular, conservative treatment option that is easily accepted by patient for improved smile esthetics. This procedure has a few demerits, but management of bleaching related tooth sensitivity remains a challenge for clinician. Various materials have been identified to reduce this adverse outcome, of which nano-hydroxyapatite (n-HAP) showed promising long-term protective effects. This systematic review aims to evaluate the effect of n-HAP in reduction of bleaching related hypersensitivity.

**Study Design and Method:** A systematic and detailed literature search was done on various electronic databases (CINAHL Plus, PubMed (NLM), EBSCO Dent & Oral Science, Cochrane central register of Controlled Trials). The objective was to assess the effectiveness of n-HAP in comparison to placebo for reduction in hypersensitivity as primary outcome. Secondary outcome of change in color was also evaluated. Risk of bias was assessed using Cochrane collaboration's tool and studies were labelled as having high, moderate and low risk of bias. Meta-analysis on primary outcome was run using Review Manager software.

**Results:** Out of total 4352 articles, five randomized control trials were finally selected for review. One trial reported significant difference in terms of reduction in bleaching related hypersensitivity between the two groups and favored n-HAP, where as one trial reported significant number of days without sensitivity favoring n-HAP. One out of four trials report significant difference in color change among the

groups in study. Two trials were at low risk of bias, however three had moderate risk of bias. Meta-analysis forest plot showed insignificant difference in reduction of bleaching related sensitivity with n-HAP (p-value= 0.17).

**Conclusion:** The use of n-HAP is equally effective in reducing bleaching related sensitivity and affecting tooth shade. However, the results of this systematic review and meta-analysis should be cautiously interpreted as limited number of studies were available. We require more good quality RCTs to generate a robust conclusion.

**Keywords:** hypersensitivity, bleaching, hydroxyapatite

### 1.33

#### **TEACHING LAB-BASED COURSES ONLINE & REMOTE: FROM “NO WAY” TO “THIS IS EFFECTIVE!”**

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Midwifery

**Background:** The COVID-19 pandemic led to shut-down of several activities around the world . One of the worst affected domain is the closure of academic institutions that brought to halt several teaching and learning activities. The sudden closure of educational institutions forced the educationist to reorganize and use various modalities of online teaching, especially the ones that has gain popularity during COVID-19, include synchronous and asynchronous modes.

**Study Design and Method:** When designing any course an important step is to determine learning outcomes. These will inform the concepts being targeted, the teaching strategies used and the assessments developed. This strategy was used in one of the science courses (Biochemistry for nurses) of under graduates four year nursing program. To develop conceptual understanding of the topic related to the experiments, the learning resources and the requirements of the experiments were sent to the students a week

prior. The “At home” labs were a very innovative idea for the online / virtual science sessions and required proper internet connectivity

**Results:** Our initiative to the synchronized online lab is well received by our nursing students. Although we faced some challenges like resources, technical issues methodology barriers, but still Bravo as we met our learning outcomes.

**Conclusion:** This innovation has played a vital role in engaging the students. But It is also a fact that the higher levels of thinking (e.g. synthesis and analysis) do not take place during online learning alone, that is why hands on is also very important. This would include experimentation with real equipment., to assist in knowledge construction and to provide students with the expertise wherever possible.

**Keywords:** online labs, Student engagement, nursing education

### 1.34

#### **ASSOCIATION OF ANDROGEN RECEPTOR GENE POLYMORPHISM WITH SPERM PARAMETERS OF INFERTILE MALES: A CROSS-SECTIONAL STUDY IN KARACHI**

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Urology, Australian Concept Infertility Medical  
Centre

**Background:** Infertility is a serious problem over the globe, and it can be defined as the inability of a sexually active, non-contracepting couple to attain spontaneous pregnancy over the period of one year one year. The expansion of CAG & GGC repeats in androgen receptor (AR)

gene Ensembl number; ENSG00000169083 may leads to reduced fertility.

**Study Design and Method:** This study was a cross sectional study conducted at Aga Khan University, Karachi Pakistan in collaboration Australian concept of Infertility Medical Centre (ACIMC). A total of 376 males were recruited, out of which group A (N=241) and group B (N=135) comprised of subjects with normal and altered sperm parameters respectively from 18 to 60 years. Numbers of CAG and GGC repeats were determined by using PCR amplification and sequence analysis using Molecular Evolutionary Genetic Analysis (MEGA) software version 6.0. Statistical analysis was done using SPSS version 20 and p-value of < 0.05 were considered significant.

**Results:** The mean androgen receptor gene CAG repeats were significantly longer in males with altered sperm parameters as compared to male subjects with normal sperm parameters ( $p < 0.001$ ). There was no significant difference found for GGC repeats for subjects with altered sperm parameters.

**Conclusion:** Longer CAG length corresponded to greater severity of spermatogenic defect and may lead to subfertility recommendations. GGC polymorphisms had no impact on sperm parameters in infertile males.

**Keywords:** Androgen receptor, trinucleotide repeats, male infertility

### 1.35

#### **OXIDATIVE STRESS AND MALE INFERTILITY**

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**Background:** Oxidative stress is one of the main reasons behind idiopathic male infertility.

Defective sperms are one of the major indicators for male Infertility. 4-Hydroxynonenal (4-HNE), and 3-Nitrotyrosine (3-NT) are the markers helpful in evaluating male infertility. Both oxidative stress markers contribute to altered sperm function and infertility.

**Study Design and Method:** Based on Cooper et al reference for sperm parameters, the cross sectional study was conducted on eighty eight male subjects in two groups with normal (n=44) and altered sperm parameters(n=44) respectively ( ERC No.2019-5205-14735) of serum samples using ELISA. The serum concentrations of biochemical markers i.e 4-HNE & 3-NT were analyzed by measuring their optical densities.

**Results:** 4-HNE was observed to be higher in the male subjects with altered sperm parameters as compared to the male subjects with normal sperm parameters whereas 3-NT was not found to be significant.

**Conclusion:** It was partially concluded from the study that oxidative stress is a cause for male infertility as one of the oxidative stress marker was found to be associated with male infertility.

**Keywords:** 4-Hydroxynonenal, 3-Nitrotyrosine, Male Infertility, Oxidative stress

### 1.36

#### **RELATIONSHIP OF VD DEFICIENCY, VDR POLYMORPHISMS AND INFERTILITY IN FEMALE SUBJECTS**

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**Background:** Infertility is a serious problem over the globe, and it can be defined as the inability of a sexually active, non-contracepting couple to attain spontaneous pregnancy over the period of one year one year. It's a growing global load effecting 23% of married couples in reproductive age group in Pakistan and it is



increasing at the rate of 4% annually. Vitamin D Receptor (VDR) has 2 functional domains, the N terminal and C terminal. N-terminal recognizes and binds with DNA, whereas C-terminal binds Vitamin D (VD).

**Objective:** In the present study our objective was to study VDR polymorphism in infertile females and find its association with the VD deficiency.

**Study Design and Method:** This was a cross sectional study and was conducted on 80 female subjects in two groups of fertile (n=40) and infertile females (n=40) respectively (AKU-ERC 2019-0314-5627). Vitamin D; 25-hydroxyvitamin levels in fertile and infertile female population was analyzed by Enzyme linked immunosorbent assay kit (ab213966). Genotyping of VDR was performed using the SNP genotyping assay, direct DNA sequencing methods. measured by ELISA to detect Vitamin deficiency. Statistical Analysis was performed by using Statistical Package for Social Sciences (SPSS) software, version 20 by performing descriptive statistics and Mann-Whitney U test. Pearson Chi-square test. A p-value of < 0.05 will be considered as statistically significant. The analysis of sequences will be done by using Molecular Evolutionary Genetics Analysis (MEGA) software version 6.0.

**Results:** An analysis of demographics showed that the 40 infertile female subjects had significantly higher age, weight as compared to fertile females (n=40) (p < 0.05). Vitamin D was significantly lower in infertile females as compared to fertile females (p<0.001). Our findings show that the genotype rs2228570 (T/C) and rs731236 (T/C) in exon 9 were significantly associated with infertility in females.

**Conclusion:** VDR Polymorphism have association with vitamin D deficiency in the VDR genes and it may be linked to infertility in females, a concept supported by their proven expression and possible roles in the female reproductive system.

**Keywords:** Vitamin D Deficiency, Female Infertility, Vitamin D Receptor polymorphisms

1.37

**RAISED SERUM GALACTOMANNAN LEVELS AS A PREDICTOR OF MORTALITY IN COVID-19-ASSOCIATED PULMONARY ASPERGILLOSIS PATIENTS FROM A TERTIARY CARE HOSPITAL IN PAKISTAN.**

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Department of Pathology & Laboratory Medicine, Aga Khan University

**Background:** The objective of this study was to evaluate role of raised serum galactomannan levels as a predictor of mortality in COVID-19 associated pulmonary aspergillosis (CAPA) patients.

**Study Design and Method:** We conducted a retrospective observational study in COVID-19 patients admitted at the Aga Khan University Hospital from March 2020 to April 2021. Patients were characterized as CAPA cases using the updated EORTC/MSG (2020) and ECMM/ISHAM (2020) criteria. Information regarding age, gender, co-morbidities, disease severity, galactomannan index (GMI), administration of steroids and tocilizumab, duration of stay in hospital and intensive care unit, administration of steroids and tocilizumab, patient outcome viz. discharge or death, and duration of follow up, was obtained from the patient care inquiry database. Statistical significance of the collected data was assessed using the t-test and Kruskal-Wallis H test.

**Results:** A total of 75 patients with CAPA were identified. Of these 93.3% (n=70) were characterized as severe and 6.7% (n=5) as moderate COVID. Overall mortality was seen in 68% (n=51) CAPA patients. Serum GMI >0.5 was observed in 61.3% (n=46) CAPA patients. Of the 51 expired patients, 35 (68.6%) had positive GM and 16 (31.4%) had negative GM values (p=0.062). Furthermore, mortality was

seen in 25 patients with diabetes mellitus ( $p=0.28$ ), 13 with chronic kidney disease ( $p=0.21$ ), 4 with lung disease ( $p=0.52$ ) and 1 with liver disease ( $p=0.82$ ). Severity of COVID and increased length of ICU stay were significantly associated with mortality ( $p=0.025$  &  $p=0.036$ ). Furthermore, mortality was seen in 43 patients who received steroid therapy and 16 patients who were given tocilizumab ( $p=0.13$  &  $p=0.6$ ).

**Conclusion:** In our cohort of CAPA patients, increased mortality was seen in patients with raised GM value although this association did not reach statistical significance. Increased length of ICU stay and severity of disease were significantly associated with mortality in our patients. Further studies are required on a large and multi-institutional scale to fully assess the role of GM in predicting mortality in CAPA patients.

**Keywords:** COVID; CAPA; Galactomannan; mortality

# Clinical Science

## 2.4

### **NEW-ONSET AFEBRILE SEIZURES: ETIOLOGY, AND ITS CLINICAL OUTCOME IN PEDIATRIC PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT OF A TERTIARY CARE HOSPITAL**

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Muhammad Mustahsan, Dr Murk Sheikh, Dr  
Emad Uddin Siddiqui*

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Khan University*

**Background:** Seizures are one of the common causes for hospital admissions in children with significant mortality and morbidity. Seizure, a transient occurrence of signs and/or symptoms resulting from abnormal excessive or synchronous neuronal activity in the brain. Proper diagnosis, classification, and management are always challenging in a child with seizure. To determine the etiology, management profile and clinical disposition of pediatric patients who presented with new onset afebrile seizures to the emergency department of tertiary care hospital.

**Study Design and Method:** Descriptive study.

**Study Setting:** Study was conducted at the Emergency Department of the Aga Khan University Hospital, Karachi.

**Duration Of Study:** Six months after approval of synopsis from 29-03-21 till 29-09-21.

**Subjects and methods:** Data was prospectively collected from patients after taking a verbal consent. 169 patients who met the diagnostic criteria were included. Quantitative data was presented as simple descriptive statistics giving mean and standard deviation and qualitative variables was presented as frequency and percentages. Effect modifiers were controlled through stratification to see the effect of these on the outcome variable. Post stratification chi square test was applied taking p-value of  $\leq 0.05$  as significant.

**Results:** A total of 169 patients who met the inclusion and exclusion criteria were included in this study. Mean age, duration of seizure and GCS in our study was  $3.72 \pm 3.24$  minutes and  $12.41 \pm 2.51$ . 84 (49.7%) and 85 (50.3%) were male and female. Out of 169 patients, 04 (2.4%) and 165 (97.6%) had and did not have in-hospital mortality. 29 (17.2%), 16 (9.5%), 63 (37.3%) and 12 (7.1%) had hypocalcemia, hypoglycemia, hyponatremia, hypernatremia.

**Conclusion:** Most of the seizures witnessed were of generalized tonic clonic type followed by simple partial and myoclonic seizures in our pediatric population. Hyponatremia was the commonest cause. It is important to delineate a detailed description of the clinical seizure for the correct diagnosis, treatment, and prognosis.

**Keywords:** Seizures, epilepsy, focal, generalized, febrile seizure, seizure disorder, hypocalcemia, hypoglycemia, hyponatremia, hypernatremia and mortality.

## 2.10

### **LATERAL ABDOMINAL WALL HEMATOMA MIMICKING SEPTIC SHOCK IN ED...A DIAGNOSTIC CHALLENGE**

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University*

**Background:** Abdominal wall hematoma is an uncommon entity seen in emergency department (ED) can mimic other causes of acute abdomen.

**Study Design and Method:** We present a case of 65 year lady presented with abdominal pain and swelling, followed by fall. We faced diagnostic challenge in terms of diagnostic aid, but timely use of advanced aid helped in diagnosis and management.

**Results:** Patient identified to have abdominal wall swelling was secondary to hematoma and managed accordingly.

**Conclusion:** Considering the rare presentation of disease, it should be in differential. Early

recognition, correct use of diagnostic aid and initiation of targeted therapy could save the morbidity and mortality

**Keywords:** Abdominal wall hematoma, mimicking septic shock, emergency department

## 2.14

### **MULTISYSTEM INFLAMMATORY SYNDROME IN ADULTS**

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**Background:** Upon the discovery of multisystem inflammatory syndrome associated with the SARS-CoV-2 in children, similar cases have emerged among adults as well. We conducted a systematic review of all cases reported in adults to date to analyze the epidemiology and clinical course of multisystem inflammatory syndrome in adults (MIS-A).

**Study Design and Method:** A comprehensive search was conducted among several databases for cases reporting MIS-A from 1st December 2019 to 30th October 2021. The case definition included five criteria: 1) aged > 21 years, 2) currently, or have been tested positive for the virus currently or in the previous twelve weeks, 3) systemic manifestations on one or more extrapulmonary organs, 4) laboratory evidence of marked inflammation, and 5) absence of severe respiratory illness. Screening of the articles, data extraction and risk of bias assessment was conducted by two independent authors.

**Results:** Seventy studies were assessed for full-text eligibility out of which thirty-eight studies were eventually included. Total of 56 patients were analyzed with mean age of population 32.0 ± 9.9-year-old. The most common symptoms reported were fever (87.5%, 95% CI: 76.0%-93.9%), cardio-vascular (58.9%, 95% CI:

45.7%-71.0%), diarrhea (48.2%, 95% CI: 35.5%-61.1%) and ventricular tachycardia (58.9%, 95% CI: 45.7%-71.0%). The most common inflammatory marker was elevated C-Reactive protein (78.6%, 95% CI: 65.9%-87.4%). Abnormal echocardiogram was the most common imaging test result while steroids were the most commonly administered treatment. Clinical management showed increased risk of an ICU admission (RR:60.55, 95% CI: 3.84-955.16) in severe cases compared to non-severe cases. The risk of death as a potential outcome stood at 1.67 times that in non-severe cases.

**Conclusion:** As the largest systematic review on MIS-A to date, our findings will help clinicians identify the typical presenting symptoms of this syndrome and optimal treatment strategies. Given the clinical and public implications of MIS-A, further research is required to understand the correlation between COVID-19 and MIS-A in order to provide a more definitive treatment for those with it.

**Keywords:** COVID-19, Multisystem Inflammatory Syndrome, Adults

## 2.15

### **PNEUMOPERITONEUM FOLLOWING CARDIOPULMONARY RESUSCITATION: AN UNUSUAL CASE OF SEALED GASTRIC PERFORATION**

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**Background:** High quality cardiopulmonary resuscitation (CPR) is the foundation of resuscitation in the cardiac arrest. Pneumoperitoneum due to gastric perforation is a rare surgical complication of CPR that can cause significant morbidity and death if left untreated.

**Study Design and Method:** We report a case of sealed perforation in a 51 year old male patient following initial esophageal intubation and cardiopulmonary resuscitation, who was treated

with an urgent but non-diagnostic exploratory laparotomy despite substantial evidence for a surgical pneumo-peritoneum.

**Results:** The patient was extubated after two days. The swallow esophagogram showed no evidence of contrast leakage from the esophagus, stomach or duodenum with mildly prominent visualized jejunal loops and moderate gastro-esophageal reflux. The patient made an uneventful recovery and was sent home six days later. He was advised to follow up in the cardiology and general surgery clinic.

**Conclusion:** In conclusion, while CPR and accidental esophageal intubations are common in the emergency setting, sealed perforation as a cause of pneumoperitoneum after cardiopulmonary resuscitation is uncommon but a serious and potentially life threatening event that must be treated immediately with prompt laparotomy to improve outcomes. As a result, early endotracheal intubation, avoiding esophageal intubation and prompt insertion of an orogastric tube may lower the risk of gastric perforation.

**Keywords:** Pneumoperitoneum, Cardiopulmonary, Gastric Perforation, Emergency Medicine

## 2.16

### **THROMBOSIS WITH THROMBOCYTOPENIA SYNDROME AFTER ADMINISTRATION OF AZD1222 OR AD26.COVS.2 VACCINE FOR COVID- 19: A SYSTEMATIC REVIEW**

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**Background:** Cases of thrombosis with thrombocytopenia syndrome (TTS) have been reported following vaccination with AZD1222 or Ad26.COVS.2. This review aimed to explore the pathophysiology, epidemiology, diagnosis, management, and prognosis of TTS.

**Study Design and Method:** A systematic review was conducted to identify evidence on TTS till 24th May 2021. Case reports and series reporting patient-level data were included. Descriptive statistics were reported and compared across patients with different sexes, age groups, vaccines, types of thrombosis, and outcomes.

**Results:** Twenty-eight studies reporting 110 cases were included from 9 countries. Patients were predominantly females with a median age of 46.50 (27) years. AZD1222 was administered to 96 patients (87.3%). TTS onset occurred in a median of 9 (4) days after vaccination. Venous thrombosis was most common (65.1%). Compared to females, male patients were more likely to have arterial thrombosis but less likely to have venous or combined thrombosis ( $p=0.027$ ). Most patients developed cerebral venous sinus thrombosis (CVST; 71.8%). CVST was significantly more common in female vs male patients ( $p=0.043$ ) and in patients aged <45 years vs  $\geq 45$  years ( $p=0.013$ ). The mortality rate was 44.4%, and patients with suspected TTS, platelet transfusions, and intensive care unit admission were more likely to expire than recover.

**Conclusion:** This review helps to understand the pathophysiology of TTS while also recommending diagnostic and management approaches to improve prognosis in patients.

**Keywords:** COVID-19 vaccines, ChAdOx1 COVID-19 vaccine, Ad26.COVS.2 vaccine, thrombosis with thrombocytopenia syndrome, vaccine-induced immune thrombotic thrombocytopenia

## 2.17

### **UTILITY OF GCS IN PREDICTING POSITIVE CT HEAD FINDINGS IN CHILDREN WITH ISOLATED HEAD INJURY: AN EMERGENCY DEPARTMENT PERSPECTIVE**

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**Background:** Head injury is the leading cause of death and disability in the pediatric population in the western world. Level of consciousness, assessed by the Glasgow Coma Scale, is an important factor when considering initial treatment and long-term complications. Computed tomography (CT) scan is the investigation of choice for identification of intracranial injuries in patients with a head injury.

**Study Design and Method:** This study was a retrospective chart review of patients less than 16 years of age presenting with a head injury to the emergency department of the Aga Khan University Hospital in Karachi, Pakistan from January 2010 to December 2012. Information related to patients' demographics, presenting complaints, vital signs, examination findings, Glasgow Coma Scale on arrival, CT head findings, treatment received, length of stay and emergency department disposition were collected on a predesigned questionnaire.

**Results:** A total of 233 pediatric patients with head injuries were seen during the study period with a male-to-female ratio of 3:1. A majority of participants who were less than 5 years old (110, 47%) had history of fall, and 73 (31%) participants who were 10 years or older mainly suffered from road traffic injuries. Vomiting was the most common presenting complaint, seen in 143 (60%) cases, followed by loss of consciousness in 124 (55%) cases. Mild head

injury occurred in 114 (49%) cases; moderate head injury in 67 (29%); and severe head injury in 52 (22%). Fifty percent of CT scans were positive for skull fracture, cerebral edema, and intracranial bleed. Hypertonic saline was used in 113 (48%) cases and endotracheal tube was placed in 37 (16%) cases. 205 (87%) cases were admitted for observation, and 15 (6.4%) required neurosurgical intervention. The length of emergency department stay was  $7.88 \pm 7.77$  with a range of 0-59 hours.

**Conclusion:** In our study, fall and RTA were the most common mechanisms of head injury. Around two-thirds of head injury patients with GCS of moderate-to-severe had positive CT findings. Risk factor modifications for child protection both at home as well as outside the home can help to prevent fall and RTA respectively.

**Keywords:** pediatric head injury, GCS, CT head, fall, RTA, road traffic accident

## 2.18

### **SEVERITY OF ACUTE VIRAL HEPATITIS IN PATIENTS WITH GLUCOSE-6-PHOSPHATE DEHYDROGENASE DEFICIENCY: A CASE CONTROL STUDY.**

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*Department of Medicine, Section of Gastroenterology, Aga Khan University*

**Background:** Viral hepatitis is an important cause of morbidity and mortality globally. Glucose-6-phosphate dehydrogenase (G6PD) is an enzyme that protects the red blood cells against the oxidative damage. G6PD deficiency affects more than 400 million people globally. The purpose of our study is to compare outcomes and parameters of severity in patients with acute viral hepatitis vs. patients with coexisting G6PD deficiency and to ascertain whether G6PD deficiency influences the prognosis and outcome of the disease.

**Study Design and Method:** This was a retrospective case control study. A total of 9

patients with acute viral hepatitis and G6PD deficiency were compared with 18 matched controls. The independent sample t-test was employed and the level of significance was set at a p-value < 0.05.

**Results:** Mean age in G6PD and acute viral hepatitis only group is 28.89 ( $\pm 6.7$ ) and 28.11 ( $\pm 8.6$ ) respectively. Hepatitis E is the most common virus identified in both groups. One patient from the G6PD deficiency patients presented with acute liver failure due to hepatitis E and was managed conservatively. Acute kidney injury is also found to be common in patients with G6PD deficiency. Hemolysis is found in 44.4% of patients with G6PD deficiency and none in acute viral hepatitis only group. The hemoglobin levels are lower in patients with G6PD deficiency but not statically significant. However, total bilirubin (45.3 ( $\pm 14.9$ ) vs 6.03 ( $\pm 3.64$ ) p < 0.05), direct bilirubin (34.3 ( $\pm 9.79$ ) vs 5.14 ( $\pm 3.14$ ) p < 0.05), indirect bilirubin, serum creatinine (1.37 ( $\pm 0.87$ ) vs 0.84 ( $\pm 0.24$ ) p < 0.05), prothrombin time, INR (1.73 ( $\pm 0.80$ ) vs 1.22 ( $\pm 0.25$ ) p < 0.05) and length of hospital stay is significantly higher in patients of acute viral hepatitis with G6PD deficiency. Data was collected from age and gender matched 18 patients with G6PD deficiency alone from the same study period presenting in hospital with various reasons to identify the trend of all the parameters in them. The mean hemoglobin levels were 12.4 ( $\pm 8.6$ ), platelets 256 ( $\pm 116.0$ ), creatinine 0.86 ( $\pm 0.24$ ), total bilirubin 2.0 ( $\pm 3.0$ ), direct bilirubin 0.8 ( $\pm 0.8$ ), indirect bilirubin 1.25 ( $\pm 2.43$ ), ALT 68.6 ( $\pm 62.9$ ), AST 69.3 ( $\pm 109.7$ ), prothrombin time 11.4 ( $\pm 1.2$ ) and INR 1.0 ( $\pm 0.12$ ).

**Conclusion:** Based on our observations and the re-enforcing trend seen in our study to those it follows, we conclude that acute hepatitis in patients suffering from G6PD deficiency have a more severe initial presentation, hyperbilirubinemia and a protracted course complicated by hemolysis, Acute liver failure and AKI.

**Keywords:** Acute viral hepatitis. G6PD deficiency, case control study

## 2.19

### **SERUM ALBUMIN LEVELS ASSOCIATION WITH AGGRESSIVENESS OF HEPATOCELLULAR CARCINOMA: A RESEARCH ARTICLE**

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**Background:** Hepatocellular carcinoma (HCC) is the major cause of morbidity and mortality in patients with chronic liver disease. Studies have shown a correlation of low serum albumin levels with the aggressiveness of HCC and a direct effect of albumin on tumor cell suppression. The aim of the study is to determine the distribution of serum albumin and tumor parameters and to identify if any correlation exists between them

**Study Design and Method:** This is a retrospective cross-sectional review with data collected at a single tertiary care center at Section of Gastroenterology, Department of Medicine, Aga Khan University Hospital Karachi, Pakistan.

**Results:** 380 patients are included from 2015 to 2019. Hypoalbuminemia is <3.5g/dl. Tumor is large if >5 cm. Alpha-fetoprotein cutoff is 100ng/dl. PVT is detected in CT scan. 83.7% are hypoalbuminemic and mean albumin levels are 2.79g/dl. There is insignificant relationship at 5% significance level between serum albumin and AFP ((X<sup>2</sup>)= 1.135,df= 1,p=0.287), PVT((X<sup>2</sup>)=2.329 ,df=1 ,p=0.127), size of tumor ((X<sup>2</sup>)=0.107,df=1 ,p=0.743) and number of metastases ((X<sup>2</sup>)=2.154 ,df=1 ,p=0.142) 380 patients are included from 2015 to 2019. Hypoalbuminemia is <3.5g/dl. Tumor is large if >5 cm. Alpha-fetoprotein cutoff is 100ng/dl. PVT is detected in CT scan. 83.7% are hypoalbuminemic and mean albumin levels are 2.79g/dl. There is insignificant relationship at 5% significance level between serum albumin and AFP ((X<sup>2</sup>)=



1.135,df= 1,p=0.287), PVT((X<sup>2</sup>)=2.329 ,df=1 ,p=0.127), size of tumor ((X<sup>2</sup>)=0.107,df=1 ,p=0.743) and number [ (X<sup>2</sup>)=2.154 ,df=1 ,p=0.142)

**Conclusion:** We have concluded that majority of patients in our cohort have low serum albumin levels and no significant association exists between low albumin levels and parameters of HCC progression.

**Keywords:** Albumin, HCC, AFP

## 2.20

### **THE IMPACT OF COVID19 ON NUMBERS OF DEAD ON ARRIVAL (DOA) DURING COVID-19 PANDEMIC. A RETROSPECTIVE CHART REVIEW**

*Dr Fareed Ahmed*

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**Background:** There was dramatic a fall in number of patients attending ED in 2020, compared with similar periods in 2019 or 2018, during the COVID-19 pandemic.(4) The pandemic had a major impact, affecting almost every country globally.(5) Due to the contagious nature of COVID-19, patients were required to isolate themselves, and health care providers have delayed appointments or moved large portions of their practice to virtual visits and telemedicine for those requiring more urgent follow-up.(6) There was a delay in seeking healthcare facility in the first & second wave of covid19 where ED was at <10% & <50% respectively, of its total capacity.

Rates of admission in intensive care unit increased suggesting adverse effects of potential delay to presentation.(7) Given that COVID-19 is a fluctuating circumstance, many elective surgeries have continued to be delayed as COVID-19 cases increase. Despite these reductions in outpatient service and elective surgeries, patients would presumably still require inpatient management for their acute and

chronic medical conditions requiring admission through the ED(1, 8).

As in this pandemic era the hospitals are getting out of capacity for managing patients with suspected covid19 and patient's family have to roam around in the city to find an accommodation for their patients in a LMIC country like Pakistan. The delay in getting timely medical aid can also be a cause of DOA along with the disease itself and the factors mentioned above.

This pandemic is having a high impact on our lives and the death toll is increasing day by day which warrants a study to identify the gap in information before the arrival of covid19 and during this outbreak which would help us planning our health resources in right direction. The rationale of our study is to identify whether this delay in seeking medical help timely has led to an increase in number of dead on arrivals (DOAs). So in this study we will be comparing the number of DOA's before and during the covid19 pandemic.

**Study Design and Method:** After approval from departmental and institutional ethical review committee. To see the impact of covid-19 pandemic on Death on arrival (DOA) patients, we conducted a retrospective chart review of all DOA files and their electronic records from the period of January 2019 till December 2020 and compared the difference in numbers of Death on arrival (DOA) presenting to emergency department before and during this COVID-19 pandemic and also to estimate how many DOAs turn out test positive with COVID-19.

Information was collected as per structured questionnaire which included variables such as, age, gender, time of arrival in ED, witnessed or unwitnessed collapse, underlying disease status, comorbid condition of patient, functional class of patient, any covid related symptoms and exposure to covid positive patient. Study was carried out at a private tertiary care hospital of Karachi, Aga University Hospital.

**Results:** A total of six fifty-three death on arrival (DOA) cases reported in the period of 2019 till 2020 out of which 312 were recorded in before pandemic period while 341 were recorded in after pandemic era. The mean age of deceased was 57.51 ( $\pm$  24.12) with majority fall in age group of sixty to eighty years. Mostly were male in both the groups, while 354 [54.2%] of cases were witnessed collapse overall (table:1). The topmost three comorbid conditions were hypertension, diabetes, and ischemic heart disease (IHD) in both the group with IHD being more significant before pandemic period (table:2).

Table 3 shows comparison of the CPR status performed on DOA before and during pandemic period. In about 179(27.4%) cases CPR was given with a significant difference compared to during pandemic period where CPR rate was recorded less. There was also significant reduction in total duration of CPR performed during covid period compared to CPR performed before pandemic period, although there was no such difference in shock received by patients during code.

In table 4, out of 341 cases reported during pandemic in only 38 number of cases covid swab was send out of which five turn out positive. The questionnaire also includes few questions about covid related symptoms, as if a deceased person had any of these symptoms during recent days or they came across any person who is covid positive. In majority of cases there was no covid related symptoms reported and in only two cases they reported exposure to covid positive person before their expiry.

Table 5 shows comparison of death on arrivals before and during covid pandemic period. Keeping January 2020 and February 2020 as a grey zone during that period covid pandemic was not officially announced. There is gradual increase in mortality rate from start of year 2020 and maximum it touches to 1.7% during the month of June when covid first wave was

disastrous in our region. Later in succeeding months the numbers mortality rate was remain high during covid-19 pandemic period.

**Conclusion:** The study shows significant increase in DOA during peak months of covid-19 compared to previous year along with significant reduction in ER visits by patients. We also noticed significant reduction of CPR received by DOA with overall reduction in duration of CPR performed on DOA during this pandemic period.

**Keywords:** Death on Arrival, Emergency Department, Covid-19

## 2.21

### STUMP APPENDICITIS

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**Background:** Abdominal pain is one of the most common complaints for which patients present to ER, and of the differentials of abdomen pain, appendicitis is the most common surgical disorder.(1) Appendicitis is one the frequent complaints for which patients visit ER.

They usually present with classic features of lower abdominal pain, fever and anorexia (2). Diagnosis is usually suggestive from the typical history and classic pattern of the pain, confirmed with the abdominal imaging. These patients are typically planned for appendectomy, which is one of the most common surgical procedures performed in children and adults(2). Post-operative short term complications include bleed, wound infection and intra-abdominal abscess and delayed complications can include nerve injury, adhesions hernias and small bowel obstruction. Stump appendicitis (SA) is one of the rare long term complications that is underreported in literature with the incidence of 1 in 50.000 cases.(4)

Stump appendicitis, also known as remnant appendicitis, it is the inflammation that develops

in the remaining part of the appendix after an unintentional incomplete appendectomy(5) and gives a clinical presentation similar to that of an acute appendicitis ranging from a few days to few years after the procedure. Stump appendicitis is quite under recognized partly due to clinicians' and radiologists' lack of acquaintance with this entity. (6) Therefore, given a clear history of appendectomy, the emergency physician usually rules out the differential of Stump Appendicitis which can lead to its severe complications like perforation or peritonitis. →We write this case report with the aim to raise awareness of this rare but clinically significant diagnosis.

**Study Design and Method:** Case Report

**Results:**

**Conclusion:** Stump appendicitis is a rare and dangerous complication post appendectomy. Being unfamiliar with this entity, it can be tough to diagnose it. Our case report is aimed to raise awareness for it as a differential for right lower quadrant abdomen pain in any patient, despite a prior history of appendectomy or a surgical scar seen.

**Keywords:** 1. Telephonic -CPR/  
Pakistan/Trauma/Emergency/ Bystander  
CPR/OHCA/EMS

2.22

**FEASIBILITY OF TELEPHONE-CPR (T-CPR) PRACTICE IN KARACHI PAKISTAN? A RESOURCE LIMITED COUNTRY.**

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Emergency Medicine, Aga Khan University*

**Background:** T-CPR has been shown to dramatically increase bystander CPR rates and is associated with improved patient survival.

**Study Design and Method:** A cross-sectional study was conducted from January – December 2018 at Aman foundation telehealth department. Data was collected audio taped phone calls of

patients required assistance and called for Aman ambulance assistance and on whom Aman tele health dispatcher recognized need for CPR and provided instructions. Data was collected using a structured questionnaire on demographic, status of patient, time for CPR instruction given, time of ambulance arrival and barriers in performing CPR was collected.

**Results:** Majority of the patients were males (n=278; 57.8%) and most had witnessed cardiac arrest (n=470; 97.7%) at home (n=430; 89.3%). The mean time to recognize need for CPR by a telecommunicator was 4:59 ± 1:59(minutes), while mean time to start CPR instruction by bystander was 5:28 ± 2:24(min). Mean time to start chest compression was 6:04 ± 1:52(min.) (see table: 1).

**Conclusion:** Our results shows high acceptability of T-CPR by bystanders. We also found considerable delays in recognition of cardiac arrest and initiation of CPR by dispatchers. Further training of dispatchers could reduce these delays.

**Keywords:** Telephonic -CPR/  
Pakistan/Trauma/Emergency/ Bystander  
CPR/OHCA/EMS

2.23

**ANALYSIS OF SMILE ESTHETICS IN SKELETAL CLASS II SUBJECTS TREATED WITH MAXILLARY PREMOLAR EXTRACTION AND NON-EXTRACTION MECHANOTHERAPY – A CROSS-SECTIONAL STUDY**

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**Background:** This study aimed to compare mean smile esthetic ratings provided by the raters in maxillary premolar extraction (PME) and non-extraction treatment (NEF) group; and to evaluate the differences in the perception of smile esthetics by three panels of raters

including laypersons, general dentists and orthodontists.

**Study Design and Method:** A cross-sectional study was conducted on a sample of 36 skeletal class II subjects equally divided into PME and NEF groups. Nine smile variables were measured on pre-and post-treatment frontal close-up smile photographs. Ten laypersons, general dentists and orthodontists evaluated those photographs on a visual analogue scale. An Independent t-test was applied to compare the post-treatment smile variables and scores between PME and NEF. One-way repeated measures ANOVA was used to compare smile esthetics scores among the raters. Simple and multiple linear regression analyses were applied for evaluation of the factors associated with an esthetic smile.

**Results:** On comparison of post-treatment photographs between the groups, a statistically significant difference was found in the values of arch form index (AFI) ( $p = 0.01$ ) and overjet ( $p = 0.006$ ). A statistically significant difference was observed in the perception of smile esthetics among the raters ( $p < 0.001$ ). Simple linear regression analysis showed a negative association of PME and pre-treatment AFI with improvement in smile scores. Multiple linear regression analysis showed a positive association of canine: lateral incisor ratio ( $p < 0.001$ ) and smile arc ratio ( $p < 0.01$ ) with mean esthetic smile scores.

**Conclusion:** Laypersons and dentists rated the PME group superior in smile esthetics. Whereas, each panel of raters rated the NEF group superior in terms of improvement in smile esthetics. An increase in smile arc ratio and canine: lateral incisor ratio resulted in better smile esthetics.

**Keywords:** skeletal class II, smile, orthodontic appliances, malocclusion

## 2.25

### **BARRIERS TO SURGICAL OUTCOMES RESEARCH IN LOW- AND MIDDLE-INCOME COUNTRIES**

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**Background:** Although low-income (LIC) and lower-middle-income countries (LMIC) are disproportionately affected by surgical disease, participation in research on surgical outcomes is lacking. Majority of the clinical surgical research conducted is in High-income countries (HICs), and it is difficult to translate results from such studies to LMICs. We could not find any study assessing the obstacles to conducting surgical outcomes research in LMICs. Therefore, the aim of this scoping review is to provide a comprehensive description of the barriers to conducting surgical research in resource-limited settings

**Study Design and Method:** We performed a review of literature using PubMed, Embase, Scopus and GoogleScholar. Keywords included 'surgery', 'outcomes research', 'registries', 'barriers', and synonymous MESH derivatives. Original research and reviews on barriers to surgical research in LICs and LMICs only published between 1990-2020 were included. Variables and barriers of interest were categorized as per the Performance of Routine Information System Management (PRISM) framework. Barriers were divided into 3 themes; Theme 1: Technical, Theme 2: Organizational and Theme 3: Behavioral.

**Results:** Our literature review revealed 12 articles out of which 10 focused specifically on the creation, success and obstacles faced during implementation of trauma registries. Within Theme 1, data showed that the main barriers

were related to 'IT complexity' including difficulty in obtaining and using the required technology for data entry. Within Theme 2, the biggest challenges were 'Availability of resources' and 'Finances' including funding constraints, lack of human resource, faulty power supply, inadequate technology. Within Theme 3, the significant obstacles were 'Data quality checking skills', namely inconsistent documentation, underreporting of adverse events and data redundancy, and 'Motivation' including low levels of team commitment, job constraints and excessive burden ultimately leading to decreased compliance and attenuation in information collection over time.

**Conclusion:** Aside from experiences from trauma registry implementation, there is little to no published literature focused on barriers faced in facilitating real-time surgical outcomes research. Within trauma surgery, the most notable barriers were constraints in human and financial capital, technological deficiencies for data collection, and inconsistency in data quality control. We strongly recommend that steps should be taken to identify outcomes research obstacles in other fields of surgery.

**Keywords:** surgery, outcomes research, registries, barriers

## 2.26

### **INFLUENCE OF DENTAL MIDLINE DEVIATION WITH RESPECT TO FACIAL FLOW LINE ON SMILE ESTHETICS: A CROSS-SECTIONAL STUDY**

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**Background:** To achieve optimal smile esthetics, numerous guidelines have been proposed. A contemporary concept states that deviating the dental midlines towards the midline structures of the face can mask the compromised smile esthetics due to dental midline discrepancy. This study aims to identify a range of midline deviation that can be varied towards or away from the facial flow line.

**Study Design and Method:** A cross-sectional study was conducted at a tertiary care hospital where frontal smile photographs of a male and a female were altered on photoshop software. Their dental midlines were deviated by 2 mm, 4 mm and 6 mm towards and away from the facial flow line (FFL). These pictures were shown to a panel of raters comprising of two groups, laypersons (LP) and dental professionals (DP). 43 raters in each group were asked to rate each picture in order of least attractive to most attractive using a Visual analogue scale (VAS). Independent t-test was used to compare the perception of dental midline deviation between LP and DP.

**Results:** Highly statistically significant differences ( $p \leq 0.05^{**}$ ) were seen between mean attractiveness scores between LP and DP for pictures 1 (2 mm towards FFL), 2 (4 mm towards FFL) and 5 (4 mm away from FFL) with DPs having a better perception of midline deviation. Higher esthetic scores were consistently seen when the midline was deviated towards FFL.

**Conclusion:** LP could not perceive the midline deviations up to 4 mm while DP were able to perceive deviations above 2 mm. 2-4 mm of ML deviation towards FFL can be tolerated by the LP and DP.

**Keywords:** Midline, Facial flow line, Smile esthetics

## 2.28

### **IGRT DELIVERY TECHNIQUE FOR PROSTATE PLANS**

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**Background:** A number of advancements have been made since the initiation of radiotherapy for precise delivery of dose to the tumor and maximum sparing of soft tissues and organs at risk (OARs). Patients of prostate cancer are instructed to prepare bladder and rectum so that intrafraction movement of prostate is restricted

which validates the targeted region in each fraction. This study uses CBCT based images() taken pre-treatment everyday and compared the dose delivered to OARs (bladder, Rectum, Femoral heads, Bowel bag, Penile Bulb) with reference to the original plan.

**Study Design and Method:** Retrospective and quantitative.

**Results:** Average dose per fraction delivered to OARs is close to the planned dose with a percentage error of +/- 15% relative to the dose constraint goals defined in RTOG-0815.

**Conclusion:** Preparation of bladder and rectum as per the planning CT helps to deliver the planned dose along with objective sparing of OARs within tolerance.

**Keywords:** CBCT, Radiation Therapy, OARs, DVH, VMAT

## 2.29

### ***EFFECT OF BOVINE LACTOFERRIN ON SEROCONVERSION FOLLOWING POLIO VACCINE ADMINISTRATION IN CHILDREN – PROTOCOL FOR A DOUBLE BLINDED RANDOMIZED CONTROLLED TRIAL***

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**Background:** The Oral Polio Vaccine (OPV) has substantial results in eliminating wild poliovirus and the vaccine of choice in polio eradication. However, the mucosal immunity induced by the OPV is still uncertain. Literature has shown that Bovine Lactoferrin (BLf) is a safe and useful protein found in cow's milk with extraordinary anti-microbial, antiviral, anti-inflammatory and immune-modulatory functions that help children's gut to fight against micro-organisms

like poliovirus. However limited data exists regarding the effect of BLF on polio vaccine immune response. The objective is to assess the Knowledge, Attitude, and Practices (KAP) of pregnant females regarding COVID-19, risk perception of pregnant females towards COVID-19, and Anxiety and concerns related to COVID 19 (GAD-7).

**Study Design and Method:** This is a two-arm double blinded randomized controlled trial comparing 462 neonates (231 in both groups) receiving either BLF or placebo with breast milk. The intervention is administered from day 1 till 6 weeks of age to full-term healthy singleton newborns with birth weight  $\geq$  1200 grams born at the Aga Khan University Hospitals, Karachi, Pakistan. For descriptive statistical analysis, Stata will be used, frequency with percentages will be reported to describe baseline characteristics of the participants. A Chi-square test will be used to compare categorical variables and a simple t-test to compare continuous variables. The proportion of seroconversion and shedding will be compared using  $\chi^2$  test or Fisher's exact test.

**Results:** This is an ongoing study. Till date, we have recruited 317 participants from four study sites out of which 29% have completed their study with more than 90% compliance rate.

**Conclusion:** Pakistan is in need of innovative and safe approaches that can aid in limiting the endemic occurrence of polio; along with improving malnutrition and immunity levels of the children. This is a novel study which will examine such effects of Lactoferrin. Further longitudinal studies and clinical trials are required to investigate more into the beneficial effects of Lactoferrin.

**Keywords:** Bovine Lactoferrin, Poliomyelitis, Randomized clinical trial, Placebo

### 2.30

#### **DIAGNOSTIC ACCURACY OF POINT-OF-CARE ULTRASOUND COMPARED TO STANDARD-OF-CARE METHODS FOR ENDOTRACHEAL TUBE PLACEMENT IN NEONATES**

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**Background:** Point of care ultrasound (POCUS) is a powerful tool to determine endotracheal tube (ETT) placement. In neonates, POCUS has mainly been used to determine ETT depth and few studies have compared POCUS with standard methods of intubation confirmation. The outcomes of the study were diagnostic accuracy of POCUS and time-to-interpretation for identifying tracheal versus esophageal intubations in newborns compared to a composite of standard-of-care methods. Moreover to evaluate the agreement between POCUS users, POCUS expert and standard-of-care methods.

**Study Design and Method:** A Cross-sectional study conducted at Neonatal Intensive Care Unit of Aga Khan University Hospital, Karachi Pakistan. All required intubations were performed as per NICU guidelines and placement of ETT was determined using standard-of-care methods (auscultation, colorimetric capnography and Chest X-Ray). ETT placement was simultaneously determined by the POCUS user, and the images were captured. The POCUS image were not available to the clinical team to ensure blinding. Both POCUS user and an expert interpreted the images individually. Timings were recorded for each method.

**Results:** A total of 348 neonates were enrolled in the study. More than half (58%) of intubations were in an emergency scenario. Using expert as reference standard, POCUS user interpretation showed 94% specificity and 100% sensitivity. Furthermore, there was 99.4% agreement (Kappa: 0.96;  $p < 0.001$ ) between the pocus user and expert.

Diagnostic accuracy was evaluated by comparing POCUS user's interpretation with at least two standard-of-care methods demonstrated 99.7% sensitivity, 91% specificity, and 98.85% agreement (Kappa:0.93;  $p < 0.001$ ). The median time required for POCUS interpretation was 3.0 (IQR $\pm$ 1) seconds for tracheal intubation and 4.5 (IQR $\pm$ 5) seconds for esophageal intubations. Similarly, the recorded time measured for auscultation and capnography was 6.0 (IQR $\pm$ 7) and 3.0 (4) respectively.

**Conclusion:** POCUS is the easiest and fastest approach for identifying ETT placement. Early decision will facilitate timely neonatal management thus minimizing complications.

**Keywords:** Point of care ultrasound, neonates, endotracheal tube.

### 2.31

#### **THE EFFECT OF IVERMECTIN ON NON-SEVERE AND SEVERE COVID-19 DISEASE AND GENDER-BASED DIFFERENCE OF ITS EFFECTIVENESS**

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**Background:** The COVID-19 pandemic has led to mortality and morbidity since December 2019. Many possible treatment options have been advised till date. The role of ivermectin in the treatment of COVID-19 disease remains controversial. The aim of our study was to evaluate the effect of ivermectin in hospitalized

patients with non-severe and severe COVID-19 disease.

**Study Design and Method:** We conducted a retrospective cohort study that compared outcomes in 2 groups of COVID-19 patients hospitalized at the largest tertiary care center of Pakistan. The study group was given ivermectin along with standard treatment of covid-19 disease; the comparison group was not. Data on mortality, inflammatory markers such as C-reactive protein (CRP) and ferritin, length of hospital stay and baseline characteristics were collected from Aga Khan University's database from October 2020 till February 2021. Statistical analysis was done to determine the effectiveness of ivermectin in non-severe and severe COVID-19. Comparison of effectiveness of Ivermectin in both the genders was also conducted.

**Results:** The cohort included 188 patients out of which 90 were treated with ivermectin. Mortality & length of hospitalization was not found to be significantly different in the study group compared with the control group (5.6% vs. 5.1%;  $p=0.87$  & 5 days vs. 4 days;  $p=0.27$ ). Analysis of secondary outcomes did not yield statistically significant results, apart from ferritin levels which were significantly less in patients treated with ivermectin (547.1 vs. 756.7;  $p=0.03$ ). The ferritin and CRP levels in affected males were higher than in females on admission and discharge.

**Conclusion:** Our findings suggest ivermectin does not significantly affect all-cause mortality, length of hospitalization and CRP levels in hospitalized COVID-19 patients. Large scale randomized controlled trials (RCTs) are required to further evaluate the role of ivermectin in covid-19 disease.

**Keywords:** Ivermectin, COVID-9, Management

## 2.33

### **DOSE RELATIONSHIP WITH DOSE UNIFORMITY AND PATIENT'S SEPRATION.**

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**Background:** Total body irradiation (TBI) with megavoltage X-ray beams has been accepted as an important component of management for a number of hematologic malignancies, generally as part of bone marrow conditioning regimens. The aim of this study is to shows how energy is related with dose uniformity that helps physicist to treat patient uniformly by selecting appropriate beam energy, simplifying the treatment process and improving the treatment quality.

**Study Design and Method:** This work is the development for total body irradiation patients treated with bilateral extended SSD beams using rice as missing tissue compensators adjacent to the patient. An empirical formula to calculate midplane, Dmax and surface dose are derived by taking depth dose measurements at 500cm SSD with beam spoiler at 10cm from the surface of the solid water phantom. PDD are taken by Markus chamber.

**Results:** The study shows that for 6MV the percentage depth dose decreases 1% per cm increase in the patient's separation, and for 18MV the percentage depth dose decreases tro 0.8% per cm increase in the patient's separation

**Conclusion:** In this analysis results shows that, as patient's separation increases the dose reduce with higher attenuation, resulting in inhomogeneous dose distribution.

**Keywords:** SSD , PDD , Dmax, dose uniformity, mid plane doses , surface doses



### 2.34

#### **PRONE CARDIOPULMONARY RESUSCITATION IN THE COVID-19 ERA – AN EXPERIENCE FROM A LOW TO MIDDLE INCOME COUNTRY.**

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**Background:** Prone positioning is a now considered as a well established practice in intubated patients being managed for severe adult respiratory distress syndrome (ARDS) and with its frequent practice, it is likely for cardiac arrests to occur in such patients while in the prone position. Performance of prone cardiopulmonary resuscitation (CPR) is not common but should be considered as reversible causes of cardiorespiratory arrest exist in this cohort.

**Study Design and Method:** Case report:

We describe a series of three cases that were received in Emergency Department with critical severe coronavirus disease 2019 (COVID-19) pneumonia. The patients were subsequently intubated and mechanically ventilated in prone position. During course of therapy, the patients went into cardiac arrest with non-shockable rhythm and CPR was performed while in prone position. Two of our cases achieved return of spontaneous circulation (ROSC) however none survived due to severity of disease.

**Results:** Two of our cases achieved return of spontaneous circulation (ROSC) however none survived due to severity of disease.

**Conclusion:** CPR in the prone position seems to be an effective option considering the circumstances surrounding a requirement for prone ventilation and should therefore not be delayed. Institutions are advised to continually provide and update best practice guidelines for frontline clinicians while considering

possibilities to reduce risks of viral transmission to exposed healthcare workers.

**Keywords:** Cardiopulmonary resuscitation; Prone position; COVID-19; Pakistan.

### 2.35

#### **FREQUENCY OF NEURO-IMAGING IN THE EMERGENCY ROOM IN PATIENTS WITH VERTIGO: A CROSS-SECTIONAL STUDY**

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**Background:** The burden of vertigo in patients visiting emergency rooms is significant reaching an estimate in millions per year only in the United States. The diagnostic approach to vertigo is complex and relevant physical examination in these patients is underutilized. The diagnostic tests in patients with vertigo impose a significant financial burden mainly because of the costs involved in neuro-imaging. The aim of this study was to determine the frequency of neuro-imaging and the prevalence of positive findings in patients with vertigo visiting an ER of a LMIC, Pakistan .

**Study Design and Method:** This is a cross sectional study conducted in the emergency department of Aga Khan University. Data of patients with age 18years and above who presented to the emergency room with complaints of vertigo and dizziness were collected. Patients who went under neuro-imaging for reasons other than vertigo like trauma or injury were excluded from the study. The data was collected retrospectively by reviewing the records of patients who visited the emergency room with vertigo during the last 20 years (2000-2020).

**Results:** 224 patients with vertigo were selected out of which 164 (73.2%) patients went under some sort of neuro-imaging (MRI = 76.83% , CT = 15.85%, Both CT & MRI = 7.32%). 89

(54%) of the patients were reported to have some sort of finding including age related changes where as only 58 (35%) of the patients were reported to have significant findings (Infarct (n) = 37, Haemorrhage (n) = 14, SOL (n) = 05, Meningeal Enhancement (n) = 02)

**Conclusion:** The neuro-imaging is over-utilized in patients with vertigo coming to the emergency room and may result cause substantial financial burden in a low-middle income country like Pakistan.

**Keywords:** Neuro-imaging, Vertigo, Emergency Room

### 2.36

#### **Utility of Emergency Severity Index in identification of patients with sepsis and septic shock**

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**Background:** To determine the utility of emergency severity index (ESI) tool in early recognition of “sepsis” and “septic shock” at the triage of an emergency room at a tertiary care hospital in Pakistan.

**Study Design and Method:** This is a single centre, cross-sectional study conducted at the Emergency Department of the Aga Khan University Hospital, Karachi, Pakistan from December 2016 to May 2017. Non-purposive consecutive sampling was done among patients with age  $\geq$  18 years having Sepsis or Septic Shock. Those who met the inclusion criteria were included and analyzed for the utility of ESI tool in early recognition of sepsis and septic shock at the triage using 95% Confidence Interval (CI).

**Results:** A total of 240 patients were included in this study. The area under the curve (AUC) for the ESI score I for septic shock was 0.943 [0.921

- 0.964] with the optimal cutoff value of 2.0 with sensitivity of 88.5% and specificity of 100%. Similarly, the sensitivity and specificity of ESI score II for the diagnosis of sepsis was found to be 100.00 % (CI 97.63% to 100.00%) and 66.28% (CI 55.28% to 76.12%) with accuracy of 87.92% (83.11% to 91.76%).

**Conclusion:** In this study, ESI proved to be a useful “triage-tool” with high sensitivity and specificity in the identification and prioritization of patients with sepsis and septic shock in a busy emergency department. Hence more studies are required to validate this tool for early identification of sepsis and septic shock to improve outcomes in terms of morbidity & mortality.

**Keywords:** Emergency department, Triage, Sepsis, Septic Shock Emergency severity index

### 2.42

#### **CHRONIC LONG-COVID SYNDROME: A PROTRACTED COVID-19 ILLNESS WITH NEUROLOGICAL DYSFUNCTIONS**

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**Background:** After almost a year of COVID-19, the chronic long-COVID syndrome has been recognized as an entity in 2021. The patients with the long-COVID are presenting with ominous neurological deficits that with time are becoming persistent and are causing disabilities in the affected individuals. The mechanisms underlying the neurological syndrome in long-COVID have remained obscure and need to be actively researched to find a resolution for the patients with long-COVID. Here, the factors like site of viral load, the differential immune response, neurodegenerative changes, and inflammation as possible causative factors are debated to understand and investigate the pathogenesis of neuro-COVID in long-COVID syndrome.

**Study Design and Method:** The mechanisms underlying the neurological syndrome in long-COVID have remained obscure and need to be actively researched to find a resolution for the patients with long-COVID and are detailed here

**Results:** The factors like site of viral loads of SARS-CoV-2, the differential immune response, neurodegenerative changes, and inflammation as possible causative factors are implicated here that can help understand and investigate the pathogenesis of neuro-COVID in long-COVID syndrome.

**Conclusion:** Long-COVID affects the central nervous system and there is a need to draw diagnostic, prognostic and treatment protocols to prevent a surge in the neurological disabilities in the near future in Long-COVID.

**Keywords:** COVID-19; SARS-CoV-2; long-COVID; neurological deficits.

## 2.43

### **Targeting Neuroinvasion by SARS-CoV-2: Emerging Trends in Drug and Antibody Delivery to Combat COVID-19**

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**Background:** Because SARS-CoV-2 uses the nasal cavity as a major route of entry to the human body, nasal administration of drugs and antibodies directed against the virus can prove to be effective for not only pulmonary COVID-19 but also prevention of potential early neuroinvasion caused by this virus. With recent reports of the potential application of antibody-laden nasal spray for the treatment of COVID-19, proposed here is the use of drugs recently proven to be effective against SARS-CoV-2 to be administered via inhalation route using a modified transcribrial device reported previously for its use against *Naegleria fowleri*, to target SARS-CoV-2 in our fight against COVID-1.

**Study Design and Method:** Drugs and Antibodies manufactured in form of nasal sprays and nebulizers are shown. The drugs are to be delivered by the designed topical drug delivery system to target the SARS-CoV-2 at sites of maximum viral loads (Figure-1)

**Results:** Given by the proposed routes with the shown transcribrial device and nebulizers the COVID-19 can be prevented in areas of outbreak and the severity of the disease can be minimized by reducing the functional viral loads to the lungs

**Conclusion:** Innovative drug delivery system like the one proposed here can help reduce the complications in COVID-19 by preventing the acquisition of infections and reducing the viral loads to multiorgan and systems

**Keywords:** COVID-19; SARS-CoV-2; inhalation drug delivery; neuroinvasion; transcribrial device.

## 2.44

### **Deleterious Outcomes in Long-Hauler COVID-19: The Effects of SARS-CoV-2 on the CNS in Chronic COVID Syndrome**

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**Background:** Amid our understanding of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the mechanisms involved in the causation of acute-phase coronavirus disease (COVID-19), we have come across clinical cases that have been shown to run a protracted course of COVID-19 with complex clinical findings related to organ systems in general and the CNS in particular that deserve to be addressed in the COVID long-haulers, for which the more clinically-related term chronic COVID syndrome (CCS) has been coined recently. An in-depth understanding of the mechanism that forms the basis of CCS and neurological deficits in CCS is needed as this can help in determining the management of cases of neuro-COVID,

which is emerging as a less lethal but more disabling disease state. This Viewpoint highlights this syndrome, the possible pathogenetic pathways involved, and the treatment approaches that can be taken to help manage COVID long-haulers in CCS.

**Study Design and Method:** An in-depth understanding of the mechanism that forms the basis of CCS and neurological deficits in CCS was the basis to determine the mechanisms underlying neuro-COVID and management strategies needed to treat neuro-COVID,

**Results:** The pathogenic basis of the neuro-COVID detailed here can help treat the complications in Long-COVID and neuro-COVID

**Conclusion:** Protracted course of COVID-19 with complex clinical findings related to organ systems in general and the CNS in particular that deserve to be addressed in the COVID long-haulers

**Keywords:** COVID-19; SARS-CoV-2; chronic COVID syndrome; long-haulers; neurological findings in COVID-19.

## 2.45

**Chronic COVID syndrome: Need for an appropriate medical terminology for long-COVID and COVID long-haulers**

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**Background:** With the ongoing pandemic of coronavirus diseases (COVID-19) caused by SARS-CoV-2, there has been a surge in research and publications related to its pathogenesis and the clinical presentation of the affected patients. Many aspects of this novel virus have raised confusion including the naming of the virus and the disease it causes, the staging of its clinical presentation to highlight a few such occurrences. An emerging aspect of the clinical presentation related to COVID-19 is the long-term effects,

which in the absence of any consensus has been termed as long-COVID and long-haulers in recent publications.<sup>1, 2</sup> As the COVID-19 is a zoonotic infection and comes under a medically related disease, the term chronic covid syndrome (CCS) would be a more traditional way of symbolizing the so-called long-covid and long-haulers in COVID-19

**Study Design and Method:** Proposal for staging and renaming Long-Haulers

**Results:** This research helped to have a consensus on the names coined for "Long-Haulers" and an organ-based staging system of COVID-19 that was shown helped segregate the diseases based on the major organ in threat in COVID-19.

**Conclusion:** Though the renaming of "Long-Haulers" that is a well-recognized chronicity seen in COVID-19 would not affect its prognosis, this is much needed to recognize this entity with a more appropriate nomenclature.

**Keywords:** Long-Haulers, Chronic COVID syndrome (CCS), SARS-CoV-2, COVID-19

## 2.46

**TIMING OF SURGERY FOLLOWING SARS-COV-2 INFECTION: AN INTERNATIONAL PROSPECTIVE COHORT STUDY**

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**Background:** Peri-operative SARS-CoV-2 infection increases postoperative mortality. The aim of this study was to determine the optimal duration of planned delay before surgery in patients who have had SARS-CoV-2 infection.

**Study Design and Method:** This international, multicentre, prospective cohort study included patients undergoing elective or emergency

surgery during October 2020. Surgical patients with pre-operative SARS-CoV-2 infection were compared with those without previous SARS-CoV-2 infection. The primary outcome measure was 30-day postoperative mortality. Logistic regression models were used to calculate adjusted 30-day mortality rates stratified by time from diagnosis of SARS-CoV-2 infection to surgery.

**Results:** Among 140,231 patients (116 countries), 3127 patients (2.2%) had a pre-operative SARS-CoV-2 diagnosis. Adjusted 30-day mortality in patients without SARS-CoV-2 infection was 1.5% (95% CI 1.4–1.5). In patients with a pre-operative SARS-CoV-2 diagnosis, mortality was increased in patients having surgery within 0–2 weeks, 3–4 weeks and 5–6 weeks of the diagnosis (odds ratio (95% CI) 4.1 (3.3–4.8), 3.9 (2.6–5.1) and 3.6 (2.0–5.2), respectively). Surgery performed  $\geq 7$  weeks after SARS-CoV-2 diagnosis was associated with a similar mortality risk to baseline (odds ratio (95% CI) 1.5 (0.9–2.1)). After a  $\geq 7$  week delay in undertaking surgery following SARS-CoV-2 infection, patients with ongoing symptoms had a higher mortality than patients whose symptoms had resolved or who had been asymptomatic (6.0% (95% CI 3.2–8.7) vs. 2.4% (95% CI 1.4–3.4) vs. 1.3% (95% CI 0.6–2.0), respectively).

**Conclusion:** Where possible, surgery should be delayed for at least 7 weeks following SARS-CoV-2 infection. Patients with ongoing symptoms  $\geq 7$  weeks from diagnosis may benefit from further delay.

**Keywords:** COVID-19; delay; SARS-CoV-2; surgery; timing

2.47

### **SARS-COV-2 VACCINATION MODELLING FOR SAFE SURGERY TO SAVE LIVES: DATA FROM AN INTERNATIONAL PROSPECTIVE COHORT STUDY**

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**Background:** Preoperative SARS-CoV-2 vaccination could support safer elective surgery. Vaccine numbers are limited so this study aimed to inform their prioritization by modelling.

**Study Design and Method:** This was a secondary analysis from an international, multicenter, prospective cohort study. The primary outcome was the number needed to vaccinate (NNV) to prevent one COVID-19-related death in 1 year. NNVs were based on postoperative SARS-CoV-2 rates and mortality in an international cohort study (surgical patients), and community SARS-CoV-2 incidence and case fatality data (general population). NNV estimates were stratified by age (18–49, 50–69, 70 or more years) and type of surgery. Best- and worst-case scenarios were used to describe uncertainty.

**Results:** NNVs were more favourable in surgical patients than the general population. The most favourable NNVs were in patients aged 70 years or more needing cancer surgery (351; best case 196, worst case 816) or non-cancer surgery (733; best case 407, worst case 1664). Both exceeded the NNV in the general population (1840; best case 1196, worst case 3066). NNVs for surgical patients remained favourable at a range of SARS-CoV-2 incidence rates in sensitivity analysis modelling. Globally, prioritizing preoperative vaccination of patients needing elective surgery ahead of the general population could prevent an additional 58 687 (best case 115 007, worst case 20 177) COVID-19-related deaths in 1 year.

**Conclusion:** As global roll out of SARS-CoV-2 vaccination proceeds, patients needing elective surgery should be prioritized ahead of the general population.

**Keywords:** COVID-19; vaccination; modelling; safe surgery

## 2.48

### **CASE REPORT: PRIMARY CARDIAC MUM-1, BCL-2 AND C-MYC POSITIVE DIFFUSE LARGE B-CELL LYMPHOMA ENCASING SVC AND AORTA**

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**Background:** Diffuse Large B-Cell Lymphoma most commonly occurs in bones, central nervous system, gastrointestinal tract, sinuses, testicles, thyroid and skin. Most patients present at a mean age of 60. Metastasis to the heart is 20 times more common than primary cardiac tumors. Common sites in the heart are the atria. Primary cardiac tumors that do present are commonly myxomas, sarcomas and angiosarcomas have also been reported. We report a rare case of Primary Diffuse Large B-cell Lymphoma of the heart atypically in a young male patient 34 years of age.

**Study Design and Method:** Case report and review of literature

The following search terms were used:

("Lymphoma, Large B-Cell, Diffuse"[Mesh]) AND "cd20" AND "Heart" AND "primary" 12

("Lymphoma, Large B-Cell, Diffuse"[Mesh]) AND "bcl-6" AND "Heart" 3 results

("Lymphoma, Large B-Cell, Diffuse"[Mesh]) AND "bcl-2" AND "Heart" 4 results

("Lymphoma, Large B-Cell, Diffuse"[Mesh]) AND "mum1" AND "Heart" 3 results

("Lymphoma, Large B-Cell, Diffuse"[Mesh]) AND "c-myc" AND "Heart" 6 results

("Lymphoma, Large B-Cell, Diffuse"[Mesh]) AND "ki-67" AND "Heart" 3 results

**Results:** Case presentation:

A 34-year-old male presented with severe chest pain on the left side and was diagnosed with a severe heart block. Two months later, he presented with an episode of syncope, after which a pacemaker was implanted with a diagnosis of brady induced ventricular tachycardia.

CT scan indicated an anterior and middle mediastinal mass encasing the SVC and Aorta and compressing the left atrium and SVC. ECHO indicated excessive inter atrial septum thickening in both the atria with irregular margins sparing the Fossa Ovalis.

A VATS procedure was performed, and biopsy was done. According to the histopathology report:

reveal fibro-collagenous tissue exhibiting a neoplastic lesion arranged in diffuse sheets with crushing artifact. The cells are round to elongated having eosinophilic cytoplasm and hyperchromatic nuclei with inconspicuous nucleoli. Immuno-histochemical stains performed show following reactivity pattern: Pan B (CD20) Positive, Ki-67 (Mib-1) High (80-90%), CD10 Negative, BCL6 Positive, MUM1 Positive, BCL2 Positive and C-Myc Positive.

Diagnosis of High-grade B-cell Lymphoma was made. Features are consistent with Diffuse Large B-cell Lymphoma, Non-Germinal center subtype, according to WHO classification of lymphoid neoplasms.

**Conclusion:** In conclusion, we report a rare case of Primary Diffuse Large B-cell Lymphoma of the heart atypically in a young male patient, 34 years of age. Tumor presented as a middle mediastinal mass in both atria involving the inter-atrial septum, which encased the SVC and Aorta.

**Keywords:** Diffuse Large B-Cell Lymphoma, Primary Cardiac Tumor, MUM1, BCL-2, C-MYC, CD20, Ki-67, BCL-6

## 2.49

### **SARS-COV-2 INFECTION AND VENOUS THROMBOEMBOLISM AFTER SURGERY: AN INTERNATIONAL PROSPECTIVE COHORT STUDY**

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**Background:** SARS-CoV-2 has been associated with an increased rate of venous thromboembolism in critically ill patients. Since surgical patients are already at higher risk of venous thromboembolism than general populations, this study aimed to determine if patients with peri-operative or prior SARS-CoV-2 were at further increased risk of venous thromboembolism.

**Study Design and Method:** We conducted a planned sub-study and analysis from an international, multicentre, prospective cohort study of elective and emergency patients undergoing surgery during October 2020. Patients from all surgical specialties were included. The primary outcome measure was venous thromboembolism (pulmonary embolism or deep vein thrombosis) within 30 days of surgery. SARS-CoV-2 diagnosis was defined as peri-operative (7 days before to 30 days after surgery); recent (1–6 weeks before surgery); previous ( $\geq 7$  weeks before surgery); or none. Information on prophylaxis regimens or pre-operative anti-coagulation for baseline comorbidities was not available.

**Results:** Postoperative venous thromboembolism rate was 0.5% (666/123,591) in patients without SARS-CoV-2; 2.2% (50/2317) in patients with peri-operative SARS-CoV-2; 1.6% (15/953) in patients with recent SARS-CoV-2; and 1.0% (11/1148) in patients with previous SARS-CoV-2. After adjustment for confounding factors, patients with peri-operative (adjusted odds ratio 1.5 (95% CI 1.1–

2.0)) and recent SARS-CoV-2 (1.9 (95% CI 1.2–3.3)) remained at higher risk of venous thromboembolism, with a borderline finding in previous SARS-CoV-2 (1.7 (95% CI 0.9–3.0)). Overall, venous thromboembolism was independently associated with 30-day mortality (5.4 (95% CI 4.3–6.7)). In patients with SARS-CoV-2, mortality without venous thromboembolism was 7.4% (319/4342) and with venous thromboembolism was 40.8% (31/76).

**Conclusion:** Patients undergoing surgery with peri-operative or recent SARS-CoV-2 appear to be at increased risk of postoperative venous thromboembolism compared with patients with no history of SARS-CoV-2 infection. Optimal venous thromboembolism prophylaxis and treatment are unknown in this cohort of patients, and these data should be interpreted accordingly.

**Keywords:** COVID-19; surgery; venous thromboembolism

## 2.50

### **EFFECTS OF PRE-OPERATIVE ISOLATION ON POSTOPERATIVE PULMONARY COMPLICATIONS AFTER ELECTIVE SURGERY: AN INTERNATIONAL PROSPECTIVE COHORT STUDY**

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**Background:** We aimed to determine the impact of pre-operative isolation on postoperative pulmonary complications after elective surgery during the global SARS-CoV-2 pandemic.

**Study Design and Method:** We performed an international prospective cohort study including patients undergoing elective surgery in October 2020. Isolation was defined as the period before surgery during which patients did not leave their house or receive visitors from outside their

household. The primary outcome was postoperative pulmonary complications, adjusted in multivariable models for measured confounders. Pre-defined subgroup analyses were performed for the primary outcome.

**Results:** A total of 96,454 patients from 114 countries were included and overall, 26,948 (27.9%) patients isolated before surgery. Postoperative pulmonary complications were recorded in 1947 (2.0%) patients of which 227 (11.7%) were associated with SARS-CoV-2 infection. Patients who isolated pre-operatively were older, had more respiratory comorbidities and were more commonly from areas of high SARS-CoV-2 incidence and high-income countries. Although the overall rates of postoperative pulmonary complications were similar in those that isolated and those that did not (2.1% vs 2.0%, respectively), isolation was associated with higher rates of postoperative pulmonary complications after adjustment (adjusted OR 1.20, 95% CI 1.05-1.36,  $p = 0.005$ ). Sensitivity analyses revealed no further differences when patients were categorised by: pre-operative testing; use of COVID-19-free pathways; or community SARS-CoV-2 prevalence. The rate of postoperative pulmonary complications increased with periods of isolation longer than 3 days, with an OR (95% CI) at 4-7 days or  $\geq 8$  days of 1.25 (1.04-1.48),  $p = 0.015$  and 1.31 (1.11-1.55),  $p = 0.001$ , respectively.

**Conclusion:** Isolation before elective surgery might be associated with a small but clinically important increased risk of postoperative pulmonary complications. Longer periods of isolation showed no reduction in the risk of postoperative pulmonary complications. These findings have significant implications for global provision of elective surgical care.

**Keywords:** Surgery; COVID-19; isolation; pulmonary complications

## 2.51

### **DISPARITIES IN ACCESS TO QUALITY SURGICAL CARE FOR WOMEN IN RESOURCE-CONSTRAINED SETTINGS: BOTTLENECKS AND THE WAY FORWARD**

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**Background:** Women seeking surgical care are burdened with gender disparities, particularly in resource-limited settings. Such disparities can lead delayed presentation with advanced disease and poor prognoses among women. This narrative review explored evidence for gender disparities, their implications, challenges faced by women seeking surgical care, and strategies to address them.

**Study Design and Method:** A literature search was conducted on PubMed and Google Scholar to identify and review articles on gender disparities in access to surgical care. Articles published in English before 30th September 2021 were eligible.

**Results:** Multiple challenges for women seeking surgical care were identified, stemming from an interplay between societal, sociocultural, and economic barriers. These included inadequate autonomy, financial constraints, transport and referral issues, lack of experienced women surgeons, privacy concerns, surgeon distrust, and higher thresholds for seeking care. In LMICs, healthcare decisions for women are mostly taken by the patient's husband, father, or mother-in-law. Out-of-pocket surgical expenditures disproportionately impact women who have limited control over family financing. In cases of limited support from families, surgical care becomes inaccessible for women who usually rely on their spouses to accompany them throughout the process. Women also prefer privacy and female surgeons which are lacking



in most hospitals. Surgeon distrust and higher thresholds for seeking healthcare were additional challenges towards surgical healthcare delay.

**Conclusion:** Women seeking surgical care are burdened with significant gender disparities, particularly in LMICs. Therefore, sustainable efforts targeted at educating and empowering women, providing them with job opportunities and better transport facilities, privacy at hospitals will help alleviate disparities in surgical healthcare.

**Keywords:** Women, surgery, healthcare disparities, sexism

## 2.52

### **EVIDENCE-BASED SURGERY FOR TRANSGENDER BREAST CANCER PATIENTS: A CLARION CALL**

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**Background:** Hormonal replacement therapies increase the risk of breast cancer in transgender individuals. Limited evidence is available to inform surgical care for this population. Our study aimed to find existing literature on surgical care for breast cancer amongst transgenders, identify gaps in research and address shortcomings for better evidence-based surgery for the transgender population.

**Study Design and Method:** A systematic literature search was conducted on PubMed, Embase, CENTRAL, and Clinicaltrials.gov to identify all published literature on breast cancer surgery among transgender patients in all languages till 15th August 2021. The retrieved articles were imported into Endnote x9, and

duplicate records were removed. The remaining articles were title and abstract screened and reviewed.

**Results:** After an exhaustive literature search, only 15 studies from high-income countries addressing breast cancer surgery in transgender patients were retrieved. No clinical trials, observational studies, or evidence-based guidelines were retrieved. Transgender breast cancer surgery research poses several challenges. Representing a gender minority, transgenders with breast cancer are very rare, rendering their recruitment into randomized controlled trials unfeasible. Population-based studies could offer an alternative, but these are limited by gender binary systems employed in hospitals. This necessitates incorporation of two-step gender questions to cover both gender identity of patient and birth assigned sex. Hesitancy among transgender patients to disclose their gender identify is another challenge, exacerbated by electronic data breeches and concerns of confidentiality. Finally, funding opportunities are limited for research on transgender breast cancer surgery, warranting resource prioritization.

**Conclusion:** Existing practice of breast surgery in transgenders cannot be termed evidence-based, considering it is based on guidelines extrapolated from female and male patients. This situation warrants sustained collaborations between academics, surgeons, and policymakers to enhance research output on breast cancer surgery in this vulnerable population.

**Keywords:** Transgender persons, breast neoplasms, surgery, evidence-based practice, healthcare disparities

## 2.53

### **YELLOW EYES AS PRESENTATION OF A RARE DISEASE-BENIGN RECURRENT INTRAHEPATIC CHOLESTASIS- A CASE REPORT**

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**Background:** Benign recurrent intrahepatic cholestasis is a rare autosomal recessive disease, which usually presents with complain of recurrent jaundice with cholestatic pattern of liver function tests. Its diagnosis requires high degree of suspicion. It is a self-limiting disease and does not cause cirrhosis but increases the risk of hepatobiliary carcinomas.

**Study Design and Method:** Case Report We had a case of 18 years old boy who presented to us in outpatient department, he was found to have BRIC on histo-pathological examination of liver biopsy sample and responded to Ursodeoxycholic acid.

**Results:** As only few cases of BRIC have been reported, this disease needs to be highlighted so that can be diagnosed earlier without proceeding for expensive investigations in limited resources area as in our case report.

**Conclusion:** As only few cases of BRIC have been reported, this disease needs to be highlighted so that can be diagnosed earlier without proceeding for expensive investigations in limited resources area as in our case report.

**Keywords:** Recurrent cholestasis, benign disease, jaundice, self-limiting.

## 2.54

### **OUTCOMES OF ENDODONTIC MICROSURGERY (EMS) IN A LOW- AND MIDDLE-INCOME COUNTRY: A RETROSPECTIVE STUDY**

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**Background:** The objectives of the study were (i) To assess clinical and radiographic healing for teeth that underwent endodontic microsurgery using 3D CBCT scans as per the Modified 3D Penn Criteria after a minimum follow-up of 06 months; and (ii) To investigate the influence of patient's gender and age, tooth type, previous radiographic lesion size, and the apical extent of prior filling of the root canal on the outcome of endodontic microsurgery

**Study Design and Method:** Procedure code for apisection was used to acquire data about patients that underwent endodontic microsurgery from the electronic health record. Files were scanned for operative variables such as size of lesion, integrity of cortical plate, quality of endodontic therapy, type of filling material, and use of grafts. For radiographic analysis, patient scans were reviewed by two investigators. Two scans were evaluated per patient: a pre-operative scan, and a post-operative scan with the longest follow-up time. Post-operative tooth healing was assessed qualitatively using Modified 3D Penn Criteria. Descriptive statistics were reported as mean and standard deviation. Chi square test was applied to check for significant factors associated with outcome. Factors that were significant in the Chi square test underwent logistic regression analysis. p-value < 0.05 was considered significant

**Results:** A total of 36 patients underwent endodontic microsurgery from 2018 to 2021 at the Aga Khan University Hospital, Pakistan. A total of 25 patients met the inclusion criteria. 20 (80%) out of 25 cases were categorized as healed. Logistic regression did not reveal any significant factors associated with favourable outcome

**Conclusion:** Success of endodontic microsurgery as evaluated on cone beam computerized tomography is 80%. There are no significant prognostic factors associated with

healing of teeth that undergo endodontic microsurgery

**Keywords:** Periapical periodontitis; Endodontically treated teeth; apisection

2.55

**OUTCOME OF INTENTIONAL REPLANTATION OF ENDODONTICALLY TREATED TEETH WITH PERIAPICAL PATHOSIS: A SYSTEMATIC REVIEW & META-ANALYSIS**

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**Background:** Intentional replantation is viewed as a treatment of last resort by most clinicians. There is a need to synthesize high quality evidence to motivate clinicians to incorporate the right practices associated with this treatment.

The purpose of the present review was to examine success, survival and failure following intentional replantation of endodontically treated teeth with existing periapical pathosis and to determine the factors that might affect the outcome of replantation in these teeth

**Study Design and Method:** PubMed NLM, CINAHL Plus (EBSCO), Wiley Cochrane Library, Dental and Oral Science databases were systematically searched for articles that were published between January 1966 and February 2021. Clinical trials, longitudinal studies, case series with >10 cases, at least one year follow-up, and published in the English language were included. Data were extracted to analyze success, survival and failure. Meta-analysis was performed using random-effects computation model employing MedCalc software. Risk of bias was assessed using Newcastle-Ottawa Scale.

**Results:** A total of 189 articles were obtained in the electronic and hand search. After exclusion

of ineligible studies and removal of duplicates, thirteen articles were included in the systematic review. Even though most studies carried low risk of bias, there was heterogeneity among studies. The average rate of success following intentional replantation was 77.3%.

Inflammatory root resorption was the most frequent complication found in 8.1% of total cases. Meta-analysis revealed the mean weighted survival to be 85.9% (95% CI: 79.6 – 91.2)

**Conclusion:** Intentional replantation has acceptable success (77.3%) and survival (85.9%) in 5-10 years. Common complications include inflammatory root resorption (2% – 27%) and ankylosis (2.4% – 25%). Variables influencing successful outcome include short extra alveolar dry time, preferably <15 min; root-end resection (2–3 mm) and cavity preparation (3 mm); manipulation of the tooth using the crown only; and use of an appropriate storage media.

**Keywords:** Tooth replantation; Periapical periodontitis; Endodontically treated teeth; Treatment outcome

2.56

**CASE REPORT: DEVELOPMENT OF EPISCLERITIS: A RARE OCULAR MANIFESTATION BY ANTIBODY DEPENDENT ENHANCEMENT AFTER COVID-19 VACCINATION**

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**Background:** SARS COV-2 has become the greatest pandemic of the decade[1]. The disease primarily affects the lungs, resulting in mild to critical COVID pneumonia[2]. Several measures have been implemented to prevent its spread, which include standard operating procedures (SOPs), personal protective equipment (PPE), safe distancing, isolation and vaccination[3].

Since the publication of the genetic sequence of the SARS-COV 2 virus in January 2020, researchers have been working to develop an

effective vaccine to prevent the disease. Various factors have been evaluated, including nucleic acid sequence (DNA and RNA), peptide, viral factor, virus-like particle, and recombinant protein. There have been efforts to develop both live attenuated and inactivated vaccines[4]. Researches are still being carried out to develop vaccines against different strains of the virus. According to the World Health Organization (WHO), potential vaccines in development include inactivated or weekend virus vaccines, protein-based vaccines, viral vector vaccines, RNA and DNA vaccines[5]. Researchers are gradually introducing these to people, with the hope of eradicating or at least controlling the disease.

Side-effects of the vaccine are also under study. The most frequent symptoms reported after vaccination include headache, fatigue, dizziness, and anaphylaxis[6]. A few studies have also reported Guillain-Barre Syndrome and ophthalmoplegia secondary to cranial nerve[7,8]. Systemic and local side effects vary with the first and second dose of vaccination[9]. We report a rare case of a male patient who developed episcleritis a day after the 2nd dose of COVID-19 vaccination. As the COVID-19 vaccine is novel, it is essential to note the adverse health outcomes after its administration.

**Study Design and Method:** Case Presentation

A 56-year-old male, known case of diabetes mellitus, hypertension, ischemic heart disease, status post percutaneous coronary angiogram (5 years back), presented to a private hospital in Pakistan with the complaint of bilateral eye pain, redness, itching and watery discharge for ten days, fever for seven days and cough for one day. He had been using antihypertensive (Tablet Amlodipine 5mg once daily), Oral hypoglycemic (Tablet Metformin 500mg once daily) and dual antiplatelets (Tablet Clopidogrel 75 mg once daily and Tablet Ascard 75mg once daily) for his comorbidities. The patient had received two doses of the COVID-19 vaccine sinopharm, the first dose twenty three days

before the onset of symptoms and the second dose a day before the symptoms. He had no history of travel but had front line COVID-19 healthcare workers in the family. All the health workers were vaccinated against COVID-19 and followed SOPs strictly. He provided no history of exposure to any COVID-19 positive patient.

The patient stated that he was in his usual state of health before the second dose of the COVID-19 vaccine and developed ocular symptoms the very next day of the second dose. These were gradual in onset, and progressive in nature, for which he consulted a physician and took eye drops (artificial tears and topical tobramycin) for seven days. Eye symptoms gradually started improving after taking those drops. He also had a fever for seven days which was continuous, relieved by antipyretics and spiked highest up to 38.2° C. He also complained of cough for one day, which was dry.

On presentation, his blood pressure was 119/65 mmHg, pulse was 117 beats/minute, respiratory rate was 30 breaths/minute, oxygen saturation was 94% on room air, and temperature was 38.5°C. He had bilateral red-eye with watery discharge. Chest auscultation revealed bilateral crept. The rest of the systemic examination was unremarkable.

Investigations:

Table 1 shows his laboratory investigations

LABS RESULT	NORMAL RANGE
Haemoglobin 14.4 g/Dl	(12.3-16.6)
Haematocrit 43.3	(38.4-50.7) %
White Blood Cell Count (WBC) (4.8-11.3) x10E9/L	9.8
Neutrophils 94.3	(34.9-76.2) %
Platelet (PLT) 121 x10E9/L	(154-433)
Neutrophil to Lymphocyte Ratio (NLR) 21	(1-4) ratio

Red Cell Distribution Width (RDW) (12.1-16.9)%	14.5
Lactate Dehydrogenase (LDH) (120-246) U/L	459
C-REACTIVE PROT (CRP) 175.05 (0-10) mg/L	
Prothrombin Time (PT) (9.3-12.8) seconds	12.1
International Normalized Ratio (INR) (0.9-1.2) ratio	1.2
Activated Plasma Thromboplastin Time (APTT) 35 (22.9-34.5) seconds	
D-DIMER <0.5 mg/L FEU	4.0
Brain Natriuretic Peptide (BNP) 2018 < 125 pg/mL	
Sodium (136-145)mmol/L	139
Potassium (3.5-5.1) )mmol/L	3.4
Chloride (98-107) )mmol/L	97
Bicarbonate (19-24) mmol/L	18.70
Blood Urea Nitrogen (BUN) (6-20) mg/dl	40
Creatinine (0.9-1.3) mg/dl	1.8
Troponin I >0.04 ng/ml	0.127

Table 1: Blood lab work-up at the time of presentation

Table 2 shows the arterial blood gas result on presentation

LAB	VALUE
REFERENCE RANGE	

PH (7.35-7.45)	7.37
PCO2 (35-48) mmHg	35.10
PO2 (83-108) mmHg	48.00
Bicarbonate (19-24) mEq/L	19.70
Base Excess (-2-3) mEq/L	-4.8
O2 Sat (94-98)%	81.30

Table 2: Arterial Blood Gas (ABG) on presentation

Table 3 shows his urine detailed report

LABS	RESULT
REFERENCE RANGE	
Color	Dark Yellow
Appearance	Slightly turbid
Specific Gravity	1.033
	1.005 - 1.025
pH	5
Urine Protein	1.5 g/L (3+)
Negative	
Glucose	17 mmol/L (3+)
Negative	
Ketone	0.5 mmol/L (1+)
Negative	
Nitrite	Negative
Negative	
Leucocyte Estrase	Negative
Negative	
Red Blood Cells	Occasional
	0-2 /HPF(High Power Field)
Leucocytes	Occasional
	0-4 /HPF

Epithelial Cell	Nil /HPF
Non Squamous Cell	Nil 0-4 /HPF
Bacteria Nil/HPF	Moderate
Yeasts NIL /HPF	Nil
Other Casts NIL /HPF	NIL
Crystals NIL /HPF	Nil

Table 3: Urine Detailed Report

His Chest X-Ray showed bilateral parenchymal opacities in mid and lower zones, suspicious for infection (Figure 1). Ultrasound kidneys was normal. Patient tested positive for COVID-19 on nasal swab sent for PCR.

#### Differential Diagnosis

Episcleritis secondary to COVID vaccination, pneumonia secondary to COVID-19 or any other bacterial or viral infection, urinary tract infection, and acute kidney injury secondary to underlying infection were kept as differentials.

#### Treatment

On presentation, the patient had labored breathing so Continuous Positive Airway Pressure (CPAP) ventilation was given. He was managed on the lines of critical COVID pneumonia, episcleritis secondary to COVID-19 vaccination and acute kidney injury, and was shifted to COVID-19 Special Care Unit. CPAP was intermittently applied. Infectious disease, pulmonology and ophthalmology teams were consulted. Injection paracetamol 1000mg three times a day, dexamethasone 6mg once daily, remdesivir 100mg once daily and enoxaparin in renal adjusted doses were given. Artificial tears were given and cold compresses were done on

the eye. Patient later on deteriorated and was intubated. He died after 6 days due to the protracted disease course and ST elevation Myocardial Infarction (STEMI).

**Results:** Episcleritis was transient and resolved after twelve days of symptom development. The patient died after six days of hospital admission due to STEMI.

**Conclusion:** This case report highlights a rare ophthalmologic manifestation following the second dose of COVID-19 vaccination ‘Sinopharm’. COVID-19 vaccine was introduced to the people in

December 2020, and its adverse effects are still under study. Proposed mechanisms for these adverse health outcomes include reactogenicity to the lipid nanoparticles, production of inflammatory mediators in the body causing muscle redness, swelling, flu-like symptoms, and antibody-dependent enhancement (ADE)[10].

Negro Francesco explained the pathogenicity of COVID-19 by three mechanisms, namely,

cytotoxic, immune-mediated and antibody-dependent enhancement[11]. Antibodies cause conformational changes in the spike protein of the coronavirus, allowing the virus to enter the host cells but making them vulnerable to proteolysis. The problem is that only one virus serotype is targeted while others are only sub-neutralized. This results in the activation of the latter viruses after vaccination[12]. As new strains of SARS COV-2 are found, vaccine resistance and antibodydependent enhancement are becoming major concerns[13,14].

Y.C.Chau, in his study, thoroughly explains the ophthalmologic manifestations of COVID-19 and proposes the idea of their occurrence via antibody dependent enhancement after vaccination[7]. Foreign body sensation in the eye, conjunctival hyperemia, chemosis, increased secretions, ocular pain, epiphora, keratitis, scleritis, episcleritis, and

ophthalmoplegia are all possible ophthalmologic manifestations of COVID-19 infection[1517]. Case reports have shown the development of bilateral choroiditis, vision loss and panuveitis after COVID vaccine[18-20]. In our case, we report the development of episcleritis after the second dose of COVID-19 vaccine 'Sinopharm', followed

by the development of critical COVID pneumonia.

The development of episcleritis and critical COVID pneumonia brings to attention the fact that antibody-dependent enhancement can cause severe COVID-19 illness after vaccination as new variants of SARS COV-2 are found. The symptoms of the infection might be transient or progressive. Further researches and observations are needed in this regard. The report also proposes the idea that reinfection by a different variant of the virus might be more severe after the second dose. Thus SOPs should be followed even after vaccination, to protect one from getting infected by a different variant and to prevent worse disease outcomes.

Take Home Message:

- 1) Patient needs to be carefully observed for any adverse health symptoms for early and late complications for at least 6 months after vaccination.
- 2) Immunocompromised and elderly patients (over 50 years of age) need to be especially followed to see the development of any adverse health outcome.
- 3) COVID pneumonia can occur even after COVID-19 vaccination.
- 4) Antibody dependent enhancement (ADE) and its effect on vaccination needs to be studied after the introduction of SARS COV-2 variants.
- 5) It is essential to follow SOPs even after vaccination.

**Keywords:** Public health, COVID-19, Vaccination

2.57

***TO DETERMINE THE ACCURACY OF AXILLARY ULTRASOUND IN ASSESSMENT OF METASTATIC AXILLARY NODES IN BREAST CANCER PATIENTS AT A TERTIARY CARE CENTER IN PAKISTAN***

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**Background:** Sentinel lymph node biopsy (SLNB) has to a greater extent supplanted axillary lymph node dissection (ALND), as the standard of care for axillary node staging in breast cancer. This is supported by results of multiple observational studies, meta-analyses, and extensive literature encompassing all aspects of the procedure (1-3). The literature supports that patient with a negative SLNB don't need ALND, because the rate of axillary local recurrence after a negative SLNB is only 0.3% (4). The literature also supports that disease free status and overall survival are not affected by doing ALND in addition to SLNB, and the morbidity of SLNB is less than that of ALND. Combination of ultrasound with ultrasound guided node biopsy (UNB) for assessment of the axilla in women with newly diagnosed breast cancer has been evaluated for many years (5-7) and has also been included in guidelines in recent years (8). The use of preoperative ultrasound and UNB to assess axillary node status has been partly due to the buildup of evidence on this methodology (5), and partly due to the efficiency, practicality, and relative easiness and modest cost of this staging strategy. Extension of ultrasound scanning of the breast to include the axilla in cases with suspected breast cancer is relatively quick, and UNB skills are easy to develop extrapolating on experience (and established technical logistics) of ultrasound-guided biopsy of the breast in general.

Ultrasound evaluation and guided core biopsy plays a pivotal role in the breast cancer staging. Correct pre-operative diagnosis of axillary nodal status spares the patient from a second operative procedure. There is no agreed standard for accuracy but several groups have published their results (9-11). Therefore, it is difficult to draw any conclusion from studies done on diagnostic accuracy of axillary ultrasound because different studies have given a wide range of sensitivity and specificity of this diagnostic procedure where the sensitivity range is from 26% to 94% and the range is 52% to 98% for specificity (12-15).

**Study Design and Method:** This descriptive study was conducted at The Radiology Department of the Aga Khan University Hospital. The study period was from January 2019 to December 2019. Convenience sampling was used and all patients with operable breast cancer who had clinically negative axilla were included. The breast and axillary ultrasound were performed in our department and patients underwent ultrasound guided core biopsy (CNB) if abnormal lymph nodes were found, and all patient with normal lymph nodes on ultrasound underwent SLNB. The data for malignant lymph nodes which were subjected to ultrasound guided core biopsy and the data of lymph nodes which were reported as normal on ultrasound and patient underwent SLNB was recorded (Figure 1). It was a retrospective study and included review of patient charts therefore, exemption was taken from hospital ethical review committee.

The inclusion criteria were all females with histologically diagnosed breast cancer who had clinically negative axilla and suspicious axillary lymph nodes reported on ultrasound. The criteria for suspicious lymph node on ultrasound included (1) eccentric/thickened cortex ( $\geq 3$  mm) or lobulation with displacement of hilum, (2) absent hilum or irregular borders, (3) hypoechoic echo texture, (4) spherical node, and (5) peri-nodal vascularity (16-18). All patients who had normal nodes on axillary ultrasound

underwent SLNB and were also included. Patients with known breast cancer with palpable axillary nodes, patients planned for neo-adjuvant chemotherapy and patients who were pregnant or lactating, were excluded. All patients with incomplete medical record were also excluded.

Axillary ultrasounds and axillary lymph node biopsies were performed by experience radiologist with more than 10 years of experience in breast imaging. Biopsy of suspicious lymph nodes were performed by using an automated gun and using 10cm 18 Gauge needle. Three to 5 cores were taken from the most suspicious appearing node/part of lymph node. The patient whose lymph node biopsy was negative were subjected to SLNB. Data was collected and analyzed using SPSS 22 (IBM Corp., Armonk, NY). Descriptive variables like age, side, quadrant of breast most commonly affected were expressed as relative frequencies and percentages. Sensitivity, specificity, positive and negative predictive values and accuracy was calculated by comparing the results of axillary ultrasound (US), US guided core biopsy and final histological findings (SLNB and/or ALND).

**Results:** A total of 217 patient underwent axillary ultrasound at our department during the period. Among these patients 137 had suspicious lymph node on axillary ultrasound and were subjected to ultrasound guided core needle biopsy, whereas 80 patients had normal appearing lymph nodes on axillary ultrasound and were subjected to SLNB procedure.

The age range was 15 to 81 years for CNB group and 21 to 88 years for SLNB group, with mean age of  $52 \pm 14.27$  and  $57 \pm 13.3$  years respectively. The final histopathology (n=217) of primary breast cancer was ductal carcinoma in situ in 51 cases, invasive ductal carcinoma in 110 cases, lobular carcinoma in 25 cases and mixed tumors in 31 patients. Left breast was affected more commonly in both groups with 54.7% in biopsy group and 52.4% in SLNB group. In both groups the left upper outer



quadrant was most commonly affected by primary cancer with 32.8% in CNB group and 35.4% in SLN group followed by 29.2% in CNB group and 20.3% in SLNB group in right upper outer quadrant. There were 76 true positive (n=137), 61 false positive (n=137), 65 True negative (n= 80) and 15 false negative (n= 80). The calculated sensitivity, specificity, PPV, NPV and accuracy were 83.51%,51.58%,55.47%, 95% and 65% respectively.

**Conclusion:** This study shows that ultrasound of axilla for evaluation of lymph nodal status in breast cancer patients has a high sensitivity and negative predictive value of 83.51% and 95% respectively, and a diagnostic accuracy of 65%. Axillary ultrasound is a recommended modality for evaluation of axilla in patient with breast cancer in order to avoid unnecessary SLNB procedure and directly proceed to ALND. However, core needle node biopsy should be routinely done to confirm nodal disease and increase the specificity.

**Keywords:** Breast cancer, Core needle biopsy, sentinel lymph node biopsy.

## 2.59

### **ACCURACY OF BROSELOW TAPE WEIGHT ASSESSMENT AMONG PEDIATRIC POPULATION PRESENTING TO THE EMERGENCY DEPARTMENT OF A LOW MIDDLE INCOME COUNTRY**

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*Dr Noman Ali*

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**Background:** The pediatric population has different weights at different ages. Accurate and precise weight measurement is of utmost importance in pediatric emergency for weight-related dose calculation of drugs and fluids, equipment sizes, an accurate dose of electrical currents during cardiac shock, etc. In this study,

we aim to determine the accuracy and reliability of Broselow Tape (BT) weight and compare its precision with estimated and actual weight among our pediatric population.

**Study Design and Method:** This was a single-center cross-sectional study conducted in the pediatric emergency department of the Aga Khan University Hospital, Karachi. Mean and standard deviation was calculated for normally distributed continuous variables whereas frequencies were calculated for categorical variables. Linear regression was used to analyze the data comparing the BT weight with estimated weight, and calculate the Pearson correlation coefficient (r) and accuracy (r<sup>2</sup>). Passing and Bablok regression analyses were applied to see the accuracy of agreement between the actual and BT weight.

**Results:** A total of 250 patients were included in the study after parental consent with equal distribution of males and females. The mean age was 5.26 ( $\pm$  2.37) years with the majority of children were below 5 years of age. The mean actual weight in Kg was 14.15 ( $\pm$  5.64), BT weight was 14.54 ( $\pm$  5.65), and estimated weight was 15.33 ( $\pm$  7.04). Pearson correlation coefficient showed a good correlation between the estimated weight and broselow tape weight (r=0.88 for age formula, and 0.85 for the Broselow tape) with a p-value of 0.0001. Passing and Bablok Regression analysis showed the perfect accuracy between actual weight and BT weight that falls around 0.980 with p = <0.001.

**Conclusion:** BT weight is an accurate method of weight assessment when compared with actual and age-related weight estimation formula. It can be safely used in the younger pediatric population to estimate weight for resuscitation.

**Keywords:** Broselow Tape, Weight Assessment, Emergency Department

## 2.60

### ***STREPTOCOCCUS MUTANS CARRIAGE IN SALIVA OF MOTHERS AND ITS ASSOCIATION WITH DENTAL CARIES AND STREPTOCOCCUS MUTANS CARRIAGE IN SALIVA OF CHILDREN BETWEEN 6 AND 30 MONTHS OLD IN A LOW INCOME SETTING IN KARACHI, PAKISTAN***

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#### **Background:**

1. To determine the association of maternal Streptococcus mutans counts with the Streptococcus mutans counts of their 6-30 months old children.
2. To determine the DMFT (decayed, missing and filled teeth) among 6-30 months old children and their mothers.

**Study Design and Method:** A community based cross-sectional study was conducted in Karachi, Pakistan. A sample of 193 dyads of mother-children (6-30 months of age) was selected via purposive sampling. Saliva samples of the dyads were collected to assess Streptococcus mutans count. Caries assessment was performed for both using the DMFT (decayed, missing and filled teeth) index. A pretested questionnaire was used. The association of bottle-feeding, oral hygiene measures and other factors with S. mutans counts in children were also explored. Zero inflated negative binomial regression model at 5% level of significance was applied using STATA version 12.0.

**Results:** Out of 193 children, 109 (56.47%) were males and 84 (43.52%) were females. Mean age of mothers and children was  $29.4 \pm 6.2$  years and  $19.54 \pm 6.8$  months, respectively. Maternal S. mutans counts were not statistically associated

with child's S. mutans counts (Mean child's S. mutans count ratio: 1, 95% CI: 1, 1.01). Compared to children who were breastfed, S. mutans counts were higher in children who were bottle fed (mean S. mutans count ratio= 4.85 [95% CI: 1.53, 15.41]). Age of mother and present caries status of mothers was significantly associated with the child's S. mutans count.

**Conclusion:** No association between maternal S. mutans and child S. mutans was observed. However, maternal age, children who were breastfed, children who did not use pacifier and children with mothers who did not have caries, exhibited low S. mutans counts in their saliva.

**Keywords:** Dental caries; Early childhood caries; Saliva; Streptococcus mutans; Bottle-feeding; Breastfeeding

## 2.61

### ***REDUCING CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS (CLABSI) RATES IN CCU) AT TERTIARY CARE HOSPITAL AKUH***

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**Background:** In the last three quarters i.e. Q1 2020, the rate of CLABSI was suddenly raise to 15.62 as compared to previous quarters where it was zero among cardiology patients with device utilization ranging between 9-31 in a month. The reason identified was the inadequate utilization of alcohol swabs to the extent of need of patients with central line in cardiology.

**Study Design and Method:** Data collection on usage of alcohol swabs was done for each patient with central line in March, 2020. Record reviewed to see the average number of alcohol swabs issued per patient in our ward. Daily observation method was used to see the accessibility of alcohol swabs in ward and the point of care. Discussions done with Head of distribution Department regarding the actual quantity of supply to the CCU & possible investigations to be done in this regard.

Interviewing of the staff about non-compliance to CLABSI bundle. More than 20 Education sessions taken in the Month of April 2020 on proper use of alcohol swabs and CLABSI Bundle to cater more than 80% of the staff of CCU handling CVP on daily basis..

**Results:** Out of the 30 staff practices spot check ,only 33% of the staff use alcohol swab while handing central line which was very low compliance rate in the month of March 2020. During intervention period in the Q2 2020, CLABSI Rate decrease from 15.62 to 0. And sustain the same rate in till date. And won the CLABSI Free Golden certificate form infection control department to be first unit for achieving this in hospital in the year of 2021

**Conclusion:** Problems were identified at both side availability and compliance, literature supports that alcohol swabs can better prevent the central line associated infections in the healthcare setting. Therefore, it is the responsibility of both, the system & the staff for the availability & proper utilization of the alcohol swabs according to need to follow CLABSI Bundle to prevent such challenges in future.

**Keywords:** CLABSI, Compliance, bundle

## 2.62

### ***A COMPARISON OF THREE DIFFERENT MODALITIES IN IMPROVING ORAL HYGIENE IN ADULT ORTHODONTIC PATIENTS - A RANDOMIZED CONTROLLED TRIAL***

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**Background:** The objective of the study was to compare outcomes in terms of Bleeding index (BI), Gingival Index (GI) and Orthodontic Plaque Index (OPI) with videographic and plaque disclosing tablets (PDT) versus verbal

instructions in adult orthodontic patients undergoing fixed appliance treatment.

**Study Design and Method:** Adult orthodontic patients were recruited who fulfilled the inclusion criteria and were randomly allocated to three groups i.e. video, PDT and verbal groups. Pre- and post-interventional measurements were taken at two intervals only for BI, GI and OPI. The one-way ANOVA and paired t-test were used to evaluate the differences among the three groups. Post-stratification one-way ANOVA was used for age, gender and education level. Simple linear regression was applied to predict the factors associated with greater mean change in oral hygiene indices

**Results:** The mean change in the oral hygiene indices score were assessed and we found no statistically significant difference among the three interventional groups. Pre- and post-interventional results showed statistically significant improvement in the oral hygiene indices for video and PDT group. No statistically significant difference for age, gender and education level on oral hygiene indices. Simple linear regression showed that video group produced significantly higher mean OPI change as compared to other groups.

**Conclusion:** Visual aids performed better as compared to the verbal group. Gender, age and education level had no statistically significant impact on the oral hygiene indices. Longer follow-ups will be required to see the long-term effects of these interventions

**Keywords:** Oral hygiene, Orthodontic treatment, Adults

## 2.64

### **FEASIBILITY OF HCV SELF-TESTING IN AN ENDEMIC PERI-URBAN AREA**

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**Background:** Pakistan has the second highest burden of Hepatitis C (HCV) globally. Since under-diagnosis remains a barrier in HCV elimination, use of low-cost rapid screening tests can improve access to testing and linkage to care. WHO approved self-testing kits are being successfully used for HIV screening. This study was conducted to determine the feasibility and acceptability of HCV self-testing using the OraQuick® HCV rapid antibody test which is currently licensed for professional use only.

**Study Design and Method:** This was a cross-sectional study conducted in a secondary hospital of HCV endemic, resource limited Malir district of Karachi. Individuals presenting to the hospital above 18 years of age with unknown HCV status were included. Participants were provided written and pictorial instructions to perform HCV self-test using oral fluid. Participants performed tests and interpreted their results while being observed. The kits were re-read by study staff blinded to self-reported results to determine inter-reader agreement. Participants were also tested by healthcare workers using professional version of the test to study inter-operator agreement. Acceptability and preferences of HCV self-testing were also explored through interviews.

**Results:** 105 participants were enrolled of which 54% were females. 52% participants had no formal education or up to primary school education. 90% participants completed the test correctly and 98% interpreted results correctly. The agreement with professional test was 97%. 100% of the participants showed willingness to re-use the test and recommend it.

**Conclusion:** The results exhibit high acceptability and feasibility of HCV self-testing. It can improve HCV screening coverage while ensuring confidentiality and convenience especially in hard to reach, vulnerable populations.

**Keywords:** HCV; self-testing; oral fluid

## 2.65

### **ORAL SALIVA ANTI-HCV ASSAY: ASSESSING RELIABILITY OF COMMUNITY SCREENING FOR HEPATITIS C IN A PERI-URBAN AREA OF PAKISTAN**

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**Background:** Screening of Hepatitis C infection (HCV) is commonly done via finger-prick serum anti-HCV Rapid Diagnostic Test (RDT). However, many subjects are hesitant and fearful of pin pricks, driving a shift towards non-invasive and easy to administer screening tests. In this study, we evaluated the sensitivity and specificity of the Fortune anti-HCV oral assay in a resource-limited, peri-urban community of Karachi, Pakistan.

**Study Design and Method:** This prospective cohort study was conducted in Malir district, highly endemic for HCV. Individuals 18 years or above were screened for HCV antibody using both Fortune anti-HCV oral assay (Fortune Bioscience Co., Zhengzhou, China) and RDT (SD Rapid Test 02FK10, Standard Diagnostics, Inc., Republic of Korea). Positive results from the two screening tests were subsequently tested for ARCHITECT HCV core antigen (HCVcAg) assay from Abbott Diagnostics to confirm active infection.

**Results:** 349 individuals were screened with mean age of  $36.2 \pm 15.0$  and 68.2% females. Compared to the RDT, sensitivity, specificity, negative predictive value and positive predictive

value of the Fortune anti-HCV oral assay were 100%, 99.6%, 100% and 98.5% respectively. Kappa value was 0.99, showing high consistency between the two tests. Of the positively screened, 55.8 % of Fortune anti-HCV oral assay positive and 56.7 % of the RDT positive were reactive for HCVcAg assay respectively.

**Conclusion:** Fortune anti-HCV oral assay showed high sensitivity and specificity compared to RDT and comparable PPV to RDT with respect to HCVcAg assay. It can therefore be used as an alternative to RDT to screen masses in large HCV elimination programs.

**Keywords:** HCV; self-testing; oral fluid

## 2.66

### **CASE REPORT: ENDOSCOPIC STENT PLACEMENT FOR MANAGEMENT OF GASTRO- PLEURAL AND GASTRO-CUTANEOUS FISTULA POST LAPROSCOPIC SLEEVE GASTRECTOMY**

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**Background:** Laparoscopic sleeve gastrectomy (LSG) has emerged as one of the most common bariatric procedures performed nowadays. LSG is considered safe, requiring less operative time, and keeps the anatomy of gastric pylorus intact. Nevertheless, it has its own risks. Complications of the procedure include risk of staple-line bleed, staple site gastric leakage, or formation of strictures. Gastric leakage commonly occurs at the angle of His and is associated with increased morbidity due to fistulous tract formation and sepsis. With the rise in bariatric procedures, endoscopic stent placements have of growing repute in the management of gastric leaks through the use of self expandable metallic stents (SEMS).

**Study Design and Method:** Case report

**Results:** Gastro-pleural and gastro- cutaneous fistula formation is one the rarest yet life threatening complication post bariatric surgery. The desired approach to a case with these complications should be a non-operative one, however re-operative surgery or stent insertion are the next best options once conservative measures fail. To our knowledge so far only limited cases of gastro pleural fistula post gastric sleeve surgery have been reported in literature with their corresponding management. Therefore, we are reporting a case of placement of endoscopic stent in the management of gastro- cutaneous fistula post bariatric surgery.

**Conclusion:** Laparoscopic sleeve gastrectomy (LSG) has emerged as one of the most common bariatric procedures performed nowadays. LSG is considered safe, requiring less operative time, and keeps the anatomy of gastric pylorus intact. Nevertheless, it has its own risks. Complications of the procedure include risk of staple-line bleed, staple site gastric leakage, or formation of strictures. Gastric leakage commonly occurs at the angle of His and is associated with increased morbidity due to fistulous tract formation and sepsis. With the rise in bariatric procedures, endoscopic stent placements have of growing repute in the management of gastric leaks through the use of self expandable metallic stents (SEMS).

**Keywords:** Sleeve gastrectomy, bariatric surgery , endoscopic stent placement

## 2.67

### **EFFICACY OF CORTICOSTEROID ADMINISTRATION IN PATIENTS WITH HEMOLYSIS, ELEVATED LIVER ENZYMES, AND LOW PLATELET COUNT (HELLP) SYNDROME: A META ANALYSIS**

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University, Internal Medicine, Dow University of Health Sciences, School of Environmental & Biological Sciences, Rutgers University and Department of Neurobiology & Behavior, Cornell University

**Background:** Hemolysis, elevated liver enzymes and low platelets (HELLP) syndrome is considered an obstetrical emergency, posing risk for high maternal morbidity and mortality if left untreated. Since corticosteroids (CS) have been postulated to modify some of the pro-inflammatory features of HELLP syndrome, our study aims to evaluate the prognostic benefits of CS in HELLP syndrome.

**Study Design and Method:** We performed a systematic literature review using multiple electronic databases. Continuous data under the generic inverse variance model was pooled and expressed as a standardized mean difference while the dichotomous data was analyzed using the Mantel-Haenszel model and expressed as odds ratios.

**Results:** Nineteen studies were included. Administration of CS in HELLP syndrome was associated with a significantly increased platelet count (MD: 38.71 p < 0.05), decreased LDH (MD: -0.17 p < 0.05), decreased requirement for packed red blood cell transfusion (OR: 0.46 p < 0.05), decreased requirement for plasma transfusion (OR: 0.29 p < 0.05), and an increased risk of infection (OR: 1.65 p < 0.05).

**Conclusion:** Our results reaffirm those of prior meta-analyses conducted on the effects of CS in HELLP syndrome. Particularly, they highlight CS known effect in optimizing platelet count for the obstetrical patient. Interestingly, our meta-analysis demonstrates a significant decrease in LDH amongst patients with HELLP who received CS. Although LDH is a marker of hepatocellular dysfunction, it is not advisable at this point to utilize CS for HELLP keeping in view the lack of a statistically significant change in hepatic morbidity and the increased rate of maternal infections. However, considering the small sample size in the studies included, future

trials with more participants are required to elucidate the true impact of CS on hepatic morbidity.

**Keywords:** HELLP, Pregnancy, Corticosteroids

## 2.68

### **THE EFFECTIVENESS OF FECAL MICROBIOTA TRANSPLANT IN REDUCING IRRITABLE BOWEL SYMPTOMS: AN UPDATED META-ANALYSIS AND SYSTEMATIC REVIEW**

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**Background:** Irritable bowel syndrome (IBS) is a complex functional gastrointestinal disorder thought to be characterized by a dysbiosis of gut microbiota. Fecal microbiota transplantation (FMT) has been proposed as a potential treatment to restore gut microbiome diversity and provide symptomatic relief in patients with IBS. We conducted meta-analyses and a systematic review of currently available randomized controlled trials (RCTs) to evaluate the effectiveness of FMT in IBS.

**Study Design and Method:** We conducted a systematic literature search of PubMed and Cochrane Central Register of Controlled Trials. Meta-analysis was conducted to evaluate the relative risk (RR) with a 95% confidence interval (CI) of FMT vs placebo with the primary outcome being reduction in IBS-SSS.

**Results:** 7 studies comprising 538 patients met our inclusion criteria. FMT had no significant improvement in the reduction of IBS symptoms as compared to the standard placebo treatment (RR=1.14; 95% CI 0.84-1.55), however subgroup analyses revealed that multiple dose

FMT (RR=0.54; 95% CI 0.34-0.85) had a decreased likelihood of reducing IBS symptoms, while single-dose FMT (RR=1.40; 95% CI 1.20-1.64) had increased likelihood of reducing IBS symptoms when compared with the placebo and this was statistically significant.

**Conclusion:** Our results are similar to the last meta-analysis with evidence suggesting that FMT does not yield a significant benefit in relieving IBS symptoms. Subgroup analysis results are still perplexing as it would seem reasonable that if a single-dose FMT improves IBS symptoms, then a double-dose treatment would as well. This may be due to the overwhelming nature of excess gut microbiota in the colon, thereby exacerbating clinical symptoms in these patients. Further randomized control trials should be conducted to not only continue to look at the effect of FMT for IBS symptom reduction, but also to answer why certain doses may have better clinical outcomes.

**Keywords:** Fecal microbiota transplant, Irritable Bowel Syndrome, Dysbiosis

## 2.69

### **LATERAL ABDOMINAL WALL HEMATOMA MIMICKING SEPTIC SHOCK IN EMERGENCY DEPARTMENT(ED)..... A DIAGNOSTIC CHALLENGE:**

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**Background:** Abdominal wall hematoma is an uncommon entity seen in ED. It can mimic other causes like bowel obstruction, aortic aneurysms, diverticulitis, appendicitis. Advance age, anticoagulation use, obesity and trauma are common risk factors. Commonly seen in rectus sheath while lateral abdominal wall is relatively rare location. Most cases are managed conservatively.

**Study Design and Method:** Case presentation

**Results:** We describe a case of 65 years lady with recent history of hospital admission for pneumonia, now presented in ED with worsening abdominal pain followed by ground level fall a day ago. Patient was hypotensive, tachycardiac, examination showed tender right lower abdomen with overlying skin bruise but no overt bleeding. Initial differentials made were acute bowel obstruction, possible appendicitis. The diagnostic challenge came when PoCUS suggested solid tumor owing to homogeneous echogenicity of lateral abdominal wall. Hemodynamic instability with rising TLC favored septic shock, however decreasing hemoglobin from previous admission raised the suspicion of acute hemorrhage. To look for source of bleeding we had CT abdomen with contrast done which revealed hyperdense area in right lower quadrant consistent with abdominal wall hematoma with significant fat stranding. Patient was resuscitated with IV fluids, pack cell transfused, analgesics and antibiotic given. Vasopressors initially started, tapered gradually. Patient managed conservatively, and discharged.

**Conclusion:** Lateral abdominal wall hematoma is a rare presentation, can mislead physician especially if its in abdominal quadrant known to have common causes of acute abdomen. Patients having mentioned risk factors with hemodynamic instability, this differential should be in mind so that early recognition, timely transfusion could be initiated. PoCUS can be chosen as diagnostic aid but findings should be correlated with clinical presentation. In such cases CT with contrast is appropriate next step. Both conservative and surgical intervention are available treatment options.

**Keywords:** Abdominal wall hematoma, PoCUS, mimicking septic shock

## 2.70

### **QUALITY IMPROVEMENT OF DVT PROPHYLAXIS ADMINISTRATION [QIDPA]**

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**Background:** Venous Thromboembolism (VTE) is a preventable cause of mortality and morbidity, particularly in an in-hospital setting. However, studies have shown that VTE has led to almost 10% of all hospital-related deaths. Despite being preventable through either pharmacological or mechanical methods, deep vein thrombosis (DVT) and VTE are still often overlooked in healthcare settings. Our study aims to perform a retrospective analysis of patients and analyze occurrence of VTE and DVT in patients who had been admitted, and whether they were administered any VTE/DVT prophylaxis during their stay. Using this data, we aim to educate health professionals at AKU on current guidelines and improve upon existing policies at place.

**Study Design and Method:** A retrospective analysis on a subset of patients (age >18 years) that were admitted with VTE or DVT at Aga Khan University Hospital between 1st August 2018 to 31st August 2019 was done. Discharge summaries were reviewed and of those, patients were included if they were readmitted within 1 month or 6 months of a previous admission with VTE/DVT or if they developed VTE/DVT within their initial stay. Data was collected on patient age, sex, length of stay, initial diagnosis, comorbidities, if DVT prophylaxis was administered, type of DVT prophylaxis administered and the date of prophylaxis was ordered.

**Results:** 183 hospital encounters were analysed which contained 144 individual patients. 27% (n=39) fit the criteria listed above. 36% (n=14)

were readmitted within 1 month, 36% (n=14) were readmitted within 6 months and 28% (n=11) developed DVT/VTE within their initial stay. 2 patients from this cohort developed Pulmonary Embolism as well. 56% (n=22) were not ordered VTE/DVT prophylaxis.

**Conclusion:** DVT prophylaxis is often not utilized nor prioritized appropriately in many healthcare settings. Lack of effective training regarding appropriate use, a lack of compliance and prioritization to the existing DVT protocol are thought to contribute to the statically high incidence of DVT/VTE/PE. A standardized curriculum to educate residents and nurses regarding the prophylaxis should be integrated within resident education.

**Keywords:** Venous Thromboembolism (VTE), Deep Vein Thrombosis (DVT), Prophylaxis, In-Patients

## 2.71

### **FACTORS ASSOCIATED WITH LIP INCOMPETENCY IN SKELETAL CLASS II MALOCCLUSION – A CROSS-SECTIONAL STUDY**

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*Department of Surgery, Aga Khan University*

**Background:** The study aimed to identify the various dental, skeletal and soft tissue cephalometric variables that are associated with lip incompetency in patients with skeletal class II malocclusion.

**Study Design and Method:** A cross-sectional study was conducted on a sample of 40 skeletal class II subjects, aged 18-35 years. Pre-treatment frontal and lateral facial photographs along with standardized lateral cephalograms were used. The subjects were categorized into two groups (competent and incompetent lips) based on the facial photographs. Soft tissue Holdaway cephalometric variables were measured to evaluate the factors which may



predict the increased risk of lip incompetency in skeletal class II patients. An independent t-test was used for the comparison of cephalometric variables between competent and incompetent lips. Cox regression analysis was applied to predict variables associated with lip incompetency.

**Results:** There were statistically significant differences found between the two study groups for inter-incisor angle (IIA) ( $p < 0.001$ ), S-line to upper ( $p < 0.001$ ) and lower lip ( $p = 0.009$ ), E-line to upper ( $p = 0.006$ ) and lower lip ( $p = 0.005$ ), prominence of upper lip ( $p < 0.001$ ) and lower lip ( $p = 0.015$ ), upper lip thickness ( $p = 0.008$ ) and strain ( $p = 0.031$ ). Cox regression analysis showed that IIA (HR = 0.952, CI: 0.920, 0.985), E-line to lower lip (HR = 1.165, CI: 1.001, 1.379), S-line to upper lip (HR = 1.276, CI: 1.030, 1.580), upper lip prominence (HR = 1.451, CI: 1.067, 1.974) statistically significantly influenced lip competency.

**Conclusion:** Subjects with incompetent lips exhibited a retruded mandible, hyperdivergent and convex profiles with a protruded dentoalveolar pattern compared to those with competent lips. Upper lip prominence and strain, overjet, upper sulcus depth, E-line to the lower lip, S-line to upper lip were found to be associated with lip incompetency in adult skeletal class II subjects.

**Keywords:** Cephalometry, Soft tissue profile, Skeletal class II

## 2.73

### **TRENDS IN PEDIATRIC CANCERS FROM A HOSPITAL BASED REGISTRY, SINGLE CENTRE EXPERIENCE IN LMIC OVER 10 YEARS**

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**Background:** In the absence of population based cancer registries, hospital records can only highlight the importance of collection and

analysis of data to address the burden of cancer among children. For this purpose, a hospital-based registry's pediatric cancer data (individuals aged 0-18 at diagnosis) from 2010 to 2019 was compiled and analyzed at The Aga Khan University hospital (AKUH) in Karachi, Pakistan.

**Study Design and Method:** A paper-based system is used to record all interactions with patients at the hospital. A dedicated team of Cancer Registrars transcribe this data onto a US based registry software; CNExT. Registry data was extracted through software generated reports and compiled for analysis.

**Results:** The total number of children presented at our center was 2,694, out of which 1,673 (62%) were males while 1,021 were females. Top 5 sites were bone marrow ( $n=887$ , 32.9%), central nervous system ( $n=481$ , 17.8%), lymphoid tumors ( $n=294$ , 10.9%), bone ( $n=255$ , 9.5%) and soft tissues ( $n=145$ , 5.4%). All other sites contributed to 632 cases, 23.5% of the total patient population. Furthermore, 806 patients were aged 0-4, 627 were aged 5-9, 684 were aged 10-14 while 966 patients were 15-19 years old.. A consistent increase of 210% was noted during the 10-year period.

**Conclusion:** Our database analysis shows that the top 5 cancer sites are consistent with other databases around the world. With a broad geographical representation, we can assume this reflects the population at large. Increase in numbers may reflect awareness and referral pattern emphasizing the need for capacity building at the national level to accommodate patients locally so families don't have to travel over provincial and international borders to receive treatment

**Keywords:** pediatric cancer, cancer trends, hospital based registry

## 2.74

### **URINARY METABOLOMICS USING GAS CHROMATOGRAPHY MASS SPECTROMETRY: POTENTIAL BIOMARKERS FOR AUTISM SPECTRUM DISORDER**

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**Background:** Diagnosis of autism spectrum disorder (ASD) is generally made phenotypically and the hunt for ASD-biomarkers continues. The purpose of this study was to compare urine organic acids profiles of ASD versus typically developing (TD) children to identify potential biomarkers for diagnosis and exploration of ASD etiology.

**Study Design and Method:** This descriptive cross-sectional study was performed in the Section of Chemical Pathology, Department of Pathology and Laboratory Medicine in collaboration with the Department of Pediatrics and Child Health, Aga Khan University, Pakistan. Random urine samples were collected from children with ASD diagnosed by a pediatric neurologist based on DSM-5 criteria and TD healthy controls from August 2019 to June 2021. The urine organic acids were analyzed by Gas Chromatography-Mass Spectrometry. To identify potential urinary biomarkers for ASD canonical linear discriminant analysis was carried out for the organic acids, quantified in comparison to an internal standard.

**Results:** A total of eighty-five subjects were enrolled in the current study. The mean age of the ASD (n=65) and TD groups (n=20) was 4.5±2.3 and 6.4±2.2 years respectively with 72.3% males in the ASD group and 50% males in the TD group. Parental consanguinity was 47.7% and 30% in ASD and TD groups, respectively. The common clinical signs noted in

children with ASD were developmental delay (70.8%), delayed language skills (66.2%), and inability to articulate sentences (56.9%). Discriminant analysis showed that 3-hydroxyisovaleric, homovanillic acid, adipic acid, suberic acid, and indole acetic were significantly different between ASD and TD groups. The biochemical classification results reveal that 88.2% of cases were classified correctly into 'ASD' or 'TD' groups based on the urine organic acid profiles.

**Conclusion:** The urine organic acids that were good discriminators between ASD and TD groups were 3-hydroxy isovaleric acid, homovanillic acid, adipic acid, suberic acid, and indole acetic. The discovered potential biomarkers could be valuable for future research in children with ASD.

**Keywords:** Organic acids, Autism, Gas chromatography/mass spectrometry

## 2.75

### **PRESENTING IGG4-RELATED DISEASE: AN EMERGING ENTITY IN PAKISTAN**

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**Background:** IgG4 related disease (IgG4-RD) is a spectrum of immune mediated, chronic fibro-inflammatory disorder seen in almost every organ of the body. IgG4, a subclass of IgG is considered as diagnostic marker of this disease but around 20-40% of patients with IgG4-RD may have normal serum IgG4, despite the pathognomonic histopathological findings

**Study Design and Method:** Subjects tested for serum IgG4 and all biopsies of subjects with suspected IgG4-RD received at the clinical laboratory of a tertiary care hospital from April 2015 to December 2019 were included. Medical charts of subjects registered were reviewed and telephonic interviews were conducted. Subjects were divided into two groups: group I had

biochemical evidence of IgG4-RD while group II had histopathological evidence of IgG4-RD. “Comprehensive diagnostic criteria for IgG4-RD, 2011” was used for labeling patients as possible, probable and definitive IgG4-RD.

**Results:** A total of 177 study subjects were recruited in the current study. Group I included 10 children and 105 adults whereas group II had 5 children and 57 adults. Out of the total 177 subjects definitive, probable and possible IgG4-RD were seen in (n = 2, 1.1%), (n = 61, 34.4%) and (n = 114, 64.4) subjects respectively. The commonest organs involved in all the study subjects were pancreas (57.6%), submandibular gland (12.4%) and liver (6.2%).

**Conclusion:** The clinical feature of IgG4-RD include single or multiple organ involvement with pancreas being the most frequently affected organ in the current population. Amalgamation of clinical, biochemical and histopathological findings are essential for the IgG4-RD, although none is pathognomonic by itself.

**Keywords:** igG4, immune mediated

2.76

#### **RELATIONSHIP OF SPOT URINE OXALATE TO CREATININE RATIO AND 24 HOURS URINARY OXALATE EXCRETION IN PATIENTS WITH UROLITHIASIS**

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**Background:** The evaluation of 24 h urinary oxalate excretion is the gold standard for diagnosing hyperoxaluria in patients with recurrent urolithiasis. However, 24 h urine sample collection is cumbersome. Therefore we aim to see if oxalate to creatinine ratio in random urine sample can be used as an alternative.

**Study Design and Method:** A cross-sectional study was conducted at Section of Chemical Pathology, Department of Pathology and Laboratory Medicine Aga Khan University Karachi from 1st February to December 31, 2019. A total of 62 adult patients, 18-60 years of age with history of kidney stones presenting to the clinical laboratory for 24 h urine oxalate estimation were invited to participate in the study after informed consent. Clinical details were recorded on a structured questionnaire and patients were guided to submit 24 h urine and a random spot urine sample. Urinary oxalate was measured on Micro lab 300 using a kit based on oxalate oxidase principle by Trinity Biotech plc, Wicklow, Ireland following standard operating procedures. Urinary creatinine was measured on ADVIA 1800 by Siemens, US using kinetic Jaffe reaction according to the manufacturer's instructions. The data was analyzed on SPSS.

**Results:** In a period of ten months, a total of 62 subjects were recruited; mean age was  $32.4 \pm 2.6$  years. Males were 49 (79.0%) and females were 13 (20.9%). Correlation was found to be ( $r = 0.289$ ) by Spearman correlation ( $p$  value < 0.005). Taking 24 h urinary oxalate as gold standard the sensitivity, specificity, positive predictive value and negative predictive value of spot oxalate to creatinine ratio was 83.3%, 17.8%, 9.8% and 90.9% respectively.

**Conclusion:** The random spot urine test cannot replace the 24 h urinary oxalate estimation in patients with urolithiasis.

**Keywords:** 24-H urinary oxalate, FTIR, Fourier Transform Infrared Spectroscopy; HCL, Hydrochloric acid; Hyperoxaluria; PCNL, Percutaneous nephrolithotomy

## 2.77

### **CLINICAL PROFILE OF CHILDREN VISITING THE EMERGENCY DEPARTMENT AT A UNIVERSITY-BASED TERTIARY CARE HOSPITAL OF AN LMIC**

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**Background:** The emergency department is an essential and important unit of a healthcare facility that functions 24/7 and takes care of patients of all ages and includes all specialties. Pediatric emergency departments not only deal with patients presenting with general medical and surgical problems but also take care of patients presenting with trauma, whereas general emergency departments mostly deal with medical presentations in the pediatric population.

**Study Design and Method:** This prospective cross-sectional study was conducted in the emergency department of Aga Khan University Hospital from March 2013 through February 2014. Our randomized data collection method used the 'random' function on MS Excel and allowed for data collection on three days in one week and four days in another week. Descriptive analysis was done including mean  $\pm$  SD along with frequencies and percentages reported for categorical variables. Chi-squared and Fisher's exact tests were applied to see the association at a 95% confidence level, adjusting by a 5% level of significance.

**Results:** A total of 5015 pediatric patients visited the emergency department. Males accounted for 60.4%, and the median age of the patients was 37 months (IQR range 15-84 months). 70.8% were labeled as P3 patients as they arrived with an urgent presentation that required more than one resource for diagnosis and treatment. The most common presenting complaint was fever (40%) followed by nausea

(24.6%), vomiting (24.6%) and cough (13.5%). A majority of the patients presented with medical conditions as compared to surgical conditions (P-value<0.001\*). 58.92% of patients were discharged from the emergency department. Patients with main presentations were significantly associated with triage category P2 and P3 (P-value<0.001\*). Mortality rate was 0.42.

**Conclusion:** In this emergency department, around 90% of patients arrived with medical problems, with fever, gastrointestinal and respiratory problems as the most prevalent complaints. Like other LMICs, the burden of acute and chronic presentations is increasing in Pakistan, requiring more trained personnel and availability of resources. Communicable or infectious diseases remain a challenge at large that require special consideration and strict implementation of an extended program of immunization. The recognition of the disease spectrum is an important step in understanding the problem at hand and useful for generating policies for appropriate resource distribution.

**Keywords:** Pediatric ED, disease spectrum, triage category

## 2.78

### **FACTORS ASSOCIATED WITH MAMMOGRAPHIC BREAST DENSITY AMONG WOMEN IN KARACHI PAKISTAN**

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**Background:** There are no studies done to evaluate the distribution of mammographic breast density and factors associated with it among Pakistani women

**Study Design and Method:** Participants included 477 women, who had received either diagnostic or screening mammography at two

hospitals in Karachi Pakistan. Mammographic breast density was assessed using the Breast Imaging Reporting and Data System. In person interviews were conducted using a detailed questionnaire, to assess risk factors of interest, and venous blood was collected to measure serum vitamin D level at the end of the interview. To determine the association of potential factors with mammographic breast density, multivariable polytomous logistic regression was used.

**Results:** High-density mammographic breast density (heterogeneously and dense categories) was high and found in 62.4 % of women. There was a significant association of both heterogeneously dense and dense breasts with women of a younger age group < 45 years (OR= 2.68, 95% CI= 1.60-4.49) and (OR= 4.83, 95% CI= 2.54-9.16) respectively. Women with heterogeneously dense and dense breasts vs. fatty and fibroglandular breasts had a higher history of benign breast disease (OR = 1.90, 95% CI= 1.14–3.17) and (OR= 3.61, 95% CI= 1.90-6.86) respectively. There was an inverse relationship between breast density and body mass index. Women with dense breasts and heterogeneously dense breasts had lower body mass index (OR= 0.94 95% CI= 0.90-0.99) & (OR= 0.81, 95% CI= 0.76-0.87) respectively. There was no association of mammographic breast density with serum vitamin D levels, diet, and breast cancer.

**Conclusion:** The findings of a positive association of higher mammographic density with younger age and benign breast disease and a negative association between body mass index and breast density are important findings that need to be considered in developing screening guidelines for the Pakistani population.

**Keywords:** breast cancer, mammographic breast density, age, benign breast disease, body mass index

## 2.79

### **RELATIONSHIP BETWEEN ARFID, ANOREXIA AND BULIMIA NERVOSA WITH STRESS IN MEDICAL AND NURSING STUDENTS AT A TEACHING HOSPITAL, KARACHI, PAKISTAN.**

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**Background:** Eating disorders (EDs) including Avoidant/Restrictive Food Intake Disorder (ARFID) significantly impair physical and psychosocial functioning. Educational years are periods of stress which may provide ripe grounds for increased rates of EDs. We conducted this study to find relationship between ARFID, anorexia and bulimia nervosa with stress in students.

**Study Design and Method:** Maintaining confidentiality, we used convenience sampling to recruit 72 medical and nursing students. Self-reporting questionnaires including Eating Attitude Test-26 (EAT-26), Nine Item ARFID Screen (NIAS) and Depression Anxiety Stress Scale (DASS-21) were filled by consenting participants. Outcome measures included low and high risk ED screening, and subjective levels of stress, anxiety and depression. We looked at differences between age, gender, BMI, personal and family psychiatric history etc.

**Results:** In our study, 17.5% of the students reported issues in eating behaviors (drive of thinness, body dissatisfaction, and decrease interest in eating) but no significant association between EDs and stress or anxiety and depression was found. 26% participants were under, while 21% were overweight. Anxiety was associated with all ED types.

**Conclusion:** Stress is a known risk factor for EDs. College can be stressful and researches suggest that students are at greater risk. In our study, high level of dysfunctional eating behaviors were identified, although, no association between stress and EDs was found.

We speculate that one of the reasons for our findings was students' hesitance to report stress due to reasons like stigma. We recommend regular monitoring for eating changes which may improve psychological and physical wellbeing of students.

**Keywords:** ARFID, eating disorders, stress, anorexia, students

2.80

### **RISK FACTORS AND OUTCOMES OF UPPER GASTROINTESTINAL BLEEDING IN HOSPITALIZED PATIENTS IN A TERTIARY CARE HOSPITAL**

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University*

**Background:** Gastrointestinal bleeding in hospitalized patients is an important cause of morbidity and mortality. By determining the common risk factors of upper gastrointestinal bleeding in admitted patients, due to availability of better modalities of treatment such events can be prevented. This study is conducted to evaluate such cases and to provide a better understanding and predictability of risk in hospitalized patients.

**Study Design and Method:** This is a retrospective study which was conducted on patients admitted to Aga Khan Hospital during 2019–2021. All patients admitted for non-gastrointestinal disorders who developed upper GI bleeds as 'inpatient bleeds' were considered cases. They were reviewed for clinical characteristics, cause of bleeding and clinical outcome.

**Results:** hospitalized gastrointestinal bleeding was identified in 147 patients. 84% presented with overt GI bleeding and 16% with drop in Hemoglobin level. Amongst all these patients, 23% were on aspirin, 24% on dual antiplatelets, 27% on therapeutic anticoagulation, 55% on prophylactic anticoagulation, 4% on NSAIDS, 8% on steroids. Independent risk factors for

bleeding included age > 60 years, male sex, acute coronary syndrome, renal insufficiency, sepsis, being on a medicine service, and coagulopathy. 24.4% underwent endoscopy, out of which 5.4% had therapeutic measures to control bleeding. 9.5% of the patients had bleeding for more than 48 hours of duration leading to prolong hospitalization, 60% stepped-up to special care stay. Mortality was seen in 24% of the patients.

**Conclusion:** Hospital-acquired gastrointestinal bleeding is uncommon in hospitalized patients. In this study we identified several independent risk factors for gastrointestinal bleeding in hospitalized patients. Larger scale studies assessing the role of increased comorbidities and antithrombotic use in this setting are warranted.

**Keywords:** Upper gastrointestinal bleeding, Etiology, Melena, Hematemesis, Mortality

2.82

### **FACTORS ASSOCIATED WITH MEDICAL STUDENTS' CAREER CHOICES - A STUDY FROM A TERTIARY CARE UNIVERSITY HOSPITAL, KARACHI**

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Khan University*

**Background:** Students at medical universities graduate to pursue a broad range of specialties within Pakistan and abroad. This study aimed to identify the proportion of medical students who have decided which clinical postgraduate specialty they want to pursue after graduation and discover the factors associated with their choice of career and the decision to train abroad or in Pakistan.

**Study Design and Method:** This study was conducted at The Aga Khan University (AKU) in Karachi, Pakistan (ERC no. 2021-6101-17213). Students enrolled in the five-year Bachelor of Medicine Bachelor of Surgery (MBBS) program were invited to participate

through a pre-designed cross-sectional online survey, which included demographic information, preference of specialty and country of practice, rating of the factors that influenced their choices. Data was presented as numbers with percentages. Binomial regression was used to determine the factors associated with career choice using STATA version 16.

**Results:** A total of 224 students participated, with 38% (n=85) of them being first-year students. The proportion of students who had decided their specialization after graduation was 42.4% (n=96). Of those, 58% (n=56) desired to pursue surgery, followed by medicine, 17% (n=16). The regression analysis revealed that having a mentor/role model and competitiveness of the field significantly influenced their choice of specialty. A majority, 96% (n=215) of students aspired to pursue their postgraduate training from abroad, better training and income being the major determinants influencing this decision.

**Conclusion:** The study showed that most medical students intend to pursue their training abroad for better financial prospects and quality of training. Since mentors highly influence students' choice of careers, providing enthusiastic mentors could encourage medical students to pursue a broader range of specialties. There is also a great need for advances in postgraduate medical training and salaries to restore the faith of current medical students in the Pakistani healthcare system.

**Keywords:** Medical students, medical graduate, medical specialty, career choice, career preference, student demographics

2.83

### **RISK FACTORS FOR INTENSIVE CARE UNIT ADMISSION AND MORTALITY IN HOSPITALIZED COVID-19 PATIENTS**

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Aga Khan University

**Background:** This study investigated the clinical features and outcome of hospitalized coronavirus disease 2019 (COVID-19) patients admitted to our quaternary care hospital.

**Study Design and Method:** In this retrospective cohort study, we included all adult patients with COVID-19 infection admitted to a quaternary care hospital in Pakistan from March 1 to April 15, 2020. The extracted variables included demographics, comorbidities, presenting symptoms, laboratory tests and radiological findings during admission. Outcome measures included in-hospital mortality and length of stay.

**Results:** Sixty-six COVID-19 patients were hospitalized during the study period. Sixty-one percent were male and 39% female; mean age was 50.6±19.1 years. Fever and cough were the most common presenting symptoms. Serial chest X-rays showed bilateral pulmonary opacities in 33 (50%) patients. The overall mortality was 14% and mean length of stay was 8.4±8.9 days. Ten patients (15%) required intensive care unit (ICU) care during admission, of which six (9%) were intubated. Age ≥60 years, diabetes, ischemic heart disease, ICU admission, neutrophil to lymphocyte ratio ≥3.3, and international normalized ratio ≥1.2 were associated with increased risk of mortality.

**Conclusion:** We found a mortality rate of 14% in hospitalized COVID-19 patients. COVID-19 cases are still increasing exponentially around the world and may overwhelm healthcare systems in many countries soon. Our findings can be used for early identification of patients who may require intensive care and aggressive management in order to improve outcomes.

**Keywords:** COVID-19; critical illness; outcomes assessment.

## 2.84

### **EVALUATION AND VALIDATION OF COVID-19 SEVERITY ASSESSMENT SCORE (COSAS) MODEL AND COMPARING IT WITH QUICK SEQUENTIAL ORGAN FAILURE ASSESSMENT (QSOFA) IN ADULTS (> 18 YEARS) PRESENTING WITH COVID-19 INFECTION IN THE EMERGENCY DEPARTMENT: A NON-INTERVENTION**

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**Background:** Critical Covid-19 patients usually have multiple comorbidities and require expensive resources including Intensive care and ventilation support which might pose a challenge for the emergency physicians. Covid-19 Severity Assessment Score (CoSAS) is a tool that can aid emergency physicians and intensivists in identifying patients who will be needing invasive ventilator support. Therefore, in the present study we aim to validate the COVID-19 Severity Assessment Score (CoSAS) and compare it with qSOFA in predicting 28 day mortality outcomes. CoSAS could predict prognosis very early in patient care through risk stratification.

**Study Design and Method:** This prospective hospital based observational study was undertaken in the department of Emergency Medicine of Aga Khan University Hospital. Over a period of five months from March 2020 to July 2020. A total of 309 patients with covid-19 infection, confirmed by SARS-CoV-2 testing, were enrolled in the study. The mean COSAS Score of the patients is calculated as 5.5 ( $\pm 1.4$ ) while the mean Qsofa Score is 0.8 ( $\pm 0.6$ ). CoSAS of more than 6 was considered high risk.

**Results:** The main findings of our study can be summarized as follows: 1) CoSAS more accurately predicted 28 day mortality in an adult

patient with severe covid-19 illness as compared to qSOFA (AUROC 0.78 vs 0.70); 2) Age of more than 55 years, male gender and having previous co-morbidities such as HTN, DM, IHD and CKD are all predictors of severe covid-19 illness.

**Conclusion:** CoSAS is an accurate score to predict outcomes in covid 19 based on initial Emergency department investigations and impression.

**Keywords:** CoSAS, qSOFA, COVID 19

## 2.85

### **DIAGNOSTIC ACCURACY OF HEART SCORE IN PREDICTING MAJOR ADVERSE CARDIAC EVENTS IN THE EMERGENCY DEPARTMENT OF A TERTIARY CARE HOSPITAL OF A LOWER MIDDLE INCOME COUNTRY**

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**Background:** Chest pain is a commonly encountered presentation in the emergency department (ED), The HEART score has been proposed for emergency department (ED) prediction of major adverse cardiac events (MACE). We sought to determine the prognostic accuracy of the HEART score for prediction of MACE in adult ED patients presenting with chest pain.

**Study Design and Method:** This was a prospective observational cross sectional study conducted at Emergency Department, Aga Khan University Hospital Karachi over a period of 6 months from August 2019 to February 2020. A total of 159 patients were enrolled. HEART score of more than 3 was considered high risk for MACE.

**Results:** A total of 159 patients presented with chest pain were enrolled in this study. HEART score was computed for all the patients. Patients



were followed for 6-weeks and MACE was assessed. Mean HEART score of the patients was  $4.96 \pm 2.79$  with 34% (54) low risk ( $\leq 3$ ) and 66% (105) high risk ( $>3$ ) of MACE. The receiver operating characteristic (ROC) curve analysis showed the area under the curve (AUC) of 0.756 [95% CI; 0.680 - 0.831]. Accuracy of cutoff of HEART score  $>3$  for risk stratification for MACE at 6-weeks was 61.0% with sensitivity and specificity of 86.4% and 46.0% respectively

**Conclusion:** We found significant supporting evidence to confirm the HEART score's power for predicting the occurrence of major adverse events among patients with chest pain. A HEART score  $>3$  had shown good accuracy, sensitivity, and negative predictive value with reasonable specificity and positive predictive value.

**Keywords:** HEART score, MACE, chest pain, ACS

2.86

#### **ANTIMICROBIAL RESISTANCE IN TYPHOIDAL SALMONELLA: SURVEILLANCE FOR ENTERIC FEVER IN ASIA PROJECT, 2016–2019**

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**Background:** Clinicians have limited therapeutic options for enteric as a result of increasing antimicrobial resistance, and therefore typhoid vaccination is recommended as a preventive measure. As a part of the Surveillance for Enteric Fever in Asia Project (SEAP).

**Study Design and Method:** Prospective Surveillance Study, From September 2016–September 2019, SEAP recruited study participants of all age groups from its outpatient, inpatient, hospital laboratory, laboratory network, and surgical sites who had a diagnosis of febrile illness that was either suspected or

blood culture confirmed for enteric fever. Antimicrobial resistance of isolates was determined by disc diffusion using Clinical and Laboratory Standard Institute cut-off points. We reported the frequency of multidrug resistance (MDR) (resistance to ampicillin, cotrimoxazole, and chloramphenicol), extensive drug resistance (XDR) (MDR plus non-susceptible to fluoroquinolone and any 3rd generation cephalosporins), and fluoroquinolone (FQ) and azithromycin non-susceptibility.

**Results:** We enrolled 8,705 blood culture confirmed enteric fever cases: 4,873 (56%) from Bangladesh, 1,602 (18%) from Nepal and 2,230 (26%) from Pakistan. Of these, 7,591 (87%) were *Salmonella Typhi* and 1114 (13%) were *S. Paratyphi*. MDR *S. Typhi* was identified in 17% (701/4065) of isolates in Bangladesh, and 1% (19/1342) in Nepal. In Pakistan, 16% (331/2084) of *S. Typhi* isolates were MDR, and 64% (1319/2074) were XDR. FQ nonsusceptibility among *S. Typhi* isolates was 98% in Bangladesh, 87% in Nepal, and 95% in Pakistan. Azithromycin non-susceptibility was detected in 77 (2%) in Bangladesh, 9 (.67%) in Nepal and 9 (.59%) isolates in Pakistan. In Pakistan, three (2%) *S. Paratyphi* isolates were MDR; no MDR *S. Paratyphi* was reported from Bangladesh or Nepal.

**Conclusion:** Although AMR against *S. Paratyphi* was low across the three countries, there was widespread drug resistance among *S. Typhi*, including FQ non-susceptibility and the emergence of XDR *S. Typhi* in Pakistan, limiting treatment options. As typhoid conjugate vaccine (TCV) is rolled out, surveillance should continue to monitor changes in AMR to inform policies and to monitor drug resistance in *S. Paratyphi*, for which there is no vaccine.

**Keywords:** enteric fever; antimicrobial resistance; multidrug resistance; extensive drug resistance; Asia.

2.87

**SAFETY OF SODIUM-GLUCOSE  
COTRANSPORTER 2 INHIBITORS (SGLT2-  
I) DURING THE MONTH OF RAMADAN IN  
PATIENTS WITH TYPE 2 DIABETES  
MELLITUS IN PAKISTANI POPULATION -  
AN OBSERVATIONAL STUDY FROM A  
TERTIARY CARE CENTER IN KARACHI**

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and Cancer Foundation Hospital Karachi

**Background:** A large population of Muslims with type 2 diabetes mellitus (T2DM) fast during the month of Ramadan. In addition to the abstinence from food and drink, changes in the quantity and pattern of food and fluid intake during Ramadan may theoretically increase the risk of hyperglycemia, hypoglycemia, dehydration, and diabetic ketoacidosis (DKA), especially with the use of Sodium-Glucose Cotransporter 2 Inhibitors (SGLT2-I). Primary aim was to assess the safety of SGLT2-I during the fasting month of Ramadan, in a real-life scenario, by finding the frequency and severity of hypoglycemic/hyperglycemic events, dehydration, and DKA. As well as the effects of SGLT2-I on improvement in glycosylated hemoglobin (HbA1c), weight reduction and creatinine during Ramadan.

**Study Design and Method:** This prospective, observational controlled cohort study was conducted at Aga Khan University Hospital, Karachi, Pakistan from 15<sup>th</sup> March 2021 to 30<sup>th</sup> June 2021. All study participants were of age greater than 18 years and were already on the stable doses of SGLT2-I, started at least two months before Ramadan. Assessment of the endpoints was done a month before Ramadan and within six weeks after Ramadan.

**Results:** Total 101 study participants were enrolled for this study, because of pandemic, we have complete data of only 84 participants. Most study participants were males (52%) with a

mean age of  $52.4 \pm 9.5$  years with an average duration of T2DM was  $11.5 \pm 6.5$  years. 64% of study participants were on Empagliflozin (mean dose was  $14.7 \pm 7.1$  mg/day) and 36% of study participants were on Dapagliflozin (mean dose was  $8.2 \pm 2.7$  mg/day). Only six patients (7.1%) reported of having symptoms of hypoglycemia, also confirmed by the all those patients. No study participant had any severe hypoglycemia, hyperglycemia, dehydration, or DKA that has led to hospital admission. Changes observed were in the HbA1c ( $7.6 \pm 1.2\%$  from  $7.9 \pm 2.4\%$ ,  $p$  0.34), weight ( $78.1 \pm 13.1$  kgs from  $78.7 \pm 13.4$  kgs,  $p$  0.23) and in creatinine ( $0.9 \pm 0.2$  mg/dl from  $0.9 \pm 0.4$  mg/dl,  $p < 0.09$ ) at within six weeks post Ramadan follow up visits. None reported any adverse drug events that led to the discontinuation of SGLT2i during the month of Ramadan fasting.

**Conclusion:** This study showed that SGLT2i agents are safe and effective during the month of Ramadan in the Pakistani population. Overall, findings from this study support the use of SGLT2i as a treatment option during the month of Ramadan in adults with T2DM, without any additional adverse events.

**Keywords:** Type 2 Diabetes, Sodium-Glucose Cotransporter 2 Inhibitors (SGLT2-I), Ramadan

2.88

**UPGRADATION OF GALLSTONE  
ANALYSIS TO METABOLOMICS:  
DEVELOPMENT OF PAKISTANI LIBRARY  
FOR GALLSTONE ANALYSIS USING  
FOURIER TRANSFORM INFRARED  
SPECTROSCOPY – ATTENUATED TOTAL  
REFLECTANCE (FTIR–ATR)**

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Bilal Hashmi, Hafsa Majid, Farooq Ghani,  
Sibtain Ahmed, Imran Siddiqui, Aysha Habib  
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**Background:** In Pakistan, the diagnostic facilities for assessing the composition of

gallstones are primitive. Fourier Transform Infra-Red (FTIR) Spectroscopy is the method used in the developed countries for quick, cheap and accurate analysis of gallstones. The FTIR method determines the composition of the stone and the results are compared to an already developed and validated library for confirmation and categorization. Unfortunately, no commercially available library is present for gallstones neither does any such library exist for Pakistan. We aim to develop and validate a Gallstone Standard Library (GSL) for the analysis of gallstones using FTIR Spectroscopy.

**Study Design and Method:** The study was conducted at the Department of Pathology & Laboratory Medicine, Aga Khan University, Pakistan. Pure standards (cholesterol, calcium carbonate, bilirubin and bile salts) and gallstone specimens were analyzed using FTIR Nicolet iS-5 Spectrometer from Thermo Fisher Scientific, USA. Thermo Scientific™ QCheck™ algorithm, embedded within the OMNIC™ software, was used to identify the unique spectral fingerprint of the patient samples to match with known, standard material. Matching of >75% was considered acceptable. Validation for accuracy of the library was performed for twenty analyzed gallstones at an international reference lab.

**Results:** Concerted search analysis was performed against the developed GSL consisting of 71 “pure component” spectrum divided into 5 types to generate the library. For the Gallstone Real Patient Library (GRPL), 117 patient samples were analyzed. Ninety-eight gall stones (83.8%) out of 117 stones matched with the developed GSL. Majority stones were mixed stones (95.92%), with cholesterol being the primary component (91.83%). Results of the developed library were 100% in agreement with the reports received from the external reference lab.

**Conclusion:** The library developed displayed good consistency and can be used for detection of gallstone composition in Pakistan and replace

the traditional labor- and time-intensive chemical method of gallstone analysis.

**Keywords:** Gallstone; FTIR; spectroscopy

## 2.89

### **ASSESSING THE FREQUENCY OF INAPPROPRIATE ENDOTRACHEAL TUBE CUFF PRESSURE IN PATIENTS UNDERGOING SURGERY- AN OBSERVATIONAL STUDY.**

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**Background:** Endotracheal tube (ETT) is inserted into the trachea to maintain the airway patency or administer gases/anesthetic agents. Maintaining adequate ETT cuff pressure is important to ensure a proper seal to lower the risk of aspiration and tracheal trauma. An ETT cuff pressure of 20-30 cm H<sub>2</sub>O is considered optimal for proper sealing. Here we assess the frequency of inappropriate ETT cuff pressure at the time of intubation and variation in ETT pressure at the end of a prolonged surgery.

**Study Design and Method:** This is a case series study. This study was conducted in Department of Anaesthesiology, Aga Khan University Hospital, Karachi from Oct’19 to Mar’20. Patients aged 20-70 years, both genders, undergoing prolonged surgeries (>3hours) under general anaesthesia with an ASA score of I to III, were included. Patients were intubated with an appropriate size ETT and the cuff was inflated by air as per routine. The cuff pressure was measured with a manometer and, when inappropriate, was adjusted to an appropriate level. A repeated ETT cuff pressure reading was taken at the end of the prolonged surgery to assess any variation. Data was analysed using SPSS version 19.

**Results:** Fifty-eight patients were included in this study, 64% of whom were females. Mean patient age and BMI was 47.36 years and 28.36

Kg/m<sup>2</sup>, respectively. Frequency of inappropriately ETT cuff pressure at the time of intubation was 60.3% which was corrected before starting surgery. Postoperatively, 70.7% of patients showed variations in ETT cuff pressures with majority (33%) having a variation of 51 to 70 (81-100 cm H<sub>2</sub>O).

**Conclusion:** The monitoring of ETT cuff pressures is essential in anesthesia practice to prevent complications related to the over-inflation and under-inflation of the ETT cuff.

**Keywords:** Endotracheal Tube, Cuff pressure, Intubation, prolonged surgery

## 2.90

### **DIAGNOSTIC ACCURACY OF TRANSVAGINAL ULTRASOUND IN ADENOMYOSIS CONSIDERING MRI AS GOLD STANDARD**

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**Background:** Adenomyosis is a common uterine condition in women of reproductive age group, commonly presenting with pelvic pain, dysmenorrhea and dyspareunia. Nowadays ultrasound is the initial modality in the diagnosis of adenomyosis. The purpose of this study is to evaluate the diagnostic accuracy of transvaginal ultrasound in adenomyosis, taking into account MRI as standard of reference and to identify commonly seen sonographic feature in predicting adenomyosis.

**Study Design and Method:** This retrospective study was conducted in the radiology department of Aga Khan University Karachi, Karachi, Pakistan. We evaluated MRI pelvis examinations performed between January 2018 and December 2020. All those patients having MRI pelvis performed with a preceding transvaginal ultrasound within 12 months were included in the study. Seven sonographic features were evaluated in each patient; bulky uterus, altered echogenicity, heterogeneous myometrium, myometrial cysts, pseudo

widening of junctional zone, echogenic nodules / linear striations and relative absence of mass effect.

**Results:** Total 208 were included in final analysis. Transvaginal ultrasound had sensitivity of 74.36 % and specificity of 96.15% with positive predictive value (PPV) of 98.31% and negative predictive value (NPV) of 55.56%. All ultrasound characters were more common in patients with adenomyosis as compared to without adenomyosis (p < 0.001). The most common findings that were commonly seen in adenomyosis were bulky uterus and altered myometrial echotexture with individual sensitivity of more than 70% and specificity greater than 85% and pseudowidening of junctional zone which had sensitivity of 62.82% and specificity of 84.62%. The PPV of dual combined variables (bulky uterus and heterogeneous myometrial echo-texture) was 98.18% and that of triple combined variables (bulky uterus, heterogeneous echotexture and pseudo widening of junctional zone) was 97.82%.

**Conclusion:** Conclusion Transvaginal sonography provides a cost-effective, accurate and readily available method in the diagnosis of adenomyosis.

**Keywords:** adenomyosis. junctional zone. bulky uterus

## 2.91

### **COMPARISON OF CLINICAL FEATURES, RISK FACTORS AND OUTCOME OF INVASIVE PULMONARY ASPERGILLOSIS IN CRITICALLY ILL COVID-19 AND INFLUENZA VIRUS PNEUMONIA PATIENTS; PROSPECTIVE AND OBSERVATIONAL STUDY FROM PAKISTAN**

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**Background:** Although data on influenza associated pulmonary aspergillosis (IAPA) and COVID-19 associated pulmonary aspergillosis (CAPA) have been reported from many countries, no study so far has compared the frequency, risk factors, clinical and radiological features, treatment and outcome of IAPA and CAPA patients admitted within similar time frame. We aim to determine the frequency, risk factors and outcomes of invasive pulmonary aspergillosis in patients with influenza, COVID-19 and community acquired pneumonia admitted in critical care units of a tertiary care hospital in Karachi, Pakistan.

**Study Design and Method:** A prospective cross sectional study was conducted at the Aga Khan University Hospital from November 2019-June 2020. Adult patients, of both genders, admitted in the special care or intensive care unit with pneumonia were included. Patients with hematological malignancy, neutropenia, transplant or HIV were excluded. The study was approved by the Ethical Review Committee (ERC) (ERC # 2019-0847-2567). Patients were divided into three groups; community acquired pneumonia, influenza pneumonia and COVID-19 pneumonia. Invasive pulmonary aspergillosis was diagnosed as per EORTC/MSG criteria. Demographics, level of care (special care unit or ICU), comorbidities, clinical features, laboratory results including microbiological data, imaging, treatment received, complication and outcome were collected on predesigned perform.

**Results:** A total of 140 patients (70 (50%) Influenza and 70 (50%) non-influenza pneumonia) were included. Patients with non-influenza pneumonia were further divided into COVID-19 pneumonia 35 (25%) and community acquired bacterial pneumonia 35 (25%).

Out of 140 patients, 20 (14.2%) patients were found to have invasive aspergillosis with 10/35 (28.5%), 9/75 (12.8%) and 1/35 (2.8%) patients in COVID-19, influenza and CAP groups, respectively. Duration of symptoms was

12.5 ± 12.13 days in CAPA and 7.56 ± 4.0 days in IAPA patients (p 0.24). Hypoxia was present in 4 (44.4 %) and 3 (30%) patients with influenza and COVID-19, respectively (p 0.15). Except one patient, who had unilateral infiltrates in chest X-ray in Influenza group, all of the patients were found to have bilateral involvement in their chest X-rays. Mean APACHE II score was 17.4 ± 8.42 and 16.6 ± 6.27 in patients with CAPA and IAPA respectively (p 0.85). Nine (90%) of patients had required vasopressor support in patients with CAPA compared to 3 (33%) patients in IAPA (p 0.020). 7 (70%) of CAPA patients required invasive mechanical ventilation compared to 4 (44%) IAPA patients (p 0.37). Length of stay in hospital was highest in CAPA patients (18.3 ± 7.28) days compared to IAPA patients (11.67 ± 5.33) (p 0.036). Similarly, length of stay in SCU/ICU was higher among CAPA patients 17 ± 8.72 days compared to IAPA patients 9.4 ± 2.3 days (p 0.034). The number of deaths in IAPA patients and CAPA patients was 3 (33.3%) and 5 (50%), respectively (p 0.526).

**Conclusion:** A higher proportion of patients with COVID-19 developed invasive aspergillosis compared to influenza. Although the mortality rate in both CAPA and IAPA patients were comparable, CAPA patients had a significantly higher stay in hospital and longer stay in critical care units.

**Keywords:** Invasive aspergillosis, influenza, COVID-19

## 2.92

### **INVASIVE PULMONARY ASPERGILLOSIS (IPA) IN PATIENTS WITH INFLUENZA IS INCREASINGLY BEING IDENTIFIED IN RECENT YEARS. CASES OF INFLUENZA-ASSOCIATED IPA WITH HIGH MORTALITY HAVE BEEN REPORTED FROM SEVERAL DEVELOPED COUNTRIES WITH A REPORTED INCIDENCE BETWEEN**

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**Background:** Invasive pulmonary aspergillosis (IPA) in patients with influenza is increasingly being identified in recent years. Cases of influenza-associated IPA with high mortality have been reported from several developed countries with a reported incidence between 19-28 % (1, 2). So far no significant data is available from developing countries.

The aim was to determine the incidence and outcome of IPA in patients with severe influenza pneumonia admitted in an intensive care unit (ICU) of a developing country.

**Study Design and Method:** This was an observational study on confirmed influenza patients with respiratory failure admitted to the Aga Khan University hospital ICU from November 2018- March 2019.

Patients older than 18 years, acute respiratory failure, pulmonary infiltrates on imaging, and a confirmed influenza infection based on a positive influenza PCR were included. The diagnostic criteria used for IPA was based on suggestive clinical signs and symptoms, radiological findings and mycological data. Like other studies, we have also not included the host factors. The clinical characteristics, radiology,

laboratory data and outcome were recorded on a predesigned performa.

**Results:** A total of 92 patients with confirmed influenza were admitted during study period. Of these 16/92 (17.02%) were admitted in ICU due to respiratory failure. Among these 16 patients, IPA was diagnosed in 5 patients, giving an incidence of 31.25%. Three (60%) patients had non H1N1 Influenza A and 2 (40%) had H1N1 Influenza A infection. Three (60%) patients had underlying diseases (diabetes, hypertension and ischemic heart disease) and one patient was immunosuppressed. Systemic steroids were used after ICU admission in all patients. On admission 3 (60%) patients had acute kidney injury and 2 (40%) had deranged liver enzymes. Invasive positive pressure ventilation (IPPV) was required in 04 (80%) patients and one patient was managed on noninvasive ventilation (NIV). All 5 patients had received voriconazole after diagnosis of IPA. The overall mortality rate of influenza patients admitted in ICU was 50% and in patients with IPA was 60%.

**Conclusion:** High incidence (31.25%) of IPA was found in influenza patients requiring ICU admission and was associated with high (60%) mortality. High index of suspicion, early diagnosis and appropriate treatment can improve outcome in these patient. Future large multicenter studies are required to assess the risk factors and role of antifungal prophylaxis to improve the outcome of influenza-associated aspergillosis.

**Keywords:** Invasive aspergillosis, pneumonia, influenza

## 2.93

### **ANALYSIS OF DIFFERENTIAL EXPRESSION OF KEY ANTIVIRAL CYTOKINES IN HIV MONO-INFECTED AND HIV-CMV, HIV-EBV, AND HIV-CMV-EBV CO-INFECTED INDIVIDUALS**

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**Background:** HIV is one of the biggest public health problems, responsible for ~37 million infections worldwide and 25 million deaths in the past 3 decades. HIV-related morbidity and mortality are still high in certain countries, especially in low-and-middle-income countries primarily because of low ART coverage, immune dysfunction, and certain viral co-infections, such as with Epstein Barr virus (EBV) and Cytomegalovirus (CMV). Co-infection by EBV and CMV can dysregulate the immune cytokine expression and may lead to chronic inflammation, poor virological control, and worsening of the disease.

**Study Design and Method:** This was a cross-sectional study, where 319 HIV-positive samples blood samples were screened for EBV and CMV. RNA was extracted from mono- and co-infected samples and used for cDNA synthesis, which was subsequently used to analyze the differential gene expression of the cytokines IL-1, IL-2, IL-4, IL-6, IL-10, IFN-G, TNF-A, and TGF-B in mono- and co-infected group. The significant difference in the mean expression was determined using the unpaired T-test.

**Results:** Differential gene expression analysis showed a significant difference in expression of IL-1, IL-2, IL-4, IL-6, and TGF-B among four groups. Overall, the expression level of IL-4 was significantly down-regulated in HIV mono-infected as well as in HIV-EBV and HIV-CMV-EBV co-infected groups, while up-regulated in HIV-CMV infected groups. The expression of

IL-10, IFN-G, and TNF-alpha was comparable in all four groups.

**Conclusion:** The differential expression of cytokines, esp IL-4 between HIV-CMV co-infected and other groups may affect the virological control and lead to altered dynamics of disease progression.

**Keywords:** Cytokines, gene expression, HIV mono-infection, HIV-CMV coinfection, HIV-EBV coinfection, and HIV-CMV-EBV co-infection

## 2.94

### **CANDIDA TROPICALIS ENDOCARDITIS - A CASE REPORT OF A RARE ENTITY**

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**Background:** We present a case of a 30-year old gentleman with a history of intravenous drug abuse presenting with an episode of syncope one week back and right leg pain for 3 days.

**Study Design and Method:** MRI brain and transthoracic echocardiogram done prior to arrival showed a left Middle Cerebral Artery territory infarct and large oscillating mass attached to the aortic cusp respectively.

**Results:** Clinical examination on arrival revealed non palpable pulses in the right lower limb while rest of examination was unremarkable. CT angiogram of abdominal aorta and bilateral lower limbs was done and showed a small partial thrombus at branching of left common femoral artery into left profunda femoris artery. The patient was then emergently taken to the operating room and underwent right iliofemoral embolectomy by vascular surgery team. His Transthoracic Echocardiogram was repeated and showed a large mobile echogenic density attached to the aortic valve. He was initially started on empiric I/V ceftriaxone and vancomycin. Tissue gram stain sent at time of right iliofemoral embolectomy showed rare pus cells and few budding yeasts. The patient was

started on I/V amphotericin B but had a drug reaction due to which he was switched to I/V Caspofungin.

**Conclusion:** Culture and Sensitivity showed heavy growth of *Candida Tropicalis*. Multiple sets of blood cultures sent from the emergency room also showed growth of *Candida Tropicalis* sensitive to Caspofungin, Voriconazole and Fluconazole. Cardiothoracic surgery team was taken on board and the patient underwent successful aortic valve replacement and was then discharged from the hospital in stable condition.

**Keywords:** endocarditis, candida tropicalis, drug abuse

2.95

### **ROLE OF IVERMECTIN IN PATIENTS HOSPITALIZED WITH COVID-19: A SYSTEMATIC REVIEW OF LITERATURE**

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**Background:** The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has affected almost every country of the world since December 2019. Despite the efforts of the human race to combat the virus, we are still looking for evidence based permanent cure for the disease. Ivermectin has recently emerged as one of the medicines showing beneficial effect on COVID-19. Ivermectin, owing to its properties, continues to be a possible treatment against the COVID-19 disease. Already being a mainstream drug with minimal adverse effects, it garners valid consideration. In hospitalized patients, randomized controlled trials and observational studies have also supported its use. In this article we have reviewed the recent studies and explored the effectiveness of ivermectin in hospitalized COVID-19 patients.

**Study Design and Method:** We searched peer-reviewed databases such as PubMed and

reviewed pre-print articles. We chose randomized controlled trials (RCTs) and observational studies in English language that evaluate the effectiveness of ivermectin on COVID-19 patients against standard treatment protocol, placebo or other prospective medications in their study. Our review includes studies that were done on PCR confirmed hospitalized COVID-19 patients. Factors such as dosage, timing, frequency, control group exposure or publication status were not considered as appropriate filters.

The outcomes taken into consideration include:

1. Patient Mortality
2. C-Reactive Protein
3. Time to discharge from the hospital
4. Viral load/clearance

Data extraction was carried out by the 2 reviewers independently. Articles were excluded if they were commentaries or opinion pieces. Studies regarding the prophylactic effects of ivermectin with regards to SARS-CoV-2 were also excluded. Duplicate articles, if any, were removed with the help of Mendeley software. Citations and data were included when considered appropriate. Any disagreement between the two reviewers was settled by a third, independent reviewer.

**Results:** After going through the databases, 14 studies were included for this review. Out of these, 8 were randomized controlled trials and 6 were observational studies. Of these 14 studies, 6 studies were peer-reviewed while 8 were pre-prints. A cumulative total of 7744 laboratory-confirmed COVID-19 patients were involved – with 1330 patients being a part of the ivermectin exposed group.

Patient mortality was reported in 8 studies which included total 6770 patients. Out of these 6770 patients, mortality was seen in 17.57% (n=1190) patients of which 82 were from ivermectin exposed group. Only two studies did not classify



patients according to severity of disease namely Babalola et al. and the Soto-Beccerra et al. The rest of the trials included mild, moderate and severely ill COVID-19 patients. A majority of subjects had comorbidities such as diabetes mellitus, hypertension or various pulmonary diseases. Viral clearance was recorded in a total of 5 studies, all of which were able to show a reduced time required for viral clearance or viral load after set time in the study group. There were eight trials that measured duration of hospitalization as an outcome. Six trials revealed a shorter stay in hospitals

**Conclusion:** Ivermectin, owing to its properties, continues to be a possible choice against the COVID-19 disease that we are facing. Already being a mainstream drug with minimal adverse effects, it garners valid consideration and attention in these times. In hospitalized patients, RCTs and observational studies have supported its use. Still there needs to be more high-quality proof and quantitative analysis in order to legitimize its use as part of protocol. As for now, we shall have to wait for the final verdict on the capabilities of ivermectin.

**Keywords:** COVID-19, Ivermectin, treatment

2.96

#### **ASSESSMENT OF THE CORONA-SCORE FOR QUICK DETECTION OF SARS-COV-2 INFECTION IN PATIENTS AT A TERTIARY CARE HOSPITAL IN PAKISTAN**

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**Background:** The Corona-Score is one of the first and most widely used predictive model for coronavirus 2 (SARS-CoV-2) infection. The purpose of this study was to validate the performance of Corona-Score in a cohort of Pakistani patients pursuing care for suspected infection.

**Study Design and Method:** After seeking institution's ethical committee exemption, results of serum LDH, CRP, Ferritin, absolute lymphocyte and neutrophil counts, chest x-ray findings and demographics of suspected COVID-19 cases with respiratory symptoms were recouped from electronic medical record. The pre-validated score as proposed by Kurstjens S, et al., was calculated. The subjects were divided into SARS-CoV-2 positive and negative on the basis of reverse transcription-polymerase chain reaction (RT-PCR). Median and interquartile range (IQR) was calculated for the score in the two groups and the difference was assessed using the independent sample median test. Receiver operating characteristics (ROC) curve analysis was plotted. Statistical analyses were carried out using SPSS 26, with statistical significance set at  $p < 0.05$ .

**Results:** A total of 60 cases i.e. 30 (50%) RT-PCR positive and 30 (50%) negative with a median Corona-Score of 3.5 (IQR: 0-6) and 1.5 (IQR: 0-4) respectively were evaluated. A p-value of 0.61 showing no statistically significant between group differences was observed. The area under the curve of Corona-Score in our population of patients was 0.59 (95% CI: 0.45–0.74). Using the cut-off values of 4 originally identified by Kurstjens et al. the model displayed 43.3% sensitivity and 70% specificity with an overall accuracy of 56.67 %.

**Conclusion:** Corona-Score displayed a lower diagnostic accuracy which may be attributable to the different genetic framework, viral strain and severity of the disease in Pakistanis compared to the population where this score was originally validated. It is unlikely that this scoring system would offer diagnostic yield significant enough to replace RT-PCR.

**Keywords:** SARS-CoV-2, Corona-Score, diagnostic accuracy, Pakistan

2.97

**EFFECT OF SARS COV-2 VARIANTS ON IN-HOSPITAL MORTALITY IN A LOW-MIDDLE INCOME COUNTRY: A CROSS-SECTIONAL ANALYSIS**

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**Background:** SARS-CoV-2 variants have raised concerns in relation to their higher infectivity and mechanisms of evading immune system. Variants of concern (VOCs) exhibit genetic modifications linked to increased transmissibility, more severe disease, reduced efficacy of vaccinations or medical treatment. There is conflicting data from different parts of the world with regards to impact of variants on clinical outcomes in COVID-19 patients.

**Study Design and Method:** We investigated the association of COVID-19 disease severity in the context of SARS-CoV-2 variants and the vaccination status of individuals. A retrospective review of n=101 adult and n=23 COVID-19 patients admitted to the Aga Khan University Hospital, Karachi between April and July, 2021, for whom SARS-CoV-2 VoC strains were performed. All COVID-19 cases with SARS-CoV-2 PCR positive respiratory samples were screened for the presence of VoC, alpha, beta, gamma and delta using a PCR-based approach.

**Results:** The median age of the patients was 55 years (IQR 38-69 years) with 55.45 % (n=56) male preponderance. Almost half of the patients had diabetes (43.2%) and hypertension (41.35%). Upon admission, 40% of patients had critical disease, followed by non-severe in 34.7% and severe COVID-19 in 26% of cases. Patients with severe or critical disease were older (median age 61 years vs 34 years (OR 1.1, 95% CI 1.04-1.11)), had diabetes (57.6% vs 14.3%; OR 8.1, 95% CI 2.8-23.6), or had

hypertension (56.1% vs 14.3%; OR 7.6, 95% CI 2.6-22). Patients with severe or critical disease were also more likely to be unvaccinated (85% vs 45%; 8.3, 95% CI 2.4-27.9). However, no relationship was found between the severity, gender, comorbid conditions or the variant causing the infection. Of the total 101 patients studied, 63 patients survived (62.3%). Of the 101 cases, the Alpha variant was identified in 34%, Beta variant in 32%, Delta variant in 28% and Gamma variant in 8% of patients.

**Conclusion:** We demonstrate that in the province of Sindh SARS-CoV-2 variants have shifted from alpha, beta and delta over the months April to July 2021. This shift was not associated with a more critical disease or increased mortality.

**Keywords:** variants of concern; SARS CoV-2; mortality

2.98

**OPIOID CONSUMPTION FOLLOWING TAP-BLOCK VERSUS INTRAPERITONEAL / INCISIONAL BUPIVACAINE IN PATIENTS UNDERGOING MAJOR GYNECOLOGIC SURGERY: A RANDOMIZED CONTROLLED TRIAL**

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**Background:** Major gynecological surgeries are abdominal procedures with reported high levels of postoperative pain. Opioid analgesics are the gold standard for treating moderate to severe pain, however they are associated with poor patient outcomes and adverse side effects such as post-operative nausea and vomiting, ileus, constipation, and urinary retention after abdominal surgery. In addition, there is dearth of good quality opioids especially in low and middle -income countries (LMIC). As per our knowledge, none of the previous studies have compared the use of local anesthetic in TAP block with intraperitoneal/ incisional infiltration

of local anesthetics with epinephrine to assess opioid consumption in patients undergoing major gynecological surgeries. Use of a nerve block serves as a part of multi modal analgesia and plays a role in reduction of opioid consumption.

**Study Design and Method:** This single-centre, randomized double-blinded study was conducted at the Aga Khan University Hospital in Karachi, Pakistan. It was approved by the institutional Ethical Review Committee (ERC)(approved 24.04.17 reference number 4718-Ane-ERC-17) renewal of ERC on 19.04.19 (reference no 2019-119-3325)) and registered at <http://clinicaltrials.gov> (NCT04037878). A total of 135 patients were recruited for the study. Patients were randomly allocated into 3 different groups, namely TAP(T), infiltration(I) and control(C). All patients were given multimodal analgesia in the form of intraoperative IV tramadol(1 mg/kg), IV paracetamol 1g, followed by 1 g 6 hourly and diclofenac 200mg suppository at the end of the surgery and at 12 hours post op. Each patient was administered ondansetron 0.1mg per kg. All of the patients were kept on patient controlled intravenous analgesia(PCIA) pumps and a record of total tramadol consumption was made. In addition to this standard care, group T received bilateral TAP block using 20ml of 0.25% Bupivacaine bilaterally, and group I received local infiltration into the wound and peritoneal cavity by the surgeon using 40ml of 0.25% Bupivacaine along with 5 micrograms per ml of epinephrine. Total tramadol consumption, pain scores, and side effects were recorded for up to 12 hours post surgery.

**Results:** In the recovery room, the median tramadol consumption between group-C 55[38-90] were significantly different from group-T 45[15-60] (P-value =0.335) and group-I 45[15-90] (P-value=0.332). Cumulative tramadol consumption in milligrams were comparable among three study groups at 1, 4, 8 and 12 hours post-operatively. During recovery room stay, pain score (NRS) more than 3 at rest was

observed in 30.2%, 25% and 25.6% patients of group C, I and T respectively which was not statistically significant. In the recovery room post-operatively, 72% patients in the control group, 50% in the infiltration group and 46.5% patients in the TAP block group had moderate to severe pain (NRS more than 3) at movement that was statistically significant (p=0.034). Incidence of post-operative side effects and complications were comparable among patients of all three groups.

**Conclusion:** In this study the analgesic effect of either TAP block or infiltration/peritoneal instillation of local anesthetic was evident in the immediate postoperative period in PACU, when patients may have had moderate or higher pain. However, the pain scores in recovery were not significantly different between the three groups which could be because of higher opioid consumption in the control group.

**Keywords:** TAP block, Local anesthesia, Pain control, Gynecological surgeries

## 2.99

### **PERCEPTIONS AND PRACTICES OF SOCIAL DISTANCING IN PHYSICIANS DURING COVID-19 PANDEMIC**

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**Background:** Perceptions and practices about social distancing are not well reported among physicians. The aim of this study was to assess the practice and perceptions of physicians regarding social distancing and factors associated with it.

**Study Design and Method:** A cross sectional study among physicians was conducted from October to December 2020. Perception, practices, and possible factors behind low compliance were assessed on a Likert scale.

Association between age, gender and physician level and practices, perceptions and factors linked to social distancing was analysed using one-way analysis of variance with significance level at  $p \leq 0.05$ .

**Results:** 100 doctors responded out of 140 (71.2%), 16 were disregarded. Mean age was  $31.89 \pm 6.33$ . 40 were males (47.6%) with majority being residents (50, 59.5%). Overall, perceptions about social distancing were positive while practices were found lacking. Important factors behind lack of social distancing practice were difficulty in talking with masks ( $1.89 \pm 0.850$ ), difficulty in staying away from friends ( $1.73 \pm 0.855$ ), difficulty in staying away from family ( $1.31 \pm 0.514$ ) and overcrowding of HCWs ( $1.64 \pm 0.739$ ). Attending physicians more strongly agreed with certain perception and had better social distancing practices. Lack of conveyance ( $p=0.001$ ), lack of spaces for eating ( $p=0.003$ ) and resting ( $p=0.001$ ) and difficulty in staying away from friends ( $p=0.002$ ) made practicing social distancing difficult for interns and residents as compared to attending physicians.

**Conclusion:** Physicians normally have a positive perception about social distancing, but due to personal and work-related factors, compliance to social distancing practices is being found lacking.

**Keywords:** Covid-19, healthcare workers, social distancing, perceptions, practices

## 2.100

### **FACTORS ASSOCIATED WITH MEDICATION NON-COMPLIANCE AMONG DIABETIC PATIENTS**

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**Background:** This study was conducted to investigate the prevalence, risk factors and

outcome of medication non-compliance among diabetic patients presenting to our primary care out-patient clinics.

**Study Design and Method:** This cross-sectional study evaluated adult diabetic patients presenting to outpatient primary care clinics from 1st to 30th December 2019. Demographics, clinical characteristics and medication compliance were assessed using a pre-approved structured questionnaire.

**Results:** 151 patients agreed to participate in the study and were included. 74 (49%) were males and 77 (51%) females; mean age was  $54.7 \pm 11.5$  years. Out of 151 patients, 112 (74%) confessed to being non-compliant to anti-diabetic medications. Older age ( $p = 0.020$ ), lower monthly income ( $p = 0.039$ ) and longer duration of disease ( $p = <0.001$ ) were significantly associated with non-compliance. The non-compliant group had a significantly increased risk of retinopathy ( $p = 0.009$ ) and diabetic foot ( $p = 0.002$ ). Furthermore, the most cited reasons for non-compliance were side effects of the medications, forgetting to take medications and complexity of the regimen.

**Conclusion:** We conclude that the medication non-compliance rate was extremely high in our study population and was also significantly associated with an increased risk of complications in these patients. Side effects of medications, forgetting to take medications and complexity of the regimen were the most cited reasons for non-compliance. These results can be used to develop innovative strategies and targeted interventions aimed to improve adherence to diabetic medications which can go a long way in reducing long term morbidity and mortality associated with this condition.

**Keywords:** diabetes, drug compliance, complications, primary care, endocrinology

## 2.101

### **FETO-MATERNAL OUTCOMES OF PREGNANCIES IN WOMEN WITH SLE: EXPERIENCE FROM A TERTIARY CARE CENTER OF ASIA**

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**Background:** Systemic lupus erythematosus (SLE) is an autoimmune disease of reproductive age and predominantly affects third and fourth decades of life

Most women with SLE experience worsening of disease activity during pregnancy and are at high risk of developing maternal and perinatal complications. Maternal complications includes hypertensive disorders (HD) of pregnancy (pregnancy-induced hypertension (PIH), preeclampsia, eclampsia, and hemolysis, elevated liver enzymes, low platelet count (HELLP syndrome) and increase risk of cesarean section. While preterm birth, intrauterine fetal death (IUD), small for-gestational age (SGA) infants and neonatal lupus are commonly reported perinatal complications.

**Study Design and Method:** A retrospective case control record review of past 20 years from Jan 1998 to 2018 was performed and adverse maternal and fetal outcomes were recorded

**Results:** The average age at conception was 30.05±4.16 years. Total seventy one patients (71/125, 56.8%) had disease flare up, which mainly presented as joint pain and stiffness (52/125, 41.6%), active lupus nephritis (49/125, 39.2%) and skin/mucosa lesions (30/125, 24%). Adverse perinatal outcomes found to be statistically significant in between two groups included; Preterm births, intrauterine growth retardation (IUGR), fetal loss and neonatal death, 19.2%, 24%, 16.8% and 6.7% respectively. Statistically significant maternal adverse outcome in SLE group were Cesarean section (OR, 1.5; CI, 1.01-2.25), pre eclampsia

(OR, 4.76; CI, 2.79-8.12), anemia (OR, 4.64; CI, 3.01-7.14), thrombocytopenia (OR, 20.92; CI, 4.61-94.84) and hypothyroidism (OR, 11.8; CI, 4.93-28.55). Disease activity (skin manifestation, lupus nephritis, Anticardiolipins and lupus anticoagulant was found to be the strongest predictors of adverse feto-maternal outcomes.

**Conclusion:** Planned pregnancy and less severe disease flares during pregnancy is associated with more favorable feto-maternal outcomes

**Keywords:** Fetal loss; preeclampsia; pregnancy; preterm birth; small-for-date; systemic lupus erythematosus

## 2.102

### **NEONATAL AND PEDIATRICS OPTIMAL ANTICOAGULANT THERAPY AND ROLE OF CLINICAL PHARMACIST – A MEDICATION SAFETY MODEL IN DEVELOPING COUNTRY**

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**Background:** Neonates and children on anticoagulation-therapy (ACT) needs more careful management with factors like, different venous thrombo-embolism (VTE) etiologies, antithrombotic pharmacokinetics, in addition sepsis, perinatal hypoxia, dehydration, maternal diabetes and polycythaemia in neonates and congenital heart disease, cancer, chemotherapy, protein-losing states, trauma/surgery, long-time-TPN. Clinical pharmacist (CP) involved in daily multidisciplinary round, having complete patient history and access to all healthcare-providers can play vital role in ACT. The aim of this study is to evaluate the impact of Clinical Pharmacist-managed ACT in neonates and children.

**Study Design and Method:** This QI intervention was studied in a prospective cohort study, inclusion criteria was all patients admitted to NICU and pediatric units, from newborn till 10years-age, with VTE, renal vein or cerebral-

sinovenous thrombosis and Purpura fulminans, treated with Heparin, Enoxaparin and warfarin and reviewed by CP. Study period from January 1st, 2018, to January 1st, 2019. Primary objective was to evaluate the impact of CP involvement in optimization and monitoring of ACT. Cost reduction evaluation was secondary objective of the study through descriptive analysis. Clinical-Pharmacist was utilized to monitor ACT with anticoagulant team, provided required resources and updated knowledge. Activity designed as daily electronic medical record review, identifying high risk patient on anticoagulants, making and documentation of interventions.

**Results:** During the study period, 306 patients were reviewed, 185 were intervened by CP during multidisciplinary-round. 98 (52%) were intervened for Heparin, 58(31%) for Enoxaparin and 29(17%) for warfarin therapy. Interventions were made for drug-drug interactions (21%), monitoring parameters (Target anti-Xa levels, platelet-count and INR)(58%), dose adjustment of anticoagulant or concurrent medications(29%), drug-food interactions(13%), alternate suggested(19%), Management of bleeding(11%). More than one type of intervention were made on 37 % (n=68) patients. 98% interventions were accepted. Initial impact on cost reduction in overall therapy was 28%.

**Conclusion:** Utilization of CP in ACT at single institution in developing-country resulted optimization of therapy with cost reduction in neonates and Pediatrics.

**Keywords:** Pharmacist, Anticoagulant therapy, Clinical pharmacist, paediatric, neonates

## 2.104

### **CLINICAL CHARACTERISTICS, IMAGING AND MICROBIOLOGICAL PROFILE OF PATIENTS WITH NON-CYSTIC FIBROSIS BRONCHIECTASIS: A RETROSPECTIVE REVIEW FROM A TERTIARY CARE HOSPITAL OF PAKISTAN**

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**Background:** Non-cystic fibrosis (non-CF) bronchiectasis has become a major respiratory disease in the developing nations. Considering the geographic variation in etiology and other clinical features, studies targeting regions where a paucity of data exists, including Asia, are necessary. This study was conducted to identify the underlying causes, clinical presentation, radiological extent of disease, causative microorganisms, and lung function in patients with bronchiectasis presenting at a tertiary care hospital in a low middle income country (LMIC).

**Study Design and Method:** A retrospective observational study was conducted at the Aga Khan University, Karachi, Pakistan. Adult patients, with non-CF bronchiectasis diagnosed on High Resolution CT (HRCT) scan between 1990 and 2020, were evaluated for etiology, clinical characteristics, microbiology, radiology and spirometric pattern.

**Results:** A total of 340 patients were evaluated. 56.5% were female and 44.7% were older than 60 years. 157 (46.2%) had a duration of symptoms between 1-5 years. Obstructive impairment was the most common spirometric pattern observed in 58.1%. previous TB (52.94%) was the most common etiology followed by allergic bronchopulmonary aspergillosis (7.64%). 63.2% patients had bilateral lung involvement on HRCT scan. Pseudomonas aeruginosa was the most commonly identified organism (38.75%) in the 240 patients with available specimens. Patients with P. aeruginosa infections showed a significantly higher number of exacerbations (p=0.016). A significant difference (P <0.001) was seen in P. aeruginosa growth between different etiologies.

**Conclusion:** Post-tuberculosis bronchiectasis was the most common etiology of non-CF bronchiectasis in our study population. *P. aeruginosa* was the most common organism and 63.2% of the patients showed bilateral lung involvement in our study. Considering *P. aeruginosa* growth and high extent of lung involvement have been associated with poor prognosis and higher mortality risk, we suggest that in developing countries like Pakistan, regular clinic follow ups should be ensured to improve quality of life and survival.

**Keywords:** Non-cystic fibrosis; bronchiectasis; etiology; clinical characteristics; microbiology

### 2.105

#### **DIAGNOSTIC ACCURACY OF DIFFERENT CUT-OFF VALUES OF ADENOSINE DEAMINASE LEVELS IN TUBERCULOUS PLEURAL EFFUSION**

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**Background:** This study was conducted to assess the diagnostic accuracy of different cut-off values of pleural fluid Adenosine Deaminase (ADA) levels as a diagnostic tool for tuberculous pleural effusion.

**Study Design and Method:** This prospective study was conducted at Aga Khan University, Pakistan. Pleural fluid of adult patients with TB and without TB was tested for ADA levels. Sensitivity, specificity, negative predictive value (NPV) and positive predictive value (PPV) were then calculated using different cut-offs.

**Results:** Of 155 patients, 46 (29.7%) were categorized as TB while 109 (70.3%) as non-TB group. The ADA levels were seen to be significantly elevated in TB as compared to non-TB patients (median TB:  $72.17 \pm 68.13$ ; Non-TB:

$23.21 \pm 36.54$ ; p value:  $<0.001$ ). The cut-off of 30U/L showed the highest sensitivity (71.74%) and NPV (87.38%) and a specificity of 82.57%, meanwhile the cut-off of 50U/L showed the highest specificity (89.91%) with a sensitivity of 52.17%, and the cut-off of 40U/L showed the highest PPV of 68.89% (sensitivity: 67.39%; specificity: 87.16%).

**Conclusion:** Pleural fluid ADA testing for diagnosing TB pleuritis revealed highest sensitivity and moderate specificity for cut-off value of 30U/L, hence we suggest to use the same as a reference cut-off value. However, these values are lower than reports from other studies.

**Keywords:** ADA levels; TB pleuritis; pleural effusion

### 2.106

#### **RESPIRATORY PATHOGENS IN PATIENTS WITH ACUTE EXACERBATION OF NON-CYSTIC FIBROSIS BRONCHIECTASIS FROM PAKISTAN**

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**Background:** Bronchiectasis unrelated to cystic fibrosis (non-CF bronchiectasis) has become a major respiratory disease in developing nations. The dilated mucus filled airways promote bacterial overgrowth followed by chronic infection, bronchial inflammation, lung injury and re-infection. Accurate pathogen identification and antimicrobial susceptibility allowing appropriate treatment, in turn, may break this vicious cycle. This study aimed to gain knowledge about the spectrum and antimicrobial spectrum of pathogen yielded from respiratory specimens in adult patients with acute exacerbation of non-cystic fibrosis (CF) bronchiectasis.

**Study Design and Method:** This cross-sectional study was performed at the pulmonology clinics of the Aga Khan University, Karachi, Pakistan from 2016-2019. Respiratory specimens were collected from adult patients with acute exacerbation of non-CF bronchiectasis presenting in pulmonology clinics. Microbial cultures were performed using standard methodology. Susceptibility testing was performed and interpreted using Clinical Laboratory Standard Institute criteria.

**Results:** A total of 345 positive cultures from 160 patients presenting with acute exacerbation were evaluated. The most frequent organisms were *Pseudomonas aeruginosa* (n=209) followed by *Hemophilus influenzae* (n=40) and *Staphylococcus aureus* (n=24). High rates of antimicrobial resistance were found in all these pathogens. Proportion of *Pseudomonas aeruginosa* strains resistant to ciprofloxacin, imipenem, ceftazidime and piperacillin-tazobactam were 27.1%, 16.8%, 14.8% and 13.1% respectively. 65% of *Hemophilus influenzae* strains were resistant to cotrimoxazole and ciprofloxacin and 66.7% of *Staphylococcus aureus* strains were resistant to methicillin.

**Conclusion:** High antimicrobial resistance in non-CF bronchiectasis patients against commonly used antimicrobials is a concern and highlight need for urgent community level interventions to improve clinical outcome in these patients.

**Keywords:** Bronchiectasis; etiology; infection; drug resistance

2.107

**EARLY PREDICTION OF  
PHYSIOLOGICALLY DIFFICULT AIRWAY  
IN ADULTS UNDERGOING  
ENDOTRACHEAL INTUBATION IN THE  
EMERGENCY DEPARTMENT**

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**Background:** There are numerous challenges and risks in airway management of the critically ill adults that result in high complication rates if not timely sought. Emergency physicians dealing with airways should account not only for anatomical parameters of difficult intubation, but also physiological derangements before they attempt to secure a definitive airway. Physiologically difficult airway is defined as physiological derangements that put adults at risk of deterioration during and after intubation with subsequent shifting to positive pressure ventilation. There are a number of airway assessment scores that deal with anatomical factors of difficulty with few aiming for physiological derangements in emergency airway management.

**Study Design and Method:** Single center cohort study, will comprise of three stages; stage I will be determining the current frequency of physiologically difficult airway through a retrospective chart review followed by second stage that includes the derivation of the score and finally last stage, validation of the score. The recruiting center will be emergency department of Aga Khan University Hospital (AKUH), which is a large, urban, academic 62 bedded facility that receives 60,000 patients annually. Transparent reporting of a multivariable prediction model for individual prognosis or diagnosis (TRIPOD) methodology will be followed in the derivation and validation of a physiologically difficult airway score.

**Results:** The physiologically difficult airway score is anticipated to be beneficial in clinical practice in emergency medicine for predicting airway difficulty. The results of this study may provide pathways for impact analysis to gather evidence of changing the emergency physician's behavior in difficult airway assessment.

**Conclusion:** The findings of this study are meant to develop safe practices of airway management in the emergency room. If the results of the study do not show any association of pre-intubation physiologic variations with



primary or secondary outcomes, it would help in negating the notion of resuscitating before intubation in the emergency department and early intubation would be advised.

**Keywords:** Physiologically Difficult Airway, Emergency Department, Endotracheal Intubation, Airway Management, Difficult Airway.

## 2.108

### **IMPACT OF COVID-19 ON CARDIOVASCULAR DISEASE PRESENTATION, EMERGENCY DEPARTMENT TRIAGE AND INPATIENT CARDIOLOGY SERVICES IN A LOW TO MIDDLE INCOME COUNTRY – PERSPECTIVE FROM A TERTIARY CARE HOSPITAL OF PAKISTAN**

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**Background:** Hospitals get overwhelmed with COVID-19 positive patients during pandemic and there are striking changes in patient presentation patterns to the emergency department for conditions other than COVID-19. LMICs such as Pakistan, with their resource-limited healthcare systems and healthcare inequities, are poorly equipped to deal with a global pandemic's challenges.

**Study Design and Method:** We conducted a retrospective study at a major tertiary care hospital in Karachi, with a catchment area of 140914 sq.KM. It included patients from March-July 2019 (pre-COVID period = pCP) and March-July 2020 (COVID period = CP). We reviewed the medical records of patients who received a consultation for cardiology services on their presentation to the emergency department (ED) for both periods. The comparison was made to quantify the differences in demographics, clinical characteristics, admission, procedures, and mortality.

**Results:** Of 2976 patients presenting with cardiac complaints to the emergency department, 2041 patients (mean age  $60.7 \pm 15$  years, 1201[59%] male) presented during the Pre-COVID period and 935 patients (mean age  $61.7 \pm 15$  years, 581[62%] male) presented during the COVID period. The percentage of patients presenting from rural areas declined significantly during the COVID period (18% vs. 14%,  $p=0.01$ ). Although patient presentation reduced significantly with ACS ( $\downarrow 8\%$  [95%CI 4-11],  $p<0.001$ ) Heart failure ( $\downarrow 6\%$  [95%CI 3-8],  $p<0.001$ ), there was a striking surge noted in Type II MI ( $\uparrow 18\%$  [95%CI 20-15],  $p<0.001$ ) during the pandemic. A significant effect of COVID-19 on decreasing cardiovascular admissions (CCU  $p<0.01$ , CSDU  $p=0.03$ ), imaging ( $p<0.001$ ), and procedures (PCI  $p=0.04$ , Coronary angiography  $p=0.02$ ) was observed. In the subgroup analysis of sex, we noticed a falling trend of intervention performed in females during the COVID period (9% male vs. 3% Female March-April 2020). No significant difference in mortality was noted in either group (4.7% Pre COVID vs. 3.7% COVID).

**Conclusion:** A significant decline of patients with cardiovascular diseases in a major hospital of the epicenter is alarming. This gives us insight into looking for the cause of reduce presentation by further research. Health care authorities need to be cognizant of this fact and prepare for future burden of increased cardiovascular morbidity and mortality.

**Keywords:** COVID-19, Cardiovascular diseases, Epidemiology, Low-Middle Income Country, Global Health, Cardiovascular Intervention

## 2.109

### **CLINICAL OUTCOMES OF PHYSIOLOGICALLY GUIDED REVASCULARIZATION AT A TERTIARY CARE HOSPITAL**

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**Background:** Physiological assessment of anatomically intermediate to severe stenoses using iFR and FFR has been proven to decrease the number of stents used and decrease in major adverse cardiac events. Our study aimed to assess the outcomes of physiological assessment-based revascularization at a tertiary healthcare center in South Asia.

**Study Design and Method:** We conducted a retrospective study from Jan'2012-Jan'2020 within a cohort of 499 patients having moderate to severe coronary stenosis, undergoing coronary revascularization based on invasive physiological assessment (FFR or iFR). The participants were divided into two groups, the revascularization deferred group and the revascularization performed group based on the physiological result. Cox-proportional hazard model building was done using a stepwise approach by assessing all plausible interactions and considering p-value  $\leq 0.05$  as statistically significant.

**Results:** In our study, the decision of revascularization was changed based on physiological assessment in approximately a quarter of the cases. Out of the patients having angiographically severe stenosis, who would have undergone revascularization, 43% were deferred. Similarly, out of the patients having angiographically moderate stenosis thus not indicated for revascularization, 14% proceeded for revascularization based on physiological severity. In adjusted models, no statistically significant difference was noted in MACE when comparing the revascularization performed group with a deferred group (p=0.33).

**Conclusion:** Our study reports that physiological assessment of coronary lesions led to a better selection of patients for revascularization. It prevents mislabeling of intermediate coronary stenoses and similarly averts unnecessary interventions in turn leading to a decrease in complications of procedures, and use of dual antiplatelets.

**Keywords:** Fractional flow reserve, Instantaneous wave-free ratio, Invasive physiological assessment, Low-middle income country

## 2.110

### **OPTIMIZING PLACE OF TREATMENT AND ANTIBIOTIC REGIMENS FOR YOUNG INFANTS PRESENTING WITH SIGNS OF POSSIBLE SERIOUS BACTERIAL INFECTION**

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**Background:** World Health Organization recommends in-hospital treatment for young infants (0-59 days old babies) presenting with signs of possible serious bacterial infections and outpatient treatment is only recommended if in-hospital treatment is not feasible. Outpatient treatment showed better outcomes during implementation research, but it could be due to issues like nosocomial infection, unstandardized care or sicker babies ending up with hospitalization.

Current study aims to generate knowledge for treatment of infants with Clinically Severe Infection (CSI) with simplified antibiotic regime either with total home-based treatment or early discharge, based on presenting signs and symptoms.

**Study Design and Method:** Current trial is Pakistan component of a multi-country, multicenter study by world health organization.

It is open-label, two-arm, randomized controlled trial with 2 parallel studies being conducted simultaneously at secondary/tertiary hospitals in Karachi. All young infants presenting at clinic or emergency will be screened for eligibility. Babies with only one low mortality risk sign of CSI (temperature  $\geq 38^{\circ}\text{C}$ , respiration  $\geq 60/\text{min}$ , severe chest indrawing) will be eligible for study 1. Babies with moderate mortality risk sign of CSI (not feeding well, temperature  $< 35.5$ , movement only on stimulation, or any two of low mortality risk signs) will be eligible for study 2. Sample size after 10% inflation is 1946 (1112 for Study 1 and 834 for Study 2). Half of babies will be randomized to intervention arm in both studies. The intervention in study 1 is treatment with Amoxicillin dispersible tablets for first 5 days along with Inj. Gentamycin for first two days. Babies eligible for study 2 will be treated in-hospital with injectable Gentamycin and Ampicillin for first 2 days then randomized to either intervention or control arm. Intervention for study 2 is discharge on third day of initiation of in-hospital treatment with 5 days Amoxicillin dispersible tablets. The control arm for both studies is 7-days in-hospital treatment with injectable Gentamycin and Ampicillin. All Young infants will be followed by teams for treatment/compliance documentation and outcome assessment on days 2, 4, 8 and 15. Primary outcomes include new or persisting of CSI signs; critical illness; severe illness signs; or death. Analysis will include superiority and non-inferiority of intervention arm in study 1, and non-inferiority of intervention arm in study 2.

**Results:** Ethics and trial registration:

Ethical approval by WHO, Aga Khan University, and National Bioethics committee of Pakistan. ISRCTN registration numbers for study 1 and 2 are 16872570 and 44033252, respectively.

**Conclusion:** If intervention arm is at least non-inferior to control arm then it would result in decreased hospital burden, nosocomial infections, and cost of treatment. This also

means improved treatment coverage in young infants with CSI and more availability of hospital beds for more sick babies.

**Keywords:** Possible Severe Bacterial Infection, clinically severe infection, Randomized controlled design, Open label design, WHO, PSBI, Clinically severe infections, Young infants, Amoxicillin dispersible tablets, Ampicillin, Gentamycin.

### 2.111

#### **A RETROSPECTIVE REVIEW ON ANTIBIOTIC USE IN ACUTE WATERY DIARRHEA IN CHILDREN IN A TERTIARY CARE HOSPITAL OF KARACHI, PAKISTAN**

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**Background:** Responsible for at least one in nine pediatric deaths, diarrheal diseases are the leading, global cause of death. Further abetted by improper antibiotic use in a hospital setting, children with acute watery diarrhea can see prolonged hospital stays, and unwanted adverse effects such as antibiotic resistance. Hence, this study is aimed to identify the association between antibiotic usage for the treatment of acute watery diarrhea in children, and the impact this line of management has on the duration of their hospital stay.

**Study Design and Method:** A retrospective review was conducted at the department of Pediatric of Aga Khan University Hospital (AKUH) in Karachi. A total of 305 records of children aged 6 months to 5 years who were admitted with a diagnosis of acute watery diarrhea from June 2017 –December 2018 was screened, of which 175 fulfilled the eligibility criteria. A predesigned questionnaire was used to collect demographic information, comorbidities, and clinical features, severity of

dehydration, clinical examination, treatment received, and laboratory investigations. The primary outcome of this study was the length of hospital stay measured against the number of hours a child stayed in hospital for treatment of acute watery diarrhea. The statistical analysis was carried out using STATA version 14 to reach conclusive results.

**Results:** 175 patients presented with acute watery diarrhea, out of which 106 (60.6%) did not receive antibiotics. The median (IQR) age of the group that did not receive antibiotics was 12.0 (12.0) months compared to 15.0 (12.0) months for the group that did receive antibiotics. In both groups, there were more males than females, less than 15% of the patients were severely malnourished (WHZ score -3SD) and less than 10% of the patients were severely dehydrated. The median (IQR) length of hospital stay (hours) was 32.0 (19.0) respectively for the group that did not receive antibiotic and 41.0 (32.0) for the group that did receive antibiotic therapy. The expected length of hospital stay for the group that received antibiotic therapy was 0.22 hours higher than the group that did not. Finally, as compared to females, hospital stay for males was longer by 0.25 hours.

**Conclusion:** In conclusion, antibiotic use was associated with a prolonged hospital stay in children with acute watery diarrhea as compared to children who did not receive antibiotics. Large scale robust prospective studies are needed to establish this association using this observational data.

**Keywords:** Diarrhea, antibiotics, tertiary care hospital

## 2.112

### **FREQUENCY OF TYPHOID CARRIER IN PATIENTS UNDERGOING CHOLECYSTECTOMY FOR GALL BLADDER DISEASES USING REAL TIME PCR**

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**Background:** Annually millions of new typhoid cases are reported globally despite advancement in treatment and preventive measures. One of the major cause of typhoid endemicity is gallbladder carriage of typhoid etiological agent, Salmonella enterica subsp. enterica, serovar Typhi (S. Typhi) and Salmonella Paratyphi (S. Paratyphi). This study is aimed to determine the frequency of typhoid carriers in patients who underwent cholecystectomy for gall bladder diseases.

**Study Design and Method:** A cross sectional study conducted at Aga Khan University Hospital and Jinnah Postgraduate Medical Center, Karachi from December 2018-February 2020. All individuals of age  $\geq 10$  years were included. Multiplex real time polymerase chain reaction (PCR) was performed on gall bladder specimens including gallstones, bile and gallbladder tissue and sera of same patients were screened against YncE IgG via ELISA.

**Results:** Out of 989 enrolled participants, 34 (3.4%) were carriers of either S. Typhi (2.3%) or S. Paratyphi (1.1%). It was found that most of the carriers harboring organism in their gallstones 24/34 (70.6%) while 20/34 (58.8%) in tissues and 11 (32.4%) in bile. ELISA was performed on sera of 34 PCR positive and 34 age and gender matched PCR negative samples (controls) to measure anti-S. typhi Vi IgG. Our results showed no association of Vi and YncE with PCR positive carriers. The mean age of participants was 40 ( $\pm 14.3$  SD) years. The reason of cholecystectomy in 949/989 (96%) of them was gallstones. Among typhoid carriers, majority 25/34(73.5%) of them were females. History of typhoid fever was not significantly associated with typhoid carrier. We found higher rates of salmonella carriage in gallstones compared to tissue and bile.

**Conclusion:** To control the typhoid fever cases in the region, we should try to interrupt the transmission cycle by typhoid carriers by developing a cost effective, specific and non-invasive diagnostic tools to improve typhoid carrier identification.

**Keywords:** typhoid, cholecystectomy, gall bladder diseases, real time PCR

### 2.113

#### **LONG TERM IMPACT ON LUNG FUNCTION OF PATIENTS WITH MODERATE AND SEVERE COVID-19; A PROSPECTIVE COHORT STUDY**

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**Background:** A significant number of patients continue to recover from COVID-19, there is a wide knowledge gap about the lung function capacity among the survivors of this disease. In this study, we aim to determine the long-term impact on lung function capacity in patients suffering from moderate or severe COVID-19 disease in a resource poor setting.

**Study Design and Method:** A prospective cohort study conducted at Aga Khan University Hospital (AKUH). Patients of age  $\geq 15$  years who recovered from moderate or severe COVID-19 disease during an outbreak and had reverse transcriptase polymerase chain reaction (RT-PCR) positive for COVID-19 (nasopharyngeal or oropharyngeal) were included. The follow ups were done from August 2020 to March 2021. Patients with chronic lung disease, underlying heart disease and history of syncope were excluded from the study. Pulmonary function was assessed by performing spirometry and diffusion lung capacity for carbon monoxide (DLCO) along with chest x-ray at the three- and six-months interval following time since discharge.

Echocardiogram (ECHO) was performed at three months and repeated later, at six months, if clinically indicated. A routine consultation with the designated study pulmonologist or Infectious Disease (ID) physician was done at both intervals. Data was presented as mean  $\pm$  SD, median (IQR), frequencies, and percentages wherever applicable.

**Results:** A total of 67 patients completed three-months follow up. Of them 7 were lost-to-follow-up at six months. Majority of the participants were males 55 (82.1%) and median (IQR) age of participants was 55(48-59) years. Abnormalities on chest x-ray were detected in all patients at the time of discharge, in 5 patients (7.5%) at three months and 8/60 (13.3%) patients at the six-month interval. DLCO was impaired in 24 (35.8%) patients at three months and in 26/60 (43.3%) at six months. 27 (40.3%), 19 (28.4%) and 24 (35.8%) patients had FVC, FEV1 and DLCO values less than 80% of predicted, respectively at three months interval. However, at six months 18/60 (30.0%), 12/60 (20.0%) and 26/60 (43.3%) had values less than 80% of predicted. In 2 patients there was mild basal septal hypertrophy on ECHO at three months follow-up.

**Conclusion:** We conclude that patients who survived from moderate –severe COVID-19 had poor lung function capacity over 6 months follow up period. Robust, larger scale follow-up studies can be planned to better understand the impact of COVID-19 on lung function capacity of survivors

**Keywords:** DLCO; Spirometry; Lung function; COVID-19

## 2.114

### **FREQUENCY OF CHRONIC PULMONARY ASPERGILLOSIS IN PATIENTS TREATED FOR PULMONARY TUBERCULOSIS AT A TERTIARY CARE HOSPITAL IN KARACHI, PAKISTAN.**

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**Background:** Chronic pulmonary aspergillosis (CPA) is a progressive and destructive lung condition caused by members of aspergillus family. CPA usually occurs in patients with pre-existing lung conditions like COPD, lung cancer and tuberculosis (TB). However, in high TB burden countries, TB remains one of the most common risk factor for CPA.

**Objective:** To study the frequency of CPA in patients treated for pulmonary TB at a tertiary care hospital.

**Study Design and Method:** Retrospective study done on patients treated for pulmonary TB and diagnosed as CPA on the basis of clinical symptoms, radiographic imaging and evidence of aspergillus infection on sputum culture or a positive Aspergillus specific IgG at Aga Khan University Hospital, Karachi, Pakistan from January 2016 to December 2018.

**Results:** During the study period 115 patients were included in the study. The mean age was 56 (SD±13.4) years and 61 (53%) patients were females. Out of 115 patients, 17(14.78%) patients were diagnosed as CPA. Out of these 17 patients, 6 (35.29%) had pleural thickening, 5 (29.41%) had fibrocavitary changes, 4 (23.52%) had consolidation and 2 (11.76%) had aspergilloma on radiological imaging. The growth of Aspergillus on sputum culture was seen in 9 (52.94%) patients while rest of the 8 (47.05%) patients had a positive Aspergillus specific IgG. Out of the 9 sputum culture positive patients, 7 patients had growth of

Aspergillus fumigatus and rest of the 2 had growth of Aspergillus flavus.

**Conclusion:** The prevalence of CPA in patients treated for pulmonary TB is underrated. After the cure of TB, if patient presents with chronic respiratory symptoms, CPA should be in the differential diagnosis especially in high TB burden countries so that timely diagnosis and management can be facilitated.

**Keywords:** Chronic pulmonary aspergillosis, post tuberculosis, prevalence

## 2.115

### **INFLUENCE OF PREOPERATIVE ANXIETY LEVEL ON POSTOPERATIVE PAIN AFTER CARDIAC SURGERY**

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**Background:** Surgery and hospitalization are considered to be a major life change, causing anxiety regardless of type of surgery and disease. Anxiety has been linked to post-operative pain, impaired quality of life and increased morbidity and mortality. Present study was designed, to assess preoperative anxiety levels in all patients coming for cardiac surgery and then evaluate and compare with postoperative pain scores.

**Study Design and Method:** 100 consecutive cardiac surgery patients between the ages of 18-65 year were enrolled in this trial. Non-probability consecutive sampling technique was used. Patients were assessed pre operatively by using the State Anxiety Inventory (STAI) scale for Adult. The post-operative pain was determined by using numeric pain scale at 12hr and 24hrs of surgery and total narcotic consumption was also noted. Normally distributed continuous variables were presented as mean ±SD and compared between the mild to moderate to severe anxiety using a two-sample Student t test. Multivariable logistic regression analysis was run to observe the association of

preoperative anxiety and pain score. P-value  $\leq 0.05$  was considered significant.

**Results:** The average age of the patients was  $58.24 \pm 10.03$  year in which 68% were male and 32% female. Preoperative mild anxiety was observed in 64% patients and moderate to severe anxiety in 36% patients. Post-operative mean pain score was significantly high in preoperative moderate to severe anxiety group as compared to mild anxiety group [Mean pain difference = 1.64 (95% CI: 1.38-1.89)  $p=0.0005$ ], [Mean pain difference = 0.51 (95% CI: 0.29-0.73)  $p=0.0005$ ] at 12 hour and 24 hour respectively. Intraoperative and postoperative morphine consumption was significantly high in patients with moderate to severe anxiety group

**Conclusion:** Present study indicates that the patients with moderate to severe anxiety before cardiac surgery experience higher pain scores at post-operative period which is significantly different from mild anxiety group. Intraoperative and postoperative analgesic requirements were also significantly increased.

**Keywords:** Anxiety, Pain, Cardiac surgical procedures, Postoperative period

## 2.116

### **OUTCOMES OF PATIENTS IN NODAL VS. EXTRANODAL DIFFUSE LARGE B-CELL LYMPHOMA (DLBCL): AN INSTITUTIONAL PERSPECTIVE**

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**Background:** Diffuse Large B-cell Lymphoma has been characterized using various parameters in literature, one of which has been using the site of origin i.e., Nodal vs Extra nodal. Studies have emerged over time claiming differences in outcome based on this variable. The aim of this study was to investigate this claim in our

institution while simultaneously adding to the sparse region-specific data on DLBCL in Pakistan.

**Study Design and Method:** We conducted a retrospective longitudinal study of all patients diagnosed with DLBCL from January 2014 till December 2018. All Patients who completed primary treatment in Aga Khan University Hospital, Karachi, Pakistan, were included and were followed during therapy and after completion of treatment for the evaluation of relapse. Patients with no response or progression after 4 cycles of therapy constitute a refractory disease. Progression free survival was the time for which the patient remained alive with disease but without its progression (or relapse after remission). Mean and median were calculated for quantitative variables and frequency and percentages for all qualitative variables. PFS and OS were calculated in months using Kaplan-Meier survival curves. Data was analyzed using STATA 16.0.

**Results:** Of 118 patients, 49 (41.52%) had nodal and 69 (58.47%) had extra nodal disease with no difference in age or performance status between the 2 groups. There is male predominance in the entire cohort. Patients with extra nodal presentation had a statistically significant higher IPI ( $p=0.006$ ). Data regarding cell of origin, double expressor and hit status was available for 50 % of the patients with no difference between the 2 groups. R CHOP was the most administered treatment in both groups. At the end of treatment, 80 (68%) patients achieved complete response. 35 (71.42%) of which were nodal and 45(65.21%) extra nodal. Residual disease was more common in the extra-nodal group 31% vs. 16 % ( $p=0.08$ ). Of 80 patients who achieved CR, 10 (12.5%) eventually relapsed. Out of these 8 achieved CR2 on second line treatment followed by ASCT in 2 patients. The 5-year median PFS was 33.5months (28-35months) and 28 months (19-29months) and the 5-year median OS was 38 months (33-39 months) and 35.5 months (31-36 months) in nodal VS extra nodal patients,

respectively. There was no difference in PFS and OS between the two cohorts. The 5-year overall survival rate was 90.67 % in all patients.

**Conclusion:** DLBCL has an excellent prognosis with most of the patients surviving more than 5 years. Patients with extra nodal disease tend to have a higher incidence of residual disease after first line therapy but effective second line treatments have mitigated its negative impact on survival

**Keywords:** DLBCL, Nodal, Extra nodal, chemotherapy, outcomes

## 2.117

### **RISK FACTORS FOR HEMODIALYSIS IN ACUTE KIDNEY INJURY**

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**Background:** Acute Kidney Injury requiring dialysis has significant morbidity and mortality associated with it. Currently there is insufficient data regarding this entity which leads to a lack of understanding and poor therapeutic advances. Therefore, we aimed to identify the risk factors of patients with Acute Kidney Injury requiring hemodialysis.

**Study Design and Method:** This retrospective study evaluated patients admitted at Aga Khan University Hospital with Acute Kidney Injury from January 2017 to December 2018. Data was extracted from the medical records of the included patients.

**Results:** We evaluated 1100 patients that were admitted to the hospital between 2017 and 2018 for acute kidney injury out of which 347 were included. A total of 20 patients with AKI required dialysis. The mean GFR of these patients was 12.1 + 7.4 mL/min. Sepsis was the most significant risk factor for dialysis accounting for 30% of the patients. Of all the

patients, 0.7% in stage 1 AKI, 7.7% in stage 2 AKI, and 14.2% in stage 3 AKI required dialysis.

**Conclusion:** Our study revealed that sepsis was the biggest risk factor for hemodialysis in AKI. This is significant because it validates the fact that despite the alarmingly high mortality rate of sepsis, even those who survive suffer from lifelong consequences of kidney damage. Furthermore, some patients required hemodialysis even when initial AKI was not severe. This calls for clinicians to focus on early recovery of renal function, irrespective of AKI severity, and ensure robust follow-up monitoring to reduce long term morbidity and mortality associated with this devastating illness.

**Keywords:** Acute Kidney Injury, Hemodialysis, Risk Factors

## 2.118

### **SUSCEPTIBILITY PATTERN OF MYCOBACTERIUM TUBERCULOSIS FROM PATIENTS WITH TUBERCULOUS MENINGITIS FROM PAKISTAN: A RETROSPECTIVE CROSS-SECTIONAL STUDY.**

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**Background:** Here we are reporting the susceptibility pattern of Mycobacterium tuberculosis (MTB) strains isolated from cerebrospinal fluid (CSF) of patients with tuberculous meningitis submitted to a tertiary care referral laboratory from Pakistan.

**Study Design and Method:** This is a retrospective cross-sectional study conducted at Aga Khan University Hospital (AKUH) clinical laboratory from 1990-2019. Laboratory database was reviewed to retrieve susceptibility data of MTB strains isolated from CSF against five first-line (rifampicin, isoniazid, pyrazinamide, ethambutol, and streptomycin), and six second



line anti-tuberculous agents (ciprofloxacin, levofloxacin, ofloxacin, kanamycin, amikacin and capreomycin). The data was entered into SPSS version 19.0. Frequencies and percentages were calculated for categorical variables, i.e. age, gender and antibiotic resistance.

**Results:** A total of 395 MTB strains from 395 patients were isolated during the study period from CSF samples. Out of these patients, 45.3% were male, 54.7% were females. 5.6% were less than 5 years of age, 24.1% were aged between >5 to 18 years, 66.1% were aged between >18 to 60 years and 4.3% were aged >60 years and above.

Multidrug resistant (MDR) MTB was isolated in 2.5 % (10/395) cases. Pre-XDR MTB was isolated in 0.5% (2/395) isolates. No XDR MTB strains were isolated.

Overall, resistance to rifampicin, isoniazid, pyrazinamide, ethambutol and streptomycin was found in 3.5% (14/395), 11.7% (46/393), 3.8% (11/293), 3.8% (15/395) and 10.7% (38/354) isolates respectively. Resistance to fluoroquinolone and second line injectable drugs was found in 7 and 5 MTB isolates respectively.

**Conclusion:** Our study shows that incidence of MDR MTB strains is lower in Pakistan as compared to the developing countries while rates of isoniazid monoresistance is much higher. It is essential to monitor susceptibility patterns periodically to guide effective anti-TB therapy.

**Keywords:** tuberculosis, meningitis, anti-tubercular therapy

## 2.119

### **ASSOCIATION OF VITAMIN D DEFICIENCY AND DISEASE ACTIVITY IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS: TWO-YEAR FOLLOW-UP STUDY**

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**Background:** Objectives: This study aims to determine the prevalence of vitamin D deficiency in Pakistani systemic lupus erythematosus (SLE) patients and the effect of vitamin D deficiency on the severity and outcomes of SLE.

**Study Design and Method:** This retrospective study evaluated SLE patients presenting to our hospital between January 2009 and December 2018. A total of 98 patients (13 males, 85 females; mean age 39.8±14.9 years; range, 16 to 73 years) with vitamin D levels available at the time of diagnosis were included in the study. Disease activity was measured using SLE disease activity score at the time of diagnosis and at the two-year mark.

**Results:** Sixty-five patients were deficient in Vitamin D and out of those 46 were severely deficient. The severe disease group had more patients with vitamin D deficiency at both visits (43/78 and 33/46) while patients in remission all had normal vitamin D (12/12 and 14/14) ( $p \leq 0.001$ ).

**Conclusion:** Vitamin D deficiency is common in SLE patients and also significantly associated with increased disease activity at the time of diagnosis and at the two-year mark. We hope this study becomes a platform for the global medical community to come together and implement early screening and monitoring of vitamin D levels and to determine the optimal level of supplementation for prevention of poor outcomes in SLE.

**Keywords:** Autoimmune disease, rheumatology, systemic lupus erythematosus, vitamin D.

## 2.120

### **RECURRENCE-FREE SURVIVAL AND PATTERNS OF RECURRENCE IN PANCREATIC DUCTAL ADENOCARCINOMA : AN INSTITUTIONAL PERSPECTIVE**

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**Background:** Pancreatic ductal adenocarcinoma (PDAC) is an aggressive disease with 5 year survival rate of less than 10%.PDAC is characterized by a poor chemotherapeutic response because of its fatal biological nature. Currently, all recommended adjuvant treatment options for patients with pancreatic cancer have their limitations. Hence, the purpose of this study was to evaluate clinical outcomes in terms of recurrence-free survival and the patterns of loco-regional and distant metastases in patients with adenocarcinoma of the pancreas treated at a tertiary care hospital of Karachi, Pakistan. This study has not been performed in our population and it is clinically significant in designing future prospective studies/trials for subgroups of patients with early recurrence

**Study Design and Method:** We conducted a retrospective study at a tertiary care hospital, Karachi Pakistan from

2013-2019. Data of 67 adults of 18 to 70 years of age, diagnosed with adenocarcinoma of the pancreas and treated primarily with curative intent were included. Data was extracted retrospectively from the hospital's medical record and was reviewed for recurrence of disease and patterns of locoregional and systemic recurrence. RFS (in months) was calculated. SPSS version 23 was used to analyze the data.

**Results:** Out of 67 patients with pancreatic adenocarcinoma, 65 (97%) patients had a complete clinical and radiological response on the follow-up scans performed three months after the completion of curative treatment. However, 2 (3.0%) patients had recurrence/residual disease on the first follow-up scan. Subsequent follow-ups showed cancer recurrence was observed in 60 (89.5%) patients, out of which 10 (14.9%) had loco-regional while 7 (10.5 %) had a systemic only recurrence. Most of the patients (n= 43; 64.1%) had systemic as well loco-regional recurrences. The liver (66%) was the most common site involved in systemic metastasis. The median RFS was 9 months (IQR= 8, 15)

**Conclusion:** This retrospective analysis highlights the patterns of recurrence after curative treatment of pancreatic ductal adenocarcinoma and indicates high recurrence rates. By better understanding, the patterns of recurrence can help in identifying subsets of patients with a high risk of recurrence and hence in managing such patients more effectively.

**Keywords:** Pancreatic Adenocarcinoma, clinical outcomes, recurrence, metastasis, progression free survival.

## 2.121

### **AN ARTIFICIAL INTELLIGENCE (AI) MODEL FOR THE SEGMENTATION OF TEETH ON ORTHOPANTOMOGRAMS (OPGS)**

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**Background:** Background: Dental radiographs are an adjunct for accurate diagnosis and treatment planning in clinical practice. There is a need to automate this task for more accurate and consistent diagnosis and treatment planning. The advent of AI has made it possible to incorporate human-level intelligence into computer-based models to simulate human problem-solving skills. These can be leveraged into dental radiographic diagnosis to develop an AI model for the automation of this process. However, the results of the models need to be comparable, if not better, than human annotators to hold a significant impact. The first step in automizing this process is training AI models in the accurate identification and numbering of teeth on radiographs.

**Objectives:** To compare the accuracy of teeth identification on OPG using a Deep Learning (DL) AI algorithm model with human annotators for instance segmentation and teeth numbering.

**Study Design and Method:** Study design:  
Validation study

**Methodology:** OPGs were manually annotated by human annotators to lay down the ground truth for training two Convolutional Neural Network (CNN) algorithms, namely U-net and Faster RCNN. These algorithms were concurrently trained and validated on a dataset of 40 labelled OPGs. The U-net algorithm was trained on OPGs specifically annotated with fluid margins to label all 32 teeth via instance segmentation allowing each tooth to be denoted as a separate entity. Simultaneously, the teeth

were also numbered as per the FDI (Fédération Dentaire Internationale) system, using bounding boxes to train the Faster RCNN algorithm. Consequently, both trained algorithms were combined to develop an AI model capable of segmenting and numbering all teeth on an OPG.

**Results:** The performance metrics of the algorithms were assessed relative to the ground truth laid down by human annotators in the training and validating datasets of OPGs. The performance of the U-net algorithm was determined using performance metrics including: precision=88.8%, accuracy=88.2%, re-call=87.3%, F-1 score=88%, dice index=92.3% and IoU=86.3%. The performance metrics of the Faster RCNN algorithm were determined using performance metrics including: overlap accuracy=30.2 bounding boxes (out of a possible of 32 boxes) and classifier accuracy of labels=93.8%.

**Conclusion:** The ability of an AI model to automatically identify teeth on OPGs will aid dentists with diagnosis and treatment planning. This will lead to the reduction of workload and diagnosis time of dental professionals, eventually increasing the efficiency as well as accuracy of dental treatment. The instance segmentation and teeth numbering results of our trained AI model were exceptionally close to the ground truth; holding a promising future for its incorporation into clinical dental practice.

**Keywords:** Artificial Intelligence, Deep Learning, Dentistry, Imaging, Neural Networks, Convolutional Neural Network, Intraoral Radiography, Object Detection, Instance Segmentation, Big Data, Panoramic radiography.

### 2.123

#### **DIAGNOSTIC CHARACTERISTICS AND MANAGEMENT OUTCOME IN PATIENTS WITH ACROMEGALY: A 15-YEAR EXPERIENCE AT A TERTIARY CARE HOSPITAL IN PAKISTAN**

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**Background:** This study was designed primarily for the evaluation of diagnostic characteristics of acromegaly and establishment of its management outcomes over a span of 15 years at a tertiary care hospital in Pakistan.

**Study Design and Method:** It was a Descriptive cohort study. Total 84 patients with biochemical and radiological diagnosis of Acromegaly were included in study between January, 2005 to December, 2019. Patients' medical record files were reviewed & data recorded.

**Results:** Of the 84 subjects, with mean age of  $38.69 \pm 13.52$  years, 54 (64.3%) were male while 30 (35.7%) were female. The patients presented at a mean duration of  $5.43 \pm 4.3$  years after onset of symptoms. The most frequent complaint was somatic growth features in the form of enlarged hands & feet noted by 81 (96.4%) pts. Overall, 73 (86.9%) patients underwent TSS for removal of pituitary adenoma while 11 (13.1%) patients refused to opt surgical option. Only 9 (12.3%) patients achieved biochemical & radiological remission after 6 months of surgery. Among 64 patients with persistent disease after TSS, 38 (59.4%) were treated with radiosurgery/radiotherapy, 15 (23.4%) underwent repeat TSS and 11 (17.2%) opted for medical treatment, mostly with Cabergoline.

**Conclusion:** TSS is followed by the documentation of a high rate (88%) of failure to achieve remission and majority of patients have to opt radiotherapy/repeat TSS for the persistent disease. With the continuously improving

surgical skills, we expect that the figures attaining remission after primary TSS will rise in the decades to come.

**Keywords:** Acromegaly, Characteristics, Management Outcome

### 2.124

#### **CHRONIC DIARRHEA: A RARE PRESENTATION OF HODGKIN'S LYMPHOMA**

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**Background:** To report unusual presentation of chronic diarrhoea

**Study Design and Method:** Case Presentation: Here we report a rare presentation of a 47-year-old male who presented with symptoms of loose stools, weight loss and fever. CT scan and abdominal lymph node biopsy findings were consistent with a lymphoproliferative disorder Patient was being managed in the line of malabsorption syndrome with possible underlying malignancy but his condition deteriorated before the histological diagnosis was confirmed. Thus, this report highlights the importance having a consideration for Hodgkin's lymphoma in the management of chronic diarrhea.

**Conclusion:** This was a rare presentation of Hodgkin's Lymphoma. Such uncommon presenting features of the disease should be studied in more detail to prevent misdiagnosis and link the patient to treatment at the earliest.

**Keywords:** Hodgkin's Lymphoma, Chronic Diarrhea, Extra nodal GI involvement, Case Report

2.125

**EFFICACY AND SAFETY OF  
DULAGLUTIDE IN TYPE 2 DIABETES  
PATIENTS IN ENDOCRINOLOGY CLINICS  
OF ISLAMABAD, PAKISTAN**

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Medical Sciences, Islamabad

**Background:** Our objective was to ascertain the efficacy and safety of once weekly Dulaglutide among patients with Type 2 diabetes of Pakistani origin.

**Study Design and Method:** This prospective cohort study was conducted at the Endocrinology Clinics of Shifa International Hospital, Islamabad, Pakistan during the period from July 2020 to December 2020. Dulaglutide at the dose of 1.5 mg once weekly was initiated in patients with BMI >28 and suboptimal glucose control in the background of Type 2 Diabetes who were also taking one or more of oral anti-diabetic and/or insulin therapy.

**Results:** Mean age of patient cohort (n=148) was 49.51 years (SD +/-12.15) with 53.5% (n=85) had type 2 diabetes duration of over 10 years. Mean weight was 93.2 kg at baseline with end of study mean weight 90.7 kg. Mean HbA1c at baseline was 9.2% which improved to 8.05% at the end of study. The main side effects were nausea in 32%, vomiting 8% and diarrhea in 7% with 19% discontinuation rate due to cost and side effects.

**Conclusion:** Dulaglutide as a therapy demonstrated favorable HbA1c and weight reduction in obese type 2 diabetes patients of Pakistani origin.

**Keywords:** Dulaglutide, Type 2 diabetes

2.126

**PHYSICIAN'S DIAGNOSTIC IMPRESSION  
AND ITS DISCREPANCY WITH THE  
DISCHARGE DIAGNOSIS IN ADULT  
PATIENTS PRESENTING WITH SYNCOPE  
TO THE EMERGENCY DEPARTMENT - A  
SINGLE-CENTER CROSS-SECTIONAL  
STUDY**

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**Background:** Syncope is the sudden and transient loss of consciousness followed by a complete spontaneous recovery with etiologies spectrum from benign vasovagal episode to life-threatening cardiac arrhythmias. Reaching a definitive cause of syncope has always been elusive as most patients are asymptomatic when they present, which can potentially lead to variation between initial clinical impression and the final diagnosis. Hence, this study was conducted to ascertain the emergency physician's diagnostic impression of syncope and then evaluate its discrepancy, if any, with the final discharge diagnosis.

**Study Design and Method:** A prospective study was conducted in 2021, whereupon 156 adult patients who presented with syncope within 24 hours and got admitted for at least 1 day were selected from the emergency department of AKUH. Variables collected include demographic profile with comorbidities, initial diagnostic impression, and the final discharge diagnosis. Mean and SD were calculated for all quantitative variables and frequencies and percentages were computed for qualitative variables. Post-stratification chi-square test was used taking a p-value < 0.05 as significant.

**Results:** This study revealed gender distribution of 2:1 (M:F) among syncope cases with median age of 59.5 [40.5 - 70] years and median hospital stay of 1 day. Emergency impression of the cause of syncope was reflex syncope 12.2%

(19), orthostatic syncope 0.6% (1), cardiac syncope 11.5% (18), and other/uncertain cause 78.2% (122), while the discharge diagnosis was reflex syncope 25.6% (40), orthostatic syncope 2.6% (4), cardiac syncope 14.1% (22), and other/uncertain cause 57.7% (90). The discrepancy between initial impression and the discharge diagnosis was 27.6% (43) for reflex syncope, 3.2% (5) for orthostatic syncope, 21.8% (34) for cardiac syncope, and 44.9% (70) for cases with other/uncertain causes. The cumulative discrepancy was found to be 50%.

**Conclusion:** We found a significant discrepancy between the physicians' initial impression about the likely etiology of syncope and the final diagnosis. These findings are a call for action to investigate and explore factors leading to such discrepancies, so a systematic assessment protocol could be devised for better disposition of patients with syncope.

**Keywords:** Syncope, emergency diagnostic impression, final discharge diagnosis, discrepancy

## 2.127

### **FUNCTIONAL PITUITARY GONADOTROPH ADENOMA IN MALE PATIENTS: CASE REPORTS**

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**Background:** Case presentation: Here we report two cases who presented with visual disturbance and headache at a tertiary care hospital, Karachi, Pakistan. Brain imaging revealed a pituitary macroadenoma. Further workup was consistent with pituitary gonadotroph adenoma with high FSH (case 1) and normal LH/FSH (case 2) and elevated serum testosterone (both). Transsphenoidal resection was performed and tissue sample histopathology confirmed pituitary adenoma. Postoperatively, improvement in hormonal profile was observed along with a resolution of visual disturbances and headaches.

**Study Design and Method:** N/A

**Results:** N/A

**Conclusion:** Functional gonadotroph adenoma should be considered in the presence of elevated testosterone/estrogen and normal or elevated follicle-stimulating hormone (FSH)/ luteinizing hormone (LH). Early diagnosis leads to a better outcome.

**Keywords:** Pituitary Neoplasms, Gonadotrophs Adenoma, FSHoma

## 2.128

### **IGG4 RELATED DISEASE ATYPICAL NEUROLOGICAL MANIFESTATION; A CASE REPORT**

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**Background:** Herein we report a case of a male who initially presented with diabetes went on to

develop pancreatitis and later develop neuropathy. Here neurological manifestations presented as secondary not as primary organ involved.

**Study Design and Method:** Case Presentation

**Results:** Case Presentation: A 19 year old male, initially presented with abdominal pain, constipation and vomiting. After being diagnosed with diabetes mellitus, went to develop pancreatitis. Later developed peripancreatic fluid collections and sepsis secondary to these collections. The patient then presented with inability to walk which progressed towards loss of consciousness and acute changes seen in CNS on imaging which could not be ruled out and explained by usual workup which included encephalopathies, meningitis or any stroke related complications. A diagnosis of IgG4 was established after found increased levels when sent for testing. The diagnosis was further strengthened when patients was started on prednisolone (the first line of treatment) and drastic improvement was seen and patient was discharged subsequently. From unable to walk and being wheel chair bound to be able to walk on his own for later follow-up in clinic emphasis the diagnostic value of IgG4 related diseases in cases where the autoimmune profile is negative along with other commonly presented neurological diseases ruled out.

**Conclusion:** This case report presents a very rare and atypical neurological manifestation. Physicians when excluding different diagnosis and specially after ruling out autoimmune should definitely consider the work up for IgG4 related diseases

**Keywords:** IgG4 RD, neuropathy

## 2.129

**PRIMARY THYROID LYMPHOMA- A CASE SERIES**

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**Background:** PTL is a rare disease, mostly affecting middle-to-old aged females. It has a strong association with pre-existing thyroiditis, which increases the risk of its development. The disease has been studied in detailed in the Western populations, however, there is lack of data for south Asians, especially Pakistani population.

**Study Design and Method:** We conducted this review to find out about the disease characteristics in our setting. This was a retrospective study where we reviewed 5 diagnosed and/or treated cases of primary thyroid Lymphoma at the Aga Khan University. Each patient's medical records were reviewed and studied.

**Results:** Mean age of the participants was of 62.8 +/- 10.2 with 3 males and 2 females. All patient's histopathology was consistent with Diffuse B cell Lymphoma subtype. Out of the 5 patients, 1 patient died as a result of complications, 1 patient opted out of treatment at AKU due to financial constraints and 3 patients are doing well with no active complaints and followed-up regularly.

**Conclusion:** The characteristics of the patient's clinicopathological and other features of the disease were consistent with studies done previously. This is suggestive that we can follow a similar approach to investigate and treat this, as the disease behaves in a similar way in Pakistani and western population. Moving forward, however, more cases need to be reviewed and studied in detail, so a greater and much more in-depth information can be obtained.

**Keywords:** Primary Thyroid lymphoma, Pakistani population, Diffuse large B cell subtype

## 2.130

**MEDULLARY THYROID CANCER, AN EXPERIENCE FROM A TERTIARY CARE HOSPITAL OF A DEVELOPING COUNTRY**

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**Background:** Our aim was to study the presence and patterns of above mentioned characteristics of medullary thyroid carcinoma in our population.

**Study Design and Method:** This is a retrospective study conducted in a tertiary care hospital of Pakistan in which data of medullary thyroid cancer over past 20 years was reviewed. Data from 32 patients was analyzed after fulfillment of the inclusion criteria. Their clinical, pathological, biochemical and treatment outcomes were recorded through retrospective review of their medical record files.

**Results:** The mean age of patients with medullary thyroid carcinoma (MTC) was 42.88 + 2.67 in our study, with male to female ratio of 2:1. 68.8% of MTC patients were sporadic and 31.2% were familial in our study. 81.3% of patients presented with neck swelling, lymph nodes were palpable in 43.8% of patients and distant metastasis were present in 25% of the patients. The rates of metastasis were highest in bones followed by lungs and liver (12.5%, 9.4%, and 3.1% respectively). Histologically, the mean tumor size was 7.62 + 3.64 with 8 (25%) having distant metastasis. Lymph node metastasis was present in 19 (59.3%) of the patients, out of which 16 had bilateral involvement. Over 50% of carcinomas in our study were unifocal, followed by bifocal (21.9%) and multifocal 3 (9.4%). Mean pre-surgery calcitonin was 11225.7 + 4043.57 which then decreased to a



mean of 244.43 + 113.48 post surgery. Mean pre-surgery CEA level was 25.08 + 7.23 which then decreased to 0.0645 + 0.044 post surgery. Hyperparathyroidism was found in two patients while pheochromocytoma was found in one patient only. Two patient were positive for RET gene mutations. Total thyroidectomy was done in 26 (81.2%) of the patients while one patient had subtotal thyroidectomy followed by complete thyroidectomy as initial FNAC was Bethesda category 3. Surgery was not performed in 5 patients due to distant metastasis or palliative intent. Chemotherapy was given to only one patient while XRT was performed in two patients.

**Conclusion:** Medullary thyroid carcinoma usually presents in fourth decade of life with male predominance and mostly sporadic occurrence. Total thyroidectomy with subsequent serial calcitonin and CEA levels thereafter are the mainstay of treatment and follow-up.

**Keywords:** Medullary Thyroid Cancer, Developing country, Clinicopathological Characteristics

### 2.131

#### **INAPPROPRIATE PRACTICE OF SUPPLEMENTATION HAS LED TO INCREASED VITAMIN D TOXICITY: EXPERIENCE FROM PAKISTAN**

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**Background:** This study aimed to determine the frequency of subjects presenting with 25(OH)D levels of >150 ng/ml, assess their use of vitamin D supplementation, and its indications.

**Study Design and Method:** A prospective cross-sectional study was conducted at the section of Chemical Pathology, including subjects with 25(OH)D levels of >150 ng/ml from April 2020 to March 2021. Subjects were contacted through

telephone for clinical history, including demographics, clinical features, indication and other details of calcium and VD supplementation.

**Results:** During one year, 1,05,398 sample were analyzed for serum 25(OH)D levels, 0.35% (n=364) subjects had 25(OH)D level of >150 ng/ml. After satisfying exclusion criteria 78 pediatric subjects with median age of 2.0 (3.9) years while 108 adult subjects with median age of 41.4 (27.4) years were included in the final analysis.

The main indications for supplementation was delayed growth/short height (43.7%, n=34) and aches or pains in (54.6%, n=59) in pediatric and adult subjects respectively. Most of the subjects were taking supplements orally (37.9%, n=138). Commonly prescribed preparation in adults and pediatric was 200,000 IU (70.4%, n=76) and 400 IU (35.9%, n=28) respectively. Most subjects took supplements for 1-3 months (15%, n=55). Stated total supplementation ranged from 20,000 IU to 3600,000 IU in pediatric subjects and 200,000 IU to 96,00,000 IU in adults.

**Conclusion:** Supplementation is a leading cause of vitamin D toxicity. It should be prescribed cautiously and explicitly explaining the duration for the treatment should be taken.

**Keywords:** vitamin D supplementation, Hypervitaminosis D, vitamin D toxicity, vitamin D deficiency, Children, Pakistan

## 2.132

**EPIDEMIOLOGY AND OUTCOME OF OUT OF HOSPITAL CARDIAC ARREST PATIENTS UTILIZING EMERGENCY MEDICAL SERVICE VERSUS NON-EMERGENCY MEDICAL SERVICE TRANSPORTATION A PILOT REGISTRY FROM 10 HOSPITALS IN KARACHI, PAKISTAN**

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**Background:** Sudden cardiac arrest is the most common cause of pre-hospital and in-hospital deaths worldwide. Low middle income countries (LMICs) like Pakistan share the high burden. The estimated annual out of hospital cardiac arrest (OHCA) incidence was found to be 186/100,000 population in Pakistan. The survival chances in OHCA patients are very low ranging from 0-20%. This study aims to compare the epidemiology and outcome of OHCA in Karachi Pakistan from different tertiary care hospitals.

**Study Design and Method:** A cross sectional study design was used to collect data of 1068 patients with OHCA from 10 hospitals in Karachi from 2015-2018. Information related to demographics, mode of transportation, bystander CPR and patient outcome were collected. Data was stratified on mode of transportation. In Karachi emergency medical services (EMS) is only provided by AMAN ambulance. Median and IQR was calculated for age and frequency and percentages for categorical variables. Chi-square test was applied considering p value  $\leq 0.05$  significant.

**Results:** Out of 1068 patients 113 (10.6%) transported with EMS, 955 (89.4%) transported without EMS. Median (IQR) age of patients transported in EMS vs non-EMS was 65 (50-73) and 59 (45-69). Majority of the patients with

OHCA were male in both groups (55.8 % vs 61.8%). The OHCA incident took place at the home of almost 73% of patients in both groups. Majority of the patients didn't receive CPR in pre-hospital settings (94.7% vs 82.5%). 94 (83.2) in EMS and 474 (93.9) in non-EMS group. More than 90% of patients in both groups died in ED in both groups ( $p < 0.001$ ).

**Conclusion:** The OHCA survival is very low. A sustainable surveillance system should be in place to understand the factors of poor outcome to improve survival

**Keywords:** out of hospital, cardiac arrest, emergency medical services, incidence, survival

## 2.133

**EPIDEMIOLOGY OF AORTIC VALVE SURGERY IN A LOW TO MIDDLE INCOME COUNTRY – FIVE YEAR EXPERIENCE FROM A TERTIARY CARE CENTER IN PAKISTAN**

*Asra Wahid, Asna Sulaiman, Hasanat Sharif, Osman Faheem  
Department of Medicine, Aga Khan University*

**Background:** The prevalence of aortic valvular disease is a growing global problem; however, its etiology, management, and outcomes vary markedly across regions and economic strata. The etiology in the West is mainly degenerative (1), whereas in low-to-middle-income countries (LMICs), it is still mainly attributable to rheumatic heart disease (RHD), post-inflammatory changes or infective endocarditis. (2) In LMIC and low socioeconomic groups in developed countries, RHD remains a significant public health problem. (3) RHD affects 33.4 million people globally, with 34,700 deaths annually. (2) Asian countries showed the largest estimated number of cases of RHD, accounting for 73% of the global disease burden. In 2015, 2.25 million cases of RHD were recorded in Pakistan. Along with Pakistan, other countries were Indonesia (1.18 million cases), India (13.17 million cases), and China (7.07 million cases).

(2) Although mitral RHD in our part of the world is well studied, aortic RHD and its long-term outcomes are less well described. (4) The most recent data from LMICs was published six years ago(5), while data from Pakistan is over 15 years old. (6) We decided to review all the patients who had aortic valve replacement performed at our institution from 2007 to 2012 to understand the etiology, prevalence and outcomes of surgical treatment in these patients.

**Study Design and Method:** Patient Selection

We reviewed 175 patients that underwent surgical aortic valve replacement at The Aga Khan University Hospital between January 2007 and January 2012. 149 patients were included in a retrospective cohort study, and 26 were excluded due to incomplete data. All patients above 18 years of age undergoing isolated aortic valve replacement, double valve replacement (AVR and MVR), double or aortic valve replacement with CABG, and aortic root replacement were included. The research ethics review committee approved the study at this institute.

**Data Collection and Variables:** The demographic and pre-operative characteristics, operative data, post-operative outcomes and follow-up data of the patients were obtained from the clinical records database of the AKU cardiothoracic surgery department.

The variables collected for each patient are mentioned in the tables below and defined as follows:

Mixed valvular disease is defined as a combination of stenotic and regurgitant lesions on the same valve.(7)

Outcome variables are defined according to STS guidelines (8):

Mortality is defined as 1) all deaths occurring during the hospitalization in which the operation was performed, even if after 30 days, and 2) those deaths occurring after discharge from the hospital, but within 30 days of the procedure.

Renal failure is defined as 1) an increase in serum Cr levels 4 mg/dL or greater (176.8 mmol/L), 2) a 50% or greater increase in serum Cr levels over the baseline pre-operative value, or 3) a new requirement for dialysis.

Prolonged intubation is defined as mechanical ventilation exceeding 24 hours after the operation.

Heart Block is defined as first-, second- or third-degree heart block that did not require a permanent pacemaker.

**Operating Technique:** Standard operating protocol was used. Under general endotracheal anesthesia, the chest was opened via median sternotomy. After systemic heparinization, Cardiopulmonary bypass was instituted by cannulation of the distal ascending aorta and the right atrium with two single stage cannulae. Aortic cross clamp was placed and with antegrade aortic root blood cardioplegia, the heart was arrested. Aorta was opened transversely 1cm distal to the takeoff of the right coronary artery. The aortic valve was examined and excised. Prosthesis size was chosen after sizing of the aortic annulus with the appropriate valve sizers before implantation of a mechanical or bioprosthetic valve. Combined coronary artery bypass grafting or mitral valve replacement was done as needed. Cardiopulmonary bypass was weaned, and circulation was restored. All patients were monitored after surgery under a cardiothoracic intensive care unit.

**Study Objectives:** We examined the following variables and outcomes among patients with isolated AVR or AVR with concomitant procedures (CABG, MVR, mitral ring, tricuspid ring or replacement):

(1) Demographics, co-morbidities, cardiac co-morbidities, etiology and pre-operative valve dysfunction (?) on echocardiography.

(2) In-hospital mortality and morbidity outcomes - Low cardiac output syndrome, arrhythmias,

heart block, permanent pacemaker, prolonged intubation and renal failure.

(3) 30-day, 1-year and 5-year follow up echocardiography to assess valve function.

(4) 30-day, 1-year and 5-year mortality and morbidity outcomes - valve degeneration, congestive heart failure, atrial fibrillation, acute coronary syndrome

**Statistical Analysis:** All statistical analyses were performed using IBM Statistical Package for the Social Sciences (SPSS) 21.0. Continuous variables were presented as mean  $\pm$  standard deviation (SD) or median with IQR depending on normality assumption. Categorical variables were expressed as percentages with 95% confidence interval (CI) using the exact binomial method. A p-value of  $< 0.05$  was considered statistically significant.

**Results:** Table 1 describes the demographics, pre-operative characteristics, and co-morbidities of the patients. The mean age of our study population was  $46.5 \pm 15.3$  years (range 19 – 76 years) with a predominantly male population (69.1%). Other adjunct cardiac diseases were coronary artery disease (CAD) and congestive heart (CHF) in 19.5% and 13.4% of patients. All but eight patients underwent their first cardiac surgical procedure. Rheumatic heart disease was the most prevalent etiology at 36.6%, while bicuspid aortic valve disease was second at 8.6%. Etiologies on the remaining patients included senile degeneration, infective endocarditis, failed prosthetic valve, and aortic dissection. The STS mortality and morbidity were calculated pre-operatively for isolated AVR and concomitant procedures (e.g. AVR + CABG), while this scoring system could not assess double valve replacements procedures. Pre-operative echocardiographic findings are depicted in Table 2. Aortic stenosis was found to have increased prevalence with age, 51-60 years ( $n=20$ , 27.8%);  $\geq 60$  years ( $n=25$ , 34.7%) while aortic regurgitation was primarily seen in younger patients;  $\leq 40$  years was  $n=39$ (46.5%).

(TABLES ATTACHED)

**Conclusion:** We concluded RHD to be the most predominant etiology of aortic valve disease. With the slow progression towards TAVR and the lack of literature available on aortic valve disease amongst our population, the outcomes of SAVR still deem important as the current mainstay of treatment amongst our population. Our single center experience of patients undergoing SAVR in a significantly younger but diseased population showed minimal mortality and morbidity outcomes. In LMICs like Pakistan, SAVR can still be relied upon to produce substantial outcomes for aortic disease in low to moderate risk patients while slowly progressing to newer procedures. Loss to follow up and missing data remains a problem in an under-resourced population. Global surgery could be an answer to these problems by providing an improved, equitable and holistic surgical care taking need, access and quality, hand in hand and engaging an elaborate range of individuals. Since, no study on the prevalence of aortic disease and outcomes of SAVR has been reported in Pakistan - this will provide a good template for the changes required to improve outcomes.

**Keywords:** Aortic Valve Surgery, Aortic Valvular Disease, Rheumatic Heart Disease

## 2.134

### **EPIDEMIOLOGY OF AORTIC VALVE SURGERY IN A LOW TO MIDDLE INCOME COUNTRY – FIVE YEAR EXPERIENCE FROM A TERTIARY CARE CENTER IN PAKISTAN**

Asra Wahid, Asna Sulaiman, Hasanat Shariff, Osman Faheem  
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- (3) 30-day, 1-year and 5-year follow up echocardiography to assess valve function.
- (4) 30-day, 1-year and 5-year mortality and morbidity outcomes - valve degeneration, congestive heart failure, atrial fibrillation, acute coronary syndrome

### **Statistical Analysis**

All statistical analyses were performed using IBM Statistical Package for the Social Sciences (SPSS) 21.0. Continuous variables were presented as mean  $\pm$  standard deviation (SD) or median with IQR depending on normality assumption. Categorical variables were expressed as percentages with 95% confidence interval (CI) using the exact binomial method. A p-value of  $< 0.05$  was considered statistically significant.

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**Keywords:** Aortic Valve Surgery, Aortic Valvular Disease, Low-to-middle-income countries, Rheumatic Heart Disease

### 2.135

#### **PREVALENCE AND CLINICAL OUTCOMES OF SEVERE HYPERTENSIVE PATIENTS TREATED IN AN EMERGENCY DEPARTMENT IN A LOW-INCOME SETTING: A COHORT STUDY**

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**Background:** This study aims to measure the prevalence of acute severe hypertension and practice patterns of its management among all patients presented to the emergency department (ED) and describe the six months outcomes following discharge.

**Study Design and Method:** This single-center, observational study was conducted at the ED of the Aga Khan University Hospital, Karachi, Pakistan. All adult patients presented to the ED from November 2018 to April 2021 with either systolic blood pressure reading of  $\geq 180$  mm Hg or diastolic blood pressure of  $\geq 120$  mm Hg were included. Telephonic follow-up was conducted at one month, three months, and six months post-discharge. Data were collected retrospectively from medical charts and electronic health records. Mean + SD was calculated for normally distributed continuous variables whereas frequencies were calculated for categorical variables. Univariate and Multivariate Cox regression was done to show the association of risk factors and mortality at six months. Kaplan Maier curve was used to see the survival of patients after 6 months. All analysis was performed at 95% CI with 5% level

of significance by using SPSS version 21 and STATA version 14 respectively

**Results:** A total of 1161 patients were included in the study. The mean age was 60 + 14 years and the majority (58.6%) of the patients were females. Prevalence of severe hypertension was found to be 1.4%. Of the total patients, 356 (31%) were diagnosed with the hypertensive emergency. Around 186 (16%) patients were lost to follow-up during 6 months follow-up period. A total of 205 (21%) patients were readmitted to the emergency department post-discharge. Eighty patients (8%) were expired at the 6-months follow-up. Univariate Cox regression analyses indicated that age of > 70 years, patients with the diagnosis of hypertensive emergency, ED length of stay > 6 hours, and hospital length of stay > 48 hours were independently associated with increased risk of mortality at 6 months

**Conclusion:** Prevalence of severe hypertension was low as compared to previous studies but we found a higher then reported prevalence of hypertensive emergency in a prospective series of 82000 patients. Significant number of patients were lost to follow-up in our study

**Keywords:** Severe hypertension, Emergency Department, Low-income setting

### 2.136

#### **PATIENTS' EXPERIENCE WITH PREOPERATIVE ANAESTHESIA CLINIC**

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**Background:** Preoperative assessment of surgical patients by anaesthesiologists is an important to ensure patient safety. Pre-anaesthesia clinics are designed to prepare patients for surgery. Visiting the anaesthesia clinic before admission gives the patient a chance to discuss the appropriate choice of

anaesthesia, modality of postoperative pain relief and complications of anaesthesia. Attending the clinic improves patients' understanding about anaesthesia and increases their confidence in making an informed consent. Moreover, preoperative screening of the patients has shown to reduce the frequency of cancellation of elective surgeries. Patients' experience with preoperative anaesthesia clinic needs to be determined to improve the services and ensure patient centered care. In this study we determined patients' experience with their visit to preoperative anaesthesia clinic.

**Study Design and Method:** It was a cross sectional survey conducted at the preoperative anaesthesia clinic at Aga Khan University Hospital (AKUH), Karachi from March 22, 2019 to March 21, 2020. Data were collected after written, informed consent. One hundred and eighty-nine patients visiting preoperative anaesthesia clinic were included. Quantitative data were presented as simple descriptive statistics giving mean and standard deviation. Qualitative variables were presented as frequency and percentages. Effect modifiers were controlled through stratification and chi square was applied. P-value of  $\leq 0.05$  was considered significant.

**Results:** A total of 189 patients visiting Preoperative Anaesthesia Clinic, AKUH, Karachi during the study period were included in this study. Eighty-seven (46%) were male and 102 (54%) were female. Mean age of the patients was 49.63 years. Out of 189 patients, 174 (92.1%) patients had good experience and found the clinic experience to be useful, while 15 (7.9%) were dissatisfied. Of the female patients, 88.8% were satisfied, while 97% of the male patients reported satisfaction.

**Conclusion:** Most patients perceived that attending Preoperative Anaesthesia Clinic is useful before surgery and they were satisfied with the quality of care.

**Keywords:** Patients' experience, preoperative assessment, preoperative anaesthesia clinic.

## 2.137

### **THE EFFECT OF POST-TRANSPLANT CMV INFECTION ON THE OUTCOME OF BONE MARROW TRANSPLANT PATIENTS: A RETROSPECTIVE STUDY AT A TERTIARY CARE HOSPITAL**

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**Background:** Cytomegalovirus (CMV) infection remains a major cause of morbidity and mortality in allogeneic stem cell transplant recipients despite refinements in molecular methods of diagnosis and pre-emptive treatment strategies. We aimed to characterize CMV infection and its effect on outcome of stem cell transplant at our center.

**Study Design and Method:** We performed a retrospective chart review from 2004 till 2019. Variables analyzed included age, gender, diagnosis, stem cell source, CMV status of patient (pre- and post-transplant), CMV status of donor (pre-transplant), transplant related mortality (TRM), non-relapse mortality (NRM) and overall survival.

**Results:** Total transplants performed during the study period were 351 of which allogeneic stem cell transplant cases were 238. Main indications were acute leukemia (87),  $\beta$ -thalassemia major (45), aplastic anemia (72), CML (10) and miscellaneous disorders (24). The mean age  $\pm$  SD was  $20.3 \pm 12.7$  years (range: 2-54 years). Stem cell source was peripheral blood (PB) in 108 patients, bone marrow (BM) in 68 patients and both (PB and BM) in 62 patients. In 85% of patients and in 100% of donors CMV IgG antibody was positive pre-transplant. Approximately 10% of patients had neither IgG nor IgM antibody on pre-transplant screening. Only 1 patient had pre-transplant active CMV infection (IgM positive and confirmed on PCR) who was treated till his status became negative.



Approximately 16% of patients (38) developed CMV infection <100 days after transplantation. Of these, 17 patients developed a new infection while in 21 patients it was a reactivation of latent infection. There was no TRM secondary to CMV. There was no significance of stem cell source to CMV infection post-transplant (p-value: 0.50). The risk of CMV infection was increased in patients who developed acute GVHD rather than chronic GVHD (OR: 3.02, p-value: 0.001). Overall survival in patients who developed CMV infection/reactivation was 82%. The NRM was 21% (median follow-up of 80 months).

**Conclusion:** The frequency of CMV infection in our study was 16%. There was no TRM secondary to CMV in our study. The risk of infection was increased in patients who developed acute GVHD.

**Keywords:** Bone marrow transplant, CMV infections and GVHD.

## 2.138

### **CEFTRIAXONE RESISTANT S. PARA A IDENTIFIED FROM A BLOOD CULTURE OF ENTERIC FEVER CASE: FIRST REPORT FROM PAKISTAN**

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**Background:** Salmonella enterica serovar Paratyphi A (S. Para A), is a causative agent of Paratyphoid fever. Unlike other endemic countries, multidrug resistance (MDR) in S. Paratyphi A strains is already reported from Pakistan. However, ceftriaxone resistance has not been reported from Pakistan. Here we report a ceftriaxone resistant S. Para A from a blood culture sample of a clinically suspected case of enteric fever.

**Study Design and Method:** We conducted whole genome sequencing of the ceftriaxone resistant S. Para A together with other Salmonella enterica species isolates from enteric fever cases of Pakistan. Illumina sequencing was performed of seven isolates and sequences submitted to NCBI. Resistance identification was performed using RESFINDER software.

**Results:** Three isolates belonged to Salmonella enterica serovar Paratyphi A (S. Para A) and four belong to Salmonella enterica serovar Typhi (S. Typhi). We identified a Para A isolate S7, phenotypically resistant to ceftriaxone, cefixime, Ampicillin and Ciprofloxacin while susceptible to Chloramphenicol and Trimethoprim-Sulfamethoxazole. The other two S. Para A were found as intermediate resistant to Ciprofloxacin only. Amongst S. Typhi isolates, S2, S3 and S5 were MDR plus ciprofloxacin intermediate/resistant, also showing resistance to ceftriaxone and cefixime. S6 was a MDR S. Typhi, susceptible to ceftriaxone, cefixime and intermediate resistant to Ciprofloxacin. All seven isolates were susceptible to azithromycin and Imipenem. Importantly, resistance genes blaCTX-M-15 blaTEM-1B qnrS1, gyrA were found both in S. typhi and S. Para A isolates.

**Conclusion:** WGS of resistome revealed that S Paratyphi A isolate, with already reported resistance to Ampicillin and Ciprofloxacin, has now acquired additional resistance to ceftriaxone through a plasmid. This indicates the additional spread of drug resistance in Salmonella sp and highlights the importance of public health preventive measures to prevent further spread. Additionally, this report also specifies need of Para Typhi A conjugate vaccine.

**Keywords:** S Paratyphi A, resistance to ceftriaxone, drug resistance in Salmonella sp

### 2.139

#### **CLINICAL OUTCOMES AND PREVALENCE OF INTRAVASCULAR ULTRASOUND (IVUS) USE AT A TERTIARY CARE HOSPITAL IN A SOUTH ASIAN COUNTRY**

Ihsan Ullah

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Aga Khan University

**Background:** Intravascular ultrasound (IVUS) plays a pivotal role in the current era of coronary interventions. We aimed to determine the prevalence of IVUS use and clinical outcomes of IVUS guided percutaneous treatment of coronary arteries lesions in a South Asian country.

**Study Design and Method:** It is a retrospective observational study, a total of 134 consecutive patients having done IVUS, were enrolled from January 2013 to March 2020 at a single center.

**Results:** Out of 134 patients, 97 (72.4%) were male with a mean age of  $63.1 \pm 12.9$  years. The prevalence of IVUS in our center was 3.0%. The most frequent comorbidity observed was dyslipidemia  $n=111(82.8\%)$ . Non-ST-Elevation Myocardial Infarction (NSTEMI),  $n=50(37.3\%)$  was the common mode of presentation. On coronary angiogram, the Left main disease was found in  $n=46(34.3\%)$ , however single-vessel disease,  $n=51(38.1\%)$  was most commonly noted. IVUS utilization was higher in the Left anterior descending  $n=94(70.1\%)$  followed by Left main  $n=46(34.3\%)$ . The left main mean Minimal Luminal Area (MLA) was  $6.0 \pm 2.6$  mm<sup>2</sup> and Minimal Luminal Diameter (MLD) was  $4.53 \text{ mm} \pm 0.6$  (mean). The coronary artery dissection was noted in,  $n=15(11.2\%)$ . The mean duration of follow-up in our study was  $40.3 \pm 30.1$  months. Major Adverse Cardiac Events (MACE) were recorded in  $n=13(9.7\%)$ , which included heart failure  $n=4(3\%)$ . Cardiovascular death and Target vessel revascularization occurred in  $n=3(2.2\%)$ .

**Conclusion:** IVUS results in a significant decrease in MACE. Our data might support the broader use of IVUS in both developed and in our part of the world.

**Keywords:** Intravascular Imaging, Coronary artery disease, Coronary artery dissection

### 2.140

#### **OUTCOMES OF MYOCARDIAL INJURY IN PATIENTS WITH COVID-19 IN A LOW TO MIDDLE INCOME COUNTRY**

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Aga Khan University

**Background:** Myocardial injury has been reported in COVID 19 patients frequently and is associated with poor outcomes. The study aimed to determine the impact of a myocardial injury on outcomes in COVID-19 in low to middle-income countries.

**Study Design and Method:** We prospectively collected data of patients admitted with a diagnosis of COVID 19 from 1st April to 30th November 2020 at tertiary care centre, The Aga Khan University Hospital, Karachi. We analysed data using the Cox proportional hazard model to assess the impact of myocardial injury in COVID 19 patients.

**Results:** Of 738 patients admitted with COVID 19, 171(19%) patients suffered myocardial injury. The mean age of patients was  $63 \pm 14$ , with 71.93% ( $n=123$ ) of them being male. Hypertension (71.35%) was the most common comorbidity, followed by diabetes (53.80%) and Coronary artery disease (36.28%). The median trop I value was 5.58. The medications used were steroids (75.44%), azithromycin (34.50%), tocilizumab (30.99%), HCQ (12.87%), and plasmapheresis (13.45%). The complications observed were ARDs (45.03%), AKI (46.2%), arrhythmia (11.11%), coagulopathy (6.47%), acute liver failure (5.2%), and VT/Vfib (2.3%). The mean hospital stay was 9.22 days, 31.58% ( $n=54$ ) required mechanical ventilation

and the incidence of mortality was 37.4%(n=64). The multivariable analysis shows that Trop I value (Hazard ratio 1.01, 95% CI 1.00-1.01; p=0.003), Chronic kidney disease (HR 2.14, 95% CI 1.14-4.04; p=0.018) and ARDS (4.17, 95% CI 2.07-8.42; p<0.001) were associated with poor outcomes in patients with myocardial injury due to COVID 19.

**Conclusion:** Myocardial injury in COVID 19 is associated with increased risks of complications and mortality. Elevated troponin, ARDS and CKD were independent predictors of poor outcomes.

**Keywords:** COVID-19. Myocardial injury, clinical outcomes

## 2.141

### **GENDER BASED OUTCOMES OF MYOCARDIAL INJURY IN COVID-19 POSITIVE INJURY**

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**Background:** Myocardial injury is associated with poor outcomes in COVID-19 positive patients. Limited data is available on gender based outcomes in COVID-19 associated myocardial injury. This paucity of data is further pronounced in low-middle income countries

**Study Design and Method:** This is a prospective observational cohort study of 171 adult patients admitted with a confirmed COVID-19 polymerase chain reaction and myocardial injury (Troponin I >0.04) between March 2020 to November 2020. Logistic regression analysis was used to examine the relationship between gender and primary outcomes. Primary outcomes were duration of in-hospital stay, need for supplemental Oxygen, non-invasive and invasive mechanical ventilation, incidence and progression to ARDS, acute renal/liver failure, and all-cause mortality.

**Results:** Out of 171 COVID-19 positives patients having myocardial injury, 28.07%(n=48) were female and 72%(n=123) were male. Baseline demographics demonstrated that women had higher prevalence of hypertension when compared to men(87.5%(n=42) vs 65%(n=80) while having similar prevalence of diabetes(54%(n=26) in female vs 54%(n=66) in males. Prior history of coronary artery disease was found in 35%(n=17) females and 37%(n=45) males. In the multivariable analysis, women had lower in-hospital mortality 33.33%(n=16) than men 38.21%(n=47). During hospital course, women were less likely to require supplemental oxygen, NIV and mechanical ventilation, with lesser complications noted when compared to men.

**Conclusion:** Myocardial injury in COVID-19 positive patients has different impacts on outcomes in either gender. Female sex is associated with lower major adverse events, all-cause mortality and shorter hospital stay.

**Keywords:** Gender, myocardial injury, COVID-19

## 2.142

### **DISTAL TRANS-RADIAL ARTERY ACCESS FOR CORONARY ANGIOGRAPHY IN A PATIENT HAVING RHEUMATOID ARTHRITIS RELATED SEVERE ARTHROPATHIES**

*Ihsan Ullah*

*Department of Medicine, Section of Cardiology, Aga Khan University*

**Background:** Difficult radial access for coronary angiogram in a patient with rheumatoid arthritis related arthropathies

**Study Design and Method:** A Case report.

**Results:** Conventional radial access has become the default access for coronary angiography. Sometime it's difficult to take a conventional radial access, especially in patients having severe arthropathies leading to limited wrist joint

mobility. In such scenarios distal trans radial access(dTRA) can be adopted. We describe a case of an elderly male patient having rheumatoid arthritis with arthropathies. He presented to us with Unstable Angina, coronary angiogram was advised for ischemia assessment. Right dTRA was adopted due to severe joint deformity at wrist joint, limiting joint extension. A successful coronary angiogram was performed via the right dTRA without major discomfort and complications. Haemostasis was secured with TR band® radial artery compression device. In this case report, we have evaluated the importance of practicing dTRA in a patient with severe arthropathies.

**Conclusion:** Distal trans radial access can be an alternative option in patients with difficult conventional radial access due to severe joint diseases and deformities.

**Keywords:** Rheumatoid arthritis, Distal transradial artery access, coronary angiography

### 2.143

#### ***STREPTOKINASE IN COVID-19 POSITIVE STEMI PATIENT IN A PRIMARY PCI CENTER: A LOCAL EXPERIENCE***

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**Background:** Primary percutaneous coronary intervention (PPCI) is the recommended modality of treatment for acute ST-Elevated myocardial infarction (STEMI) but different countries now have different consensus about the treatment of STEMI patients during COVID-19 pandemic.

**Study Design and Method:** Case summary

In this report, we have described a case of SARS-CoV-2 positive patient, admitted with SARS-CoV-2 pneumonia. During his hospital stay in COVID-19 designated special care, he developed inferoposterior wall MI without hemodynamic instability and he was treated

successfully with thrombolytics (Streptokinase) without any severe complications.

**Discussion:** In order to decrease the risk of in-hospital exposure of Staff to COVID-19 infection in circumstances of having no negative pressure catheterization lab and deficiency of medical Staff, one can use thrombolytics as a modality of treatment in low risk, hemodynamically stable MI, in this COVID-19 pandemic, as recommended by different cardiac societies but needs further studies in this regard, for local/international consensus

**Results:** ...

**Conclusion:** COVID-19 pandemic has severely affected the health care system globally, including deficiency of medical persons due to infection and has led to increased mortality in medical Staff. Managing a COVID-19 positive STEMI patient is challenging in timely reperfusion and avoiding the in-hospital spread of COVID-19. In this context, thrombolytics can be considered as an alternative option to PPCI in selected patients

**Keywords:** Low risk Myocardial injury, Streptokinase, COVID Positive patient

### 2.144

#### ***EXPERIENCE FROM CANCER REGISTRY OF A DEVELOPING COUNTRY REGARDING QUALITY OF CARE AND NON-COMPLIANCE AMONG OSTEOSARCOMA PATIENTS***

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**Background:** Researches from the developed nations have suggested a significant drop in osteosarcoma related mortality in the last 10-years due to abiding by the guidelines. However, decreased five-year survival, higher mortality, increased incidence of metastasis, and

amputations/disarticulations remains a matter of concern for developing countries for which non-compliance as the potential cause. The aim of this study is to assess the standard of care provided and non-compliance with the treatment plans and associated predictors for non-compliance among patients with osteosarcoma.

**Study Design and Method:** Patients with osteosarcoma proven by biopsy were included. The data included the patients of osteosarcoma starting from January 2014 to December 2020 from the Departmental Cancer Registry whose treatment plans and follow-ups were being arranged in our department. Our outcomes were to compare the standard guidelines and non-compliance with the proposed treatment plan including chemotherapy and surgery as quoted by patients or their next to kins with associated factors. Multiple and ordinal regression were performed.

**Results:** 46 (95.83%) were included where 34 (73.9%) males and 12 (26.1%) females with mean age 19.7 (8-65) years were found. Only 11 (23.91%) participants received treatment according to the guidelines. A total of 18 (39.13%) and 10 (21.74%) candidates received neoadjuvant chemotherapy and adjuvant chemotherapy, respectively while 22 (44.9%) received surgery. Affordability of drugs (P=0.008) and patients' or next to kins' choices (P=0.02) remained predictors of non-compliance in chemotherapy while age (P=0.039), patients' consent not given (78.3%; P=0.05), and stage II (52.2%; P=0.048) were predictors of surgical non-compliance.

**Conclusion:** The standard of care offered does not correspond with the guidelines. A significant number of patients are non-compliant with the standard management plans advised to them including surgery and chemotherapy due to age, patient choice, affordability, and late stage isolated as the predictors for non-compliance.

**Keywords:** Osteosarcoma; bone tumors; appraisal; cancers

## 2.145

### **MEAN LEVEL OF PRETREATMENT NEUTROPHIL TO LYMPHOCYTE RATIO IN PATIENTS WITH SQUAMOUS CELL CARCINOMA OF HEAD AND NECK - IDENTIFYING A BIOMARKER WITH PROGNOSTIC SIGNIFICANCE.**

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**Background:** This study estimates the mean level of pretreatment neutrophil to lymphocyte ratio (NLR) in patients with squamous cell carcinoma (SCC) of the head and neck. Therefore, the study's objective evaluated the prognosis of patients with SCC with a focus on the value of the pretreatment NLR

**Study Design and Method:** This research was a cross-sectional study. The Non probability consecutive sampling technique was used and a total of 222 biopsy proven cases of SSC enrolled in the study after obtaining informed consent. The NLR of each SSC patient before treatment was calculated. Clinical pathologic variables were analyzed including the patient's profile, tumor characteristics, nodal status, and adjuvant treatments. Pre-treatment absolute neutrophils and lymphocytes counts were used to obtain NLR. An independent sample t-test was used to assess the mean difference.

**Results:** We identified a total of 222 patients of SSC with median pretreatment NLR ratio of 3.19. Patients were classified into two groups; maximum NLR and minimum NLR based on the median. Male patients were predominant as compared to the female patients (p= 0.706). Statistically significant (p=0.049) increase in NLR was seen among patients with nodal metastasis. Patients with NLR above the cutoff values (NLR >3.18) demonstrated that there was

a significant increase in NLR values with high T and N classifications.

**Conclusion:** In conclusion, the study has demonstrated that the pretreatment NLR may be associated with increased nodal involvement and hence may serve as a useful prognostic predictor for patients with SCC of head and neck. With these readily available and inexpensive biomarkers, prognostic factors may be established for clinical decisions, including strict follow-up and additional adjunctive therapy to improve the clinical outcomes of patients with SCC of the head and neck.

**Keywords:** Pretreatment neutrophil to lymphocyte ratio (NLR), Squamous cell carcinoma (SCC), neutrophils, lymphocytes, tumor nodes, metastases.

#### 2.146

### **BREAST MASS PICKED UP DURING CARDIAC STRESS TESTING WHICH LED TO CORRECT DIAGNOSIS AND TREATMENT**

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**Background:** The incidental findings/artifacts on myocardial perfusion imaging(MPI), warrants further evaluation to rule out possible malignant pathologies in some individuals. In this case report, we describe a case of an elderly lady, who was advised MPI for cardiac risk stratification for a non-cardiac surgery. Her MPI showed, a large size infarct. In addition to that, she had an incidental finding of a nodule on the left side of the chest with increased isotope uptake, further evaluation of this lesion revealed a histopathological diagnosis of intra-ductal carcinoma of the breast. The case highlights the importance of reporting and investigating a suspicious incidental finding on MPI.

**Study Design and Method:** Images of Myocardial perfusion scan and mammogram

**Results:** ...

**Conclusion:** Our case emphasized the importance of investigating a suspicious extra cardiac radiotracer uptake

**Keywords:** incidental finding, Breast carcinoma, myocardial perfusion scan, mammogram.

#### 2.147

### **OUTCOMES OF EXTENDED CURETTAGE WITH AND WITHOUT BONE ALLOGRAFT FOR GRADE II GIANT CELL TUMORS AROUND THE KNEE \_ A RETROSPECTIVE COMPARATIVE STUDY**

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and Patel Hospital*

**Background:** Due to extensive curettage for GCT around knee, the larger bone defect remained a matter of concern among surgeons. A difference of opinion stems in terms of using bone cement with or without bone allograft to fill the defect after curettage and achieve better results. This is the first study to establish the utility of extended curettage with or without bone allograft for Grade II GCT around the knee joint with an aim to explore post-operative functional outcomes.

**Study Design and Method:** We retrospectively reviewed 25 cases of Campanacci grade II GCT receiving extended curettage between January 2014 and December 2019. Participants were divided into two groups: one group of 12 patients received extended curettage with bone allograft and bone cement, while the other group of 13 patients received extended curettage with bone cement only. Quality of life was assessed by Revised Musculoskeletal Tumor Society Score and Knee score of Knee Society Score, recurrence and complications were assessed for each cohort at last follow-up. Fisher's test and two-sample t-tests were used to compare the

categorical and continuous outcomes, respectively.

**Results:** The mean age was 28.09 (7.44) years with 10 (40%) males and 15 females (60%). Distal femur and proximal tibia were involved in 13 (52%) and 12 (48%) patients, respectively. There was no significant difference in musculoskeletal tumor society score (25.75 vs. 27.41;  $P = 0.178$ ), knee society score (78.67 vs 81.46  $p = 0.33$ ), recurrence (0% vs 0%;  $P=1$ ), and complications (25% vs 7.69%;  $P=0.21$ ).

**Conclusion:** Extended curettage with or without bone allograft have similar functional outcomes for knee without any major difference in incidence of recurrence and complications for Grade II GCT. However, surgical convenience, and cost-effectiveness might favor the bone cement only while long-term osteoarthritis prevention needs to be investigated to favor bone allograft.

**Keywords:** Giant cell tumor; bone grafting; bone cementing; extended curettage; knee surgery

## 2.148

### **SINGLE-CENTERED EXPERIENCE REGARDING THE USE OF FIBULAR GRAFT FOR RECONSTRUCTION AFTER RESECTION OF GRADE III GCT OF DISTAL RADIUS**

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**Background:** Giant cell tumor is a locally invasive benign tumor of bone in young adults caused by osteoclasts. Treatment includes surgical resection as first-line or Denosumab pharmacotherapy in inoperable patients. However, surgical resection of distal radius GTC has produced poor functional outcomes. Here we study the use of fibular grafts for reconstruction of surgically resected GTC of the distal radius.

**Study Design and Method:** 11 patients having grade 3 GTC of the distal radius were recruited for a retrospective single-centered study. 5 underwent arthrodesis with fibular shaft graft and 6 received arthroplasty with proximal fibula. Functional outcomes at 6-weeks, 6 and 12-months were measured by Mayo wrist score ( $>51$ =good) and Revised Musculoskeletal tumor society score ( $>15$  = good).

**Results:** At 6 weeks, mean MST and mean Mayo scores were 23.64 and 58.64 respectively, and length of fibular graft was predictor for both MSTS( $P=0.016$ ) and MS( $P=0.07$ ). At 6 months, the mean MST and Mayo scores were 26.36 and 76.82 respectively. Surgical procedure was predictor in MSTS( $P=0.01$ ) while Mayo score was predicted by length of graft ( $P=0.017$ ). At 12 months, MSTS was 28.73, and Mayo score remained 91.82. Length of fibular graft was an insignificant predictor but a significant risk factor when stratified with surgical procedure in Mayo wrist score( $P=0.019$ ). No variable was found significant for MSTS( $P=0.228$ ).

**Conclusion:** Resection with the reconstruction of grade III GCT of the radius with fibular graft was found an optimal treatment option. Also use of the fibular head grafts and shorter length grafts are the predictors for better outcomes after surgery.

**Keywords:** giant cell tumor; benign tumor; fibular reconstruction; arthroplasty; arthrodesis

## 2.149

### **QT INTERVAL IN PATIENTS RECEIVING HCQ IN SARS-COV-2- A STUDY ON RISK FACTORS, CORRELATION OF BASELINE QTC WITH DELTA QTC IN PAKISTANI POPULATION**

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**Background:** Hydroxychloroquine (HCQ) use alone or in combination with Azithromycin (AZM) in SARS-CoV-2 infection is associated with QTc prolongation and risk of arrhythmias.

**Study Design and Method:** Retrospective review of records of hospitalized patients with SARS-Cov2 RT-PCR positive result who received HCQ or HCQ/Azithromycin in combination from March-May 2020. Baseline ECGs as well as post drug use ECGs data was recorded. Tisdale score was calculated for predicting risk of QTc prolongation interval was calculated using Bazett formula. Data entry and analysis was done in SPSS version 23.

**Results:** A total of 134 patients were included in the study. 82.1% (110) were males and mean age was  $54.9 \pm 13.7$  years. 61.2% (82) had severe disease and 38.8 % (52) had non-severe disease. 14.2% (19) had history of cardiac disease, 35.8% (48) had hypertension and 35.1% (47) had diabetes mellitus. 70.1% (94) patients had received HCQ, AZM, or HCQ/AZM in combination. 40 (29.9%) patients had not received any drug. Median baseline QTc among controls and non-control group was 383.5 (IQR 342.25-413.75)msec and 379(IQR 358-402)msec respectively. HCQ alone was administered to 26.9% (36) and HCQ/AZM to 33.6% (45) patients. 55.6% (45/81) developed QTc prolongation (QTc > 480 msec) or delta QTc increase > 60 msec. 6.2% (5/81) had absolute QTc > 500 msec post-drug administration. 53.3% (24/45) and 30.6% (11/36) (p-value 0.024) developed QTc prolongation in combination and HCQ alone groups respectively. Delta QTc increased to >60msec in 42.0% (34/81); 53.3% (24/45) in combination group and in 27.8% (10/36) of those receiving HCQ alone (p-value 0.021). Median delta change was 63 (IQR 25-81) and 48.5 (IQR 26.25-66.75) msec; Median Day 2 QTc was 413.5 msec (IQR 377.5-436) and 413 msec (IQR 361-447); and median maximum QTc was 447 (IQR 391-471) and 431.5 (IQR 401.5-45.75) msec in those receiving HCQ/AZM combination and HCQ alone respectively. 9% (12/134) had arrhythmias

during hospital stay, in 8.9% (4) and 5.6% (2) patients of those receiving HCQ/AZM combination and HCQ alone respectively, no patient developed torsade de pointes, one patient had non-sustained VT. There was no statistically significant association of QTc prolongation with mortality, acute kidney injury, myocardial injury or severity of disease. Diuretic use was found to be statistically significant association with QTc prolongation (p-value 0.038). There was a weak correlation of baseline QTc with  $\Delta$  QTc (r = 0.207 and p-value 0.017)

**Conclusion:** QTc prolongation was observed in a significant population of patients receiving HCQ and HCQ/AZM combination, however, no significant life-threatening arrhythmias occurred.

**Keywords:** QTc prolongation, HCQ, SARS-CoV-2, delta QTc

## 2.150

### **MAGNETIC RESONANCE IMAGING GRADING OF PITUITARY MACROADENOMA- SIPAP CLASSIFICATION REVISITED.**

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**Background:** Magnetic resonance imaging (MRI) is regarded as the modality of choice in diagnosis of pituitary adenomas. MRI classification based on major directions of tumour growth is an essential tool providing the exact road map for right surgical approach and maximum safe resection.

SIPAP MRI classification for pituitary adenomas is derived from KNOSP-STEINER classification of parasellar growth, to which has been added grading for superior, inferior, anterior and posterior tumour extension.

We propose to incorporate SIPAP classification in reporting of pituitary adenomas, for ideal description of tumour delineation, juxtaseellar relations and tumour size, hence facilitating



greater success in surgery and clinical management.

**Study Design and Method:** Two radiologists retrospectively reviewed imaging of 49 patients with biopsy-proven pituitary macroadenoma and graded according to SIPAP classification. Study was conducted at a tertiary care hospital from 1st July 2019 to 30th June 2020. Data was analyzed using Stata version 15. Interobserver variability was calculated using Cohen's Kappa. Comparison between grading before and after treatment was performed by Chi-square test. P values <0.05 were considered statistically significant.

**Results:** 63.3% patients were male (median age 49.3 years) and 36.7% female (median 44 years). Overall, maximum preoperative and postoperative volume was 71.82 cm<sup>3</sup> and 49.50 cm<sup>3</sup> respectively, with significant difference in pre and post-operative volumes (14.1±17.7 vs. 4.5±10.4, p-value <0.001). Length showed most significant difference pre and post-operatively (2.4±1.1 vs. 1.3±1.1, p-value <0.001). Individual tumour extensions according to SIPAP for pre- and post-operative grading showed significant difference (p-value <0.001), except for anterior extension. For suprasellar extension, 67.3% patients had pre-operative grade 3 and 63.3% had post-operative grade 0. For infrasellar extension, 51.0% had pre-operative grade 2 and 71.4% had post-operative grade 0. Anterior, posterior and parasellar extensions showed increased frequency in grade 0 in the post-operative stage compared to pre-operative. High inter-observer agreement was achieved for Superior, Inferior, Anterior and Posterior extent with all Kappa statistics values above 0.7 (p-value <0.001).

**Conclusion:** We propose incorporating simple and objective SIPAP classification in routine MR reporting for ideal pituitary tumour delineation, relationship to juxtaseilar structures and tumour size.

**Keywords:** Magnetic resonance imaging, pituitary adenoma, tumor volume, SIPAP classification, Knosp grading

## 2.152

### **IN- HOSPITAL MORTALITY RATES IN SEPTIC SHOCK PATIENTS, TREATED WITH HIGH OR LOW VOLUME RESUSCITATION FLUID - A PROSPECTIVE COHORT - STUDY AT A TERTIARY CARE HOSPITAL IN KARACHI PAKISTAN**

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**Background:** Sepsis remains one of the major causes of in-patient mortality in hospitals throughout the world. Fluid management remains the cornerstone of septic shock treatment. Although an initial amount of 30 ml/kg fluid is recommended by the society of critical care, the subsequent volume of fluid needed for complete resolution of shock is highly controversial

**Study Design and Method:** We conducted a prospective observational cohort study at a tertiary care hospital in Pakistan to compare the in-hospital mortality rates in septic shock patients, treated with both high or low volume of resuscitation fluid. Patients, were recruited into the study at the time of development of septic shock. Based on their fluid status at end of day 1 of septic shock, they were categorized, to either high or low volume of fluids group, taking median amount of fluid at end of day 1 (4000 ml) as reference.

**Results:** 76 episodes of septic shock were recorded, during 3 months period, of which 38 episodes of septic shock were categorized to low volume of fluid group and 38 to high volume of fluid group, taking 4000 ml, as cut-off. The in-hospital, mortality rate in low volume of fluid cohort due to septic shock was 39.47% (15/38)

compared to mortality rate of 7.49% (3/38) in the high volume of fluid cohort (p-value <0.030). 30 ml/kg of fluids, received in the initial 3 hrs of recognition of septic shock (i.e., the initial resuscitation period and fluid recommendation, as in surviving sepsis campaign's Protocol) was also found to be associated with low mortality 4.55%, compared to the low volume group, who had a mortality rate of 31.48% (17/38) (p-value = 0.091). The bolus fluid volume in day 1, in higher volume of fluid cohort was also associated with decreased mortality rates of 9.37%, compared to mortality rates of 59.09% in the high volume of fluid group. (p-value=0.191) the cumulative fluid balance and the average fluid volume /day of shock were though not statistically significant.

**Conclusion:** Higher volume of fluid showed mortality risk reduction in septic shock patients.

**Keywords:** septic shock, high volume, low volume, mortality, fluids

## 2.153

### ***PATTERNS OF LEFT VENTRICULAR HYPERTROPHY AND LATE GADOLINIUM ENHANCEMENT ON CARDIAC MRI IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY AND THEIR PROGNOSTIC SIGNIFICANCE - AN EXPERIENCE FROM A SOUTH ASIAN COUNTRY***

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**Background:** Cardiac magnetic resonance (CMR) imaging is very pertinent in the diagnosis and risk stratification of patients with hypertrophic cardiomyopathy (HCM). We aimed to assess the patterns of left ventricular (LV) hypertrophy, late gadolinium enhancement (LGE), and their prognostic significance in HCM patients in Pakistani population, as no such data are available from Pakistan.

**Study Design and Method:** This was a retrospective, single center study. All patients

who had confirmed diagnosis of HCM on CMR at Aga Khan University Hospital during the period of 2011-2019 were identified and included in the study.

**Results:** A total of 74 patients were included with the mean age of  $45.6 \pm 15$  years and the majority 71.6% (n = 53) being male. Maximal LV wall thickness was  $21.1 \pm 5$  mm, asymmetrical septal hypertrophy being the most common pattern (62.2%, n = 46). LGE was present in 75.7% (n = 56) with most common site being septum plus LV free wall (24.3%, n = 18). Mean ejection fraction% was found to be lower in patients with LGE (P < 0.001). Major adverse cardiac events (MACE) were observed in 40.5% (n = 30). Presence of LGE and right ventricular involvement was found to have a statistically significant association with MACE (p value 0.018 and 0.046, respectively). In multivariable analysis, only LGE was significantly associated with MACE (OR: 4.65; 95% CI: 1.21-17.88).

**Conclusion:** Asymmetrical septal hypertrophy was the most common pattern of hypertrophy. LGE was present in three fourth of the study population and it was significantly associated with MACE.

**Keywords:** Cardiac magnetic resonance; Hypertrophic cardiomyopathy; Late gadolinium enhancement.

## 2.154

### ***ECHOCARDIOGRAPHIC FINDINGS AND THEIR CORRELATION WITH CARDIAC BIOMARKERS IN COVID-19 PATIENTS- A RETROSPECTIVE STUDY FROM LOWER-MIDDLE INCOME COUNTRY***

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**Background:** Trans-thoracic Echocardiography (TTE) in COVID-19 patients can result in significant healthcare personnel exposure and personal protective equipment use (PPE) in resource-limited and lower-middle income countries. There is scarce data on echocardiographic findings in COVID-19 from Pakistan. This study was done to evaluate the spectrum of echocardiographic findings in COVID-19 patients and their correlation with cardiac biomarkers. Indications and subsequent changes in management after TTE were also assessed.

**Study Design and Method:** Retrospective observational study was conducted in a large tertiary care hospital in Pakistan. Patients with at least one SARS-Cov2 RT-PCR positive result having undergone TTE were included. Echocardiography was performed by Echo technologists using portable machines. Findings were reported in electronic health care records and were reviewed from March to July 2020. Patients with poor echocardiographic windows or incomplete records were excluded. COVID-19 severity was based on Pakistan National Guidelines.

**Results:** Total 125 patients were included in the study. Majority 63.2% (79) were male and 19.4% (24), 33.6% (42), and 47.2% (59) had mild, moderate and severe COVID-19 respectively. Critical COVID-19 and patients on invasive mechanical ventilation were 21.6%(27). Mean peak Troponin levels were

4.48± 20.07 ng/ml, median peak C-Reactive Protein levels were 135mg/l (IQR 63.65-191), median Pro-BNP levels 842( IQR 205-2971) and peak D-Dimer levels were 3.75 ng/ml (IQR 1.00-9.125). Common indications for TTE were LV function assessment due to hemodynamic instability in 55.2%, troponin elevation or other elevated cardiac biomarkers in 38.4%(48) , pulmonary embolism and RV assessment in 6 patients, stroke work up 0.8% patients. Evidence of new myocardial infarction was reported in 12% (15) and evidence of myocarditis in 24.8% (31). Segmental left ventricular wall motion abnormalities were observed in 10.4% (13) and global changes in 6.4%(8). 16% (20) patients had change in management after TTE. Only 5 patients had prior echocardiogram available for review and among these, new findings were present in 3 patients. Using spearman correlation, weak inverse relation was found between ejection fraction and troponin(r-0.367, p-value<0.001) , peak CRP(r-0.238, p=0.009) , peak D-Dimer(r-0.27,p=0.003) and pro-BNP levels(r-0.281, p=0.003). Approximately 17.6% patients died and there was no statistically significant difference in mortality rate among patients with normal and impaired LV systolic function(15.4 % vs 28.6%).

**Conclusion:** LV function assessment was most the common indication for TTE and was normal in majority of the population. There was a weak co-relation of LV function with cardiac biomarkers. Echocardiographic evaluation resulted in a change in management in less than one-third of patients. Further studies are required as data on echocardiographic abnormalities in COVID-19 patients in Pakistan is scarce.

**Keywords:** Echocardiography, cardiac biomarkers, covid-19

2.155

**EPIDEMIOLOGY OF SEPSIS, BASED ON ICD-9 CODING, A TERTIARY CARE EXPERIENCE FROM PAKISTAN**

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**Background:** There are limited studies on the burden of sepsis, from low to middle income countries (LMIC). We had carried out an analysis of the epidemiology of sepsis, in our hospital, a tertiary care university hospital in Pakistan, based on ICD-9 coding.

**Study Design and Method:** Retrospective data from electronic discharge records of all patients aged 17 or above, admitted with sepsis from Jan' 2013-Jan'2014, at our hospital was taken. A validated method requiring combination of two ICD-9 codes (international classification of diseases, ninth revision, clinical modification) representing infections and acute organ dysfunction, based on Angus and Martin methodology, along with ICD-9codes for sepsis, severe sepsis and septic shock, was used to abstract data

**Results:** An overall 8759 patients were identified to have sepsis or severe sepsis, out of total 31,111, admissions in year 2013-14. Out of these cases, 61.25% (5,365) had sepsis while 38.75% (3,394) had severe sepsis or septic shock. Out of the total 8,759 patients, 58.10% (5,089) remained in the ward. 31.93% (2,797) utilized the intermediate Care Unit while 9.97% (873) utilized the Intensive Care Unit (ICU). The overall mortality with sepsis, was found to be 9.8% and mortality from septic shock to be around 22.8%. The common comorbidities were Diabetes (22.8%), renal disease (14.7%) and COPD (14.7%). The mean length of hospital stay was 3.7 days in mild disease, compared to 7.5 days, in severe sepsis and septic shock group.

**Conclusion:** The first, ICD -9 coding-based study signifies high burden of disease, along with high mortality from septic shock.

**Keywords:** SEPSIS, ICD-9 CODE, SEPTIC SHOCK

2.156

**PERIPROCEDURAL AND IN-HOSPITAL OUTCOMES AMONG PERCUTANEOUS CORONARY INTERVENTION IN SAPHENOUS VEIN GRAFT: A RETROSPECTIVE OBSERVATIONAL STUDY AT A TERTIARY CARE HOSPITAL IN SOUTH ASIAN COUNTRY**

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**Background:** Saphenous vein graft (SVG) may occlude either early or several months to years after coronary artery bypass graft (CABG) surgery. Doing re-do CABG surgery is associated with higher complication and mortality rate as compared to percutaneous coronary intervention (PCI) in SVG. However, PCI of SVG is associated with more periprocedural and in-hospital complications as compared to PCI of native coronary arteries. Due to the scarcity of local data in this regard, this study was designed to estimate the periprocedural and in-hospital outcomes among PCI in SVG.

**Study Design and Method:** It is a retrospective observational study. We reviewed hospital record files of 167 consecutive patients, admitted to Aga Khan University Hospital, Karachi, from January 2010 to December 2019, who underwent PCI in SVG.

**Results:** Out of 167 patients, 145 (86.8%) were male with a mean age of 72.26 ( $\pm$ 8.46) years. Hypertension was the most common comorbid condition. Majority of 141(84.4%) patients presented within 6-10 years since the last CABG done. Seventy-eight (46.7%) patients presented with non-ST elevation myocardial infarction

(NSTEMI). Patients who presented with acute coronary syndrome (ACS), 51 (36.9%), and 21 (15.2%) had congestive heart failure and cardiogenic shock on presentation respectively. Coronary angiography was performed in the majority of 155 (92.8%) patients through the femoral artery. The body of the SVG was the most common site affected by the disease. In 88 (52.7%) patients stents were deployed in SVG to obtuse marginal (OM). Drug-eluting stents (DES) were used in 124 (74.3%) patients. 22 (13.2%) of patients developed periprocedural complications, predominantly slow flow and 7 (4.2%) patients had in-hospital complications.

**Conclusion:** PCI of SVG is associated with a high procedural success rate and acceptable risk for periprocedural and in hospital complications. PCI of SVG may be considered as a safe and efficacious option for the percutaneous intervention of SVG lesions.

**Keywords:** Saphenous Vein Graft, Percutaneous Coronary Intervention, Outcomes

## 2.157

### **ASSOCIATION OF CHEST XRAY (CXR) FINDINGS WITH OUTCOMES IN COVID-19 PATIENTS**

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**Background:** RT-PCR is used as the diagnostic standard for COVID-19 and radiographic modalities are used to support the diagnosis. CT scan is widely used but in a developing country like Pakistan it is not always available and CXR can be used as an alternative, so this study was conducted to investigate CXR findings in COVID-19 patients.

**Study Design and Method:** The study was conducted as a retrospective cohort and included COVID-19 cases admitted to our tertiary care

center from 1st-30th March 2020. A preformed proforma was used to gather data and the collected variables included demographics (age and gender), co morbidities, presenting symptoms and CXR findings during the admission. Length of stay and mortality were used as outcome measures.

**Results:** Total number of suspected COVID-19 cases that presented to our facility during the study period were 154. Out of the total of 154 suspected COVID-19 cases, 46 patients were classified as COVID-19 positive based on positive RT-PCR. Out of positive patients 29 (63%) were male while 17 (37%) were female and the mean age was  $50.7 \pm 19.1$  years. All patients underwent evaluation using CXR and 19 (41%) showed bilateral pulmonary infiltrates while pleural effusion was present in 2 (4%) patients. Overall mortality was seen in 7 (28%) patients and mean length of stay was  $9.3 \pm 7.3$  days. Abnormal chest radiography findings (bilateral infiltrates and pleural effusion) were seen in 25 (54%) patients and were associated with an increased risk of mortality ( $p = 0.009$ ) and a longer length of stay ( $p = 0.017$ ).

**Conclusion:** We conclude that abnormal CXR findings were frequently seen in COVID-19 patients and were also related to an increased risk of mortality and a significantly prolonged length of stay. We recommend clinicians to focus on early detection and timely management of suspected COVID-19 patients with abnormal chest radiograph findings to improve patient outcomes and reduce morbidity and mortality rate.

**Keywords:** covid, xray, coronavirus, mortality

2.158

**CLINICAL CHARACTERISTICS, CARDIAC MAGNETIC RESONANCE FEATURES AND OUTCOMES OF PATIENTS WITH DILATED CARDIOMYOPATHY – AN EXPERIENCE FROM A SOUTH ASIAN COUNTRY**

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**Background:** CMR features of DCM and correlation with cardiovascular outcomes generally remain unknown for the Asian population

**Study Design and Method:** A retrospective study was conducted at a tertiary care center of Pakistan. All patients who underwent CMR for further evaluation of DCM during the period of 2011–2019 and in whom CMR confirmed the diagnosis of DCM, were included in the study.

**Results:** A total of 75 patients were included in the study. The mean age was  $38.7 \pm 13$  and majority ( $n = 57, 76\%$ ) were male. Dyspnea was the most common presenting symptom ( $n = 68, 90.7\%$ ). The mean left ventricle ejection fraction (LVEF) by CMR was  $29.3 \pm 12$  and mean left ventricle stroke volume (LVSV) was  $66.5 \pm 31$ . Late gadolinium enhanced (LGE) was present in 28 (37.3%) patients. Follow-up was available in 61 patients with the mean follow-up duration of  $39.7 \pm 27$  months. Most patients (40, 65.6%) experienced all-cause major adverse cardiovascular events (MACE) during the follow-up and mortality was observed in 10 (16.4%) patients. LVSV by CMR ( $P = 0.03$ ), LVEF by CMR ( $P = 0.02$ ), and presence of pericardial effusion (PE) ( $P = 0.01$ ) were significantly associated with all-cause MACE. On multi-regression analysis, SV by CMR was associated with all cause MACE ( $P = 0.048$ ). The presence of LGE was associated with higher mortality ( $p = 0.03$ ).

**Conclusion:** LVSV, LVEF by CMR, and PE were significantly associated with all-cause

MACE. LGE was associated with higher mortality. Our cohort had a relatively younger age of presentation and diagnosis, and a greater mortality on follow-up, when compared with other regions of the world.C

**Keywords:** cardiac magnetic resonance, dilated cardiomyopathy, non-ischemic cardiomyopathy, LV dysfunction

2.159

**THE EFFECT OF ABO INCOMPATIBILITY ON THE OUTCOME OF STEM CELL TRANSPLANT**

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**Background:** The impact of ABO mismatch on the outcome of allogeneic haematopoietic stem cell transplant (HSCT) remains disputed. Approximately 50% HSCTs are performed across the ABO blood group barrier. The aim of this study was to determine the effect of ABO mismatch on engraftment, graft versus host disease (GVHD) and outcome in patients undergoing allogeneic HSCT at our center.

**Study Design and Method:** We performed a retrospective chart review from 2004 till 2019. Variables analyzed included age, gender, diagnosis, stem cell source, type of mismatch, frequency of acute and chronic GVHD, ABO mismatch related complications (engraftment, pure red cell aplasia, hemolysis) and overall survival.

**Results:** Total transplants performed during the study period were 351 of which evaluable allogeneic stem cell transplant cases were 200. Main indications were acute leukemia (87),  $\beta$ -thalassemia major (45) and aplastic anemia (68). The mean age  $\pm$  SD was  $20.3 \pm 12.7$  years (range: 2-54 years). Stem cell source was peripheral blood (PB) in 87 patients, bone marrow (BM) in 51 patients and both (PB and

BM) in 62 patients. One hundred and thirty-five donor-patient pairs (68%) were ABO matched while 65 were ABO mismatched (32%). Of these 65 pairs, 18 were major mismatched, 39 were minor ABO mismatched while 8 were bidirectionally mismatched. There was no difference in neutrophil engraftment between the two groups (p-value: 0.57). Of the 65 ABO mismatched pairs, all patients with minor and bidirectional mismatch achieved engraftment while 89% with major ABO mismatch engrafted. In major and bidirectional group, acute transfusion reactions (febrile non-hemolytic and hemolytic) occurred frequently. No patient with ABO mismatched transplant developed pure red cell aplasia or delayed hemolytic reaction. The cumulative incidence of acute GVHD was more in the ABO mismatched group (p value: 0.03) while that of chronic GVHD was comparable. There was no difference in overall survival between the two groups

**Conclusion:** Acute transfusion reactions were frequently seen in major and bidirectional ABO mismatched groups. Increased risk of acute GVHD was observed in ABO mismatched pairs. The overall survival in both groups was comparable

**Keywords:** ABO Incompatibility, stem cell transplant, blood group mismatch

## 2.160

### **CARDIAC MAGNETIC RESONANCE FEATURES AND OUTCOMES OF PATIENTS WITH NON-COMPACTION CARDIOMYOPATHY – A RETROSPECTIVE FOLLOW-UP FROM PAKISTAN**

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**Background:** There is scarcity of data about CMR features and prognosis of patients with left ventricle non-compaction from our part of the world.

**Study Design and Method:** This was a retrospective study of patients undergoing cardiac MRI (CMR) for evaluation of cardiomyopathy from 2011 to 2020. Patients were stratified based on presence or absence of left ventricle non-compaction (LVNC). Clinical characteristics, CMR features, and outcomes were evaluated.

**Results:** Out of 294 patients, 18 patients had LVNC, with a prevalence of 6.1%. The mean age was 32 + 13 years and majority were males (78%). The mean EF by echo was 36 ± 14 and by CMR was 31 ± 16. The mean LVEDV was 290 ± 154 and the mean LVESV was 211 ± 126. LGE was present in 33% of patients. Majority had uniform LV non-compaction (56%) followed by predominantly antero-lateral and apical involvement (28%). On follow up of 37 months, majority experienced at least one all-cause MACE (69%), while 14% of patients experienced mortality on follow up. When compared with dilated cardiomyopathy patients without LVNC, the subjects were younger (p = 0.002) and had higher EF by echocardiogram (0.001) and a lower arrhythmia hospitalization (p = 0.039). No difference was observed in overall MACE outcomes, mortality and CMR features

**Conclusion:** Prevalence of LVNC is low in the studied population. Patients with LVNC have younger age, higher EF by echocardiogram and lower arrhythmia hospitalization when compared with patients with dilated cardiomyopathy without evidence of LV non-compaction. Presence of LVNC does not confer increased risk of MACE.

**Keywords:** LV non-compaction, Dilated cardiomyopathy, non-ischemic cardiomyopathy, CMR

## 2.161

### **COMPARING SENSITIVITY AND SPECIFICITY OF PACEMAKER ID APPLICATION AND CARDIAC RHYTHM MANAGEMENT DEVICE-FINDER APPLICATION IN IDENTIFYING CARDIAC IMPLANTABLE ELECTRONIC DEVICE MANUFACTURER USING CHEST RADIOGRAPH – AN OBSERVATIONAL STUDY**

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**Background:** Smartphone-based applications to identify cardiac implantable electronic devices (CIED) are extremely useful in circumstances, where urgent device interrogation is needed, and a device identification card is not available. Few studies have provided insights regarding the utility of these applications. We have studied two widely available applications i.e., Pacemaker ID app (PMIDa) or Cardiac Rhythm Management Devices-Finder (CRMD-f) to identify device manufacturers in CIEDs.

**Study Design and Method:** 547 patients who underwent CIED implantation from the year 2016–2020 in our institute were enrolled. There were 438 Medtronic and 109 St. Jude's devices. All chest radiographs were de-identified and resized into 225\*225 pixels focusing on the CIED. PMIDa and CRMD-f applications were used to identify the CIED. Accuracy, sensitivity, specificity, negative predictive value, and positive predictive value for both applications were calculated and compared.

**Results:** Overall, CRMD-f application has higher specificity (93.58 vs. 82.5%) but lower sensitivity (53.6 vs. 55%) than PMIDa. The accuracy of both applications was comparable (61.6% vs. 60.5%). Accuracy varied with CIED model and type tested, and radiograph projection used. Accuracy is greatest with Cardiac-

Resynchronization-Therapy (CRT) devices for both applications, followed by a single lead pacemaker.

**Conclusion:** CRMD-f has higher accuracy and specificity for CIED manufacturer identification. Both PMIDa and CRMD-f are specific tools to identify CIED but have low sensitivity.

**Keywords:** Digital health, CIED, artificial intelligence, Pacemaker

## 2.162

### **EVALUATION OF SAGITTAL ROOT POSITION (SRP) AND LABIAL BONE THICKNESS (LBT) IN ANTERIOR MAXILLA FOR IMMEDIATE IMPLANT PLACEMENT: A CBCT BASED STUDY**

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**Background:** Immediate implant placement in the maxillary esthetic zone is a highly challenging and technically demanding task. To achieve favorable esthetic results, proper case selection and treatment planning is necessary. Variables like SRP and LBT of maxillary anterior teeth are of paramount importance for predictable outcomes. The objective of this study was to evaluate the SRP and LBT of maxillary anterior teeth for immediate implant placement using cone beam computed tomography (CBCT).

**Study Design and Method:** A cross sectional study was done to include CBCT scans of patients fulfilling the inclusion criteria. The SRP of each tooth (maxillary canine to canine) was evaluated in a sagittal section of a CBCT scan. The LBT of each tooth was measured perpendicularly to the long axis of tooth at three sites i.e. P1, P2 and P3. Descriptive statistics were reported for both SRP and LBT. Chi square test was employed to assess any association of SRP with tooth type, age and gender.



**Results:** Class I SRP was the most prevalent n=196/240(81.6%). Class III was the least frequent SRP n=1/240 (0.4%). The association between tooth type and SRP was statistically non-significant (p=0.51). The mean LBT for central incisor, lateral incisor and canine ranged from 0.5mm-0.8mm.

**Conclusion:** The most frequent type of SRP of maxillary anterior teeth in a sample of Pakistani population is Class I which is most favorable for immediate implant placement. Furthermore, LBT of maxillary esthetic zone is mostly thin i.e. within the range of 0.5-0.8 mm.

**Keywords:** Implant, immediate implant, maxilla, CBCT

## 2.163

### ***ELECTROCARDIOGRAPHIC FEATURES AND ARRHYTHMIAS IN HYPERTROPHIC CARDIOMYOPATHY PATIENTS: FINDINGS FROM PAKISTAN***

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**Background:** A spectrum of electrocardiographic(ECG) abnormalities can be observed in patients with hypertrophic cardiomyopathy(HCM). Certain features such as giant T-wave inversion(>10 mm) correlate with echocardiographic and CMR findings and to date, no relevant data from Pakistan is available. This study was done to determine electrocardiographic features in HCM and their correlation with hypertrophy and LGE(Late Gadolinium enhancement) location.

**Study Design and Method:** A 10-year retrospective, single-center study was conducted at tertiary care hospital from January 2011– July 2021. Electrocardiogram done within four weeks of CMR were reviewed of all HCM patients.

**Results:** Electrocardiogram done within 4 weeks of CMR were available in 62.8%(49/78)

patients. Left ventricular hypertrophy was present in 65.3%(41) patients. Asymmetric T-wave inversion was present in 38.7%(19/49), among these Giant negative T-wave were present in 16.3%(8/49). Repolarization abnormalities/ST-T segment changes were present in 36.7%(18/49). Seven patients had conduction abnormalities as 6 patients had LBBB; and one patient had first-degree heart block. Three had p-pulmonale and two patients had p-mitrale, none had features suggestive of Wolff-Parkinson-White(WPW) syndrome. 66.7% of patients with apical LVH had giant negative T-waves(p-value 0.027); moreover, 50% of patients with giant negative T waves had apical LGE(p-value 0.013). Among electrocardiographic arrhythmic events, 4 had supraventricular tachycardias(SVT); 2 developed atrial flutter, 2 developed atrial fibrillation and 7 patients had ventricular tachycardias or ICD discharges. ICD insertion was done in 28.5%(14) patients and four patients had been recommended ICD insertion. Holter results were available for 33 patients, frequent PVCs were observed in 87.8%(29); atrial fibrillation runs in 18.1%(6); SVT runs in 25.7%(9) and non-sustained VT runs in 42.4%(14). Major adverse cardiac events(MACE) occurred in 32.6%(16/49). There was no significant association of MACE with any electrocardiographic features.

**Conclusion:** Apical hypertrophy and apical LGE location was associated with Giant T-wave inversion and arrhythmic events were common in patients with HCM in Pakistani population.

**Keywords:** Late Gadolinium Enhancement; Hypertrophic cardiomyopathy; Electrocardiography; Cardiac Magnetic Resonance

## 2.164

### **AORTO-LEFT ATRIAL FISTULA: A RARE COMPLICATION OF NATIVE AORTIC VALVE ENDOCARDITIS**

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**Background:** Despite advancements in diagnostic modalities, antimicrobial and surgical treatment, infective endocarditis (IE) still heralds a grave prognosis particularly due to complications resulting rapid deterioration. Prompt recognition, early diagnosis and treatment is paramount in reducing the associated morbidity and mortality

**Study Design and Method:** Case: 49 years-old gentleman presented to clinic with recurrent episodes of fever and worsening dyspnea for the last five days. He had been recently treated for streptococcal meningo-encephalitis. Examination revealed a systolic and diastolic murmur along left sternal border. He was therefore hospitalized for further work up. Transthoracic echocardiogram was done which showed bicuspid aortic valve with small multiple vegetations noted above the aortic valve. An echo free space was noted in the mitral-aortic intervalvular fibrosa (MAIVF), consistent with abscess. Transesophageal echo(TEE) was planned but patient left against medical advice. After one day, he again presented with worsening shortness of breath and was re-hospitalized with heart failure. He was taken to the operating room for the surgery with a plan for intraoperative transesophageal study. TEE confirmed the findings of ruptured abscess with fistula formation between aorta and left atrium and bicuspid aortic valve with mild aortic stenosis, mild aortic regurgitation and severe mitral regurgitation. He underwent dual valve replacement and aortic repair. Intraoperative findings were abscess between aortic and mitral valve with wide fistula between left coronary

sinus and left atrium due to ruptured abscess. He was extubated on third post-operative day and intravenous antibiotics(Meropenem and Vancomycin) and anti-coagulation(warfarin) were continued. Post-operatively his EKG showed 1st degree AV block with left bundle branch block which later got resolved. His final blood cultures were reported negative. He was eventually discharged after 18 days of hospital stay with complete recovery.

#### **Results:**

**Conclusion:** This case demonstrates a wide spectrum of intracardiac complications such as perivalvular abscess with extension into the MAIVF, aorto-cavitary fistula formation and eccentric MR in infective endocarditis which can be best appreciated with transesophageal echocardiography. It also highlights the possibility of good clinical outcome with early diagnosis and aggressive management.

**Keywords:** Infective endocarditis, Transesophageal echocardiogram, Complications, Aorto-left atrial fistula, Mitral-aortic intervalvular fibrosa

## 2.165

### **HEAD UP TILT TABLE PROVOKED NARROW COMPLEX TACHYCARDIA CAUSING SYNCOPE- A RARE OCCURRENCE**

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**Background:** The head-up tilt table test is a useful diagnostic method for unmasking vasovagal syncope in patients who present with unexplained syncope. Isoproterenol and nitrates have been utilized to provide better diagnostic yield and minimize the adverse events. The incidence of adverse occurrences is low, however, they have significant risk associated with them. Arrhythmic events, in particular, are rare.

**Study Design and Method:** Case: A 47-year old lady, with no known prior comorbid conditions, presented to the cardiology clinic with a history of one episode of syncope a week earlier. Her past medical and surgical history was otherwise unremarkable, with no ongoing medications use. A suspicion of vasovagal syncope was raised and she was advised transthoracic echocardiogram and a head-up table tilt test. Echocardiographic findings in the patient were normal. The tilt table test was performed under the nitrate augmentation protocol, where the patient was tilted for 20 minutes at 60 degrees. ECG was within normal limits and featured sinus rhythm (Figure 1a) with intermittent atrial ectopy. The patient's heart rate varied 69-81 beats/min and blood pressures dropped from 123/73 to 110/70 during the test. The patient, however, did not experience any symptoms in the course. For pharmacological provocation, the patient was given sublingual glycerol trinitrate 500mcg. Five minutes post-nitrate administration patient developed dizziness and then became unresponsive. Heart rate initially decreased to 55 beats/min, with

atrial ectopy, and the patient subsequently developed a narrow complex tachycardia with rate 170 beats/min. Blood pressures became unrecordable during this period. A narrow complex long RP tachycardia (Figure-1b) was identified later on the review of tilt table traces and was classified as an automatic atrial tachycardia.

#### **Results:**

**Conclusion:** This case adds to our understanding of this particularly elusive occurrence which may pose a significant risk of complications to the patient. This may be a predicate for investigation into the pathogenesis of atrial tachyarrhythmias and the role of the vagal responses in neurocardiogenic events under orthostatic stress. Furthermore, it may help with early identification of arrhythmia-associated risks and creating better management strategies.

**Keywords:** Narrow complex tachycardia, atrial tachycardia, AT post nitrate augmentation during tilt.

## 2.166

### **LONG-TERM CLINICAL AND FUNCTIONAL OUTCOMES OF DISTALLY BASED SURAL ARTERY FLAP: A RETROSPECTIVE CASE SERIES**

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**Background:** Reconstruction of soft tissue defects around the lower leg, foot and ankle is a challenge for orthopedic surgeons. These defects commonly occur as a result of trauma, infection and tumor excision. Sural artery neurovascular island flap is a relatively thin, pliable and insensate flap with minimum donor-site morbidity and acceptable aesthetic outcome.

**Study Design and Method:** A retrospective analysis of a case series was conducted, all

operated by a single surgeon over a period of 25 years from July 1996 to February 2020. Data were collected through a structured proforma; the variables included were as follows: demographic data, mechanism of injury, defect site and size, size of flap, hospital stay, complications, outcome of flap and functional status of limb. Data analysis was performed by using SPSS version 25.0.

**Results:** We included 89 patients out of 106, with 92 distally based sural artery flaps. The flap coverage was divided in two groups: group I for leg (n=41) and group II for foot (n=51). The mean flap dimension in leg was  $9.98 \pm 2.2$  cm and  $12.15 \pm 3$  cm in foot. Postoperatively functional outcomes were assessed using a self-designed tool and graded as excellent in 79 cases (leg=38; foot=41), good in 10 cases (leg=2; foot=8), fair in 3 cases (leg=1; foot=2) and poor in zero cases. All flaps survived uneventfully.

**Conclusion:** The reverse sural artery flap is versatile and reliable, and can be performed easily with good knowledge and using a microsurgical technique. It is useful for the reconstruction of soft tissue defects around the lower third of the leg, dorsum of the foot, malleoli and hind foot. The functional range of motion of the ankle is not compromised because of the flap's supple and pliable nature. The reverse sural artery flap is ideal for the coverage of the foot, ankle and lower one third of the leg. This flap is insensate and not suitable for the weight-bearing area of the heel.

**Keywords:** Sural artery flapsurgical flapfoot and ankle reconstructive surgical procedureswound healing

2.167

**VALIDATION OF HIGH SENSITIVITY  
CARDIAC TROPONIN USING 0/1 HOUR  
ALGORITHM IN PATIENTS PRESENTING  
WITH LOW PROBABILITY ACUTE  
CORONARY SYNDROME IN EMERGENCY  
DEPARTMENT.**

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**Background:** Chest pain is one of the common reason of patient visit to the Emergency Department universally, associated with emotional and mental perturbation. Approximately 8 to 10 million people visit Emergency Room in USA for a possible Myocardial Infarction annually. Much hospital resources are utilized in diagnosing these patients which consumes time, money and bed occupancy leading to overcrowding within the ED. Out of these patients, only 15% are diagnosed as having Acute Coronary Syndrome. Acute Coronary syndrome is a broad term used to identify chest pain related to myocardial ischemia and myocardial injury and it is also defined in the "Fourth universal Definition of Myocardial Infarction" by ECS 2015. The annual cost of combination of lab investigations with invasive (PCI) & non-invasive diagnostic (Stress testing, ECHO, CCTA i.e coronary computed tomography angiography) testing costs around \$5-10 billion in USA which is nearly impossible to be borne by developing and underdeveloped nations like Pakistan. Certain rapid accelerated diagnostic algorithms and clinical scores have been designed in order to diagnose these patients early.

**Study Design and Method:** this is a cross sectional study carried out in Department of Emergency Medicine from 1st september 2020 to 31st September 2021. A total of 177 adult patients with age > 18 years were recruited from ER who presented with acute chest pain for less than 12 hours duration. a blood sample of Troponin I was drawn at 0 hour, 1 hour and 3-6 hour duration. High sensitivity cardiac troponin test was evaluated on each interval.

**Results:** in analysis phase

**Conclusion:** to be completed.

**Keywords:** ACS Acute coronary syndrome

## 2.168

### **CLINICAL PROFILE & MANAGEMENT OF CHILDREN WITH SEIZURES PRESENTING TO PEDIATRIC EMERGENCY DEPARTMENT: A CROSS-SECTIONAL STUDY**

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**Background:** Seizures are one of the most common presentation in children requiring urgent care in Emergency Departments. This study was conducted to determine the clinical profile, management and spectrum of patients presenting to Emergency department in a low middle income country.

**Study Design and Method:** This was an observational cross-sectional study carried out in tertiary care hospital. Data was collected on a predesigned questionnaire from June 2018–May 2019. Qualitative variables like gender and type of seizure were expressed as percentages and frequencies. Quantitative variables like age, levels of sodium, potassium and calcium were expressed as median, interquartile ranges and Wilcoxon Rank Sum test was used.

**Results:** The prevalence of seizures amongst children presenting to pediatric emergency room was found to be 9.36 per 1000 children. A total of 186 patients presented to pediatric emergency department with seizures. There were 58.1% boys and 41.9% females. The median age of children presented with seizure was 26 months. The most common type of seizure noticed by eye witness were grandmal 95 (51.1%), simple partial 6 (3.3%), complex 1 (0.5%). Hyponatremia was the most commonly reported abnormality 54.2%. Febrile Convulsion were reported in 46.8%, 24.7% were known epileptic, 9.1% had an infective source, 5.4% metabolic & 2.7% had afebrile seizures.

**Conclusion:** Seizure was one of the commonest neurological condition occurring predominantly in males. Febrile seizures usually do not require

hospitalization. Emergency Department care was needed in majority of children and 45.7% were discharged directly from Emergency Room.

**Keywords:** Grandmal epilepsy Generalized tonic clonic seizures Febrile seizures Afebrile seizures Hypoglycemia

## 2.169

### **INFLUENCE OF SMILE ON NASOLABIAL ANGLE AND FACIAL ATTRACTIVENESS – A CROSS-SECTIONAL STUDY**

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**Introduction:** It is perceived that nasolabial disharmony is masked while smiling. This study aims to identify the effect of smile on nasolabial angle in compensating the facial profile attractiveness.

**Study Design and Method:** A cross-sectional study was conducted at a tertiary care hospital where profile photographs both at rest and smile of male and female subjects were altered on photoshop software. Photographs were modified to 6 gradually increasing nasolabial angles (85°, 90°, 95°, 100°, 105°, and 110°) both at rest and smile. These photographs were shown to a panel of 69 raters equally divided into three groups, laypersons (LP), general dentists and orthodontists. Panel was asked to rate each picture on likert scale in order of extremely unattractive to extremely attractive facial profile. Kruskal–Wallis, Mann–Whitney U test and Wilcoxon signed-rank test were used to analyze the effect of smile on nasolabial angle.

**Results:** There was highly statistically significant differences ( $p \leq 0.05^{**}$ ) between rest and smile scores and in preference of nasolabial angle between male and female raters. All three groups of raters preferred 90° and 95° to be highly attractive on smile and smile scores were improved by all three groups of raters.

**Conclusion:** Smile compensated the nasolabial angle and increased the facial profile attractiveness. This concept is described in literature as smiloflage, which has been proved by our study

**Keywords:** Nasolabial angle, rest and smile, facial attractiveness.

## 2.170

### **COVID-19 PANDEMIC: ECONOMIC BURDEN ON PATIENTS WITH MUSCULOSKELETAL INJURIES IN A TERTIARY CARE HOSPITAL OF LMIC; RETROSPECTIVE CROSS SECTIONAL STUDY**

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**Background:** Covid-19 has adversely impacted the health care organizations by over burdening with Covid patients and suspending the elective surgeries and clinics. Hospitalization during pandemic may increase health cost of patients for elective and emergency procedure due to extra cost of covid testing and isolation. A single center retrospective study was conducted to quantify losses due to postponement of elective surgeries and extra cost for procurement of PPEs. The secondary objective was to see the effect of Covid –19 on the total costs of inpatient care during Covid era.

**Study Design and Method:** We included all the patients admitted in orthopedic section for operative intervention of fractures and elective procedures from January 1, 2020 to May 31, 2020. We divided this period into two halves; the first half was from January first to March 15 named as PreCovid Era and second half was from March 16, to May 31, 2020, termed as Covid Era. The total number of trauma procedures and elective procedures were compared in both eras. We compared six

procedures each from upper and lower limit for cost analysis and length of stay. We also analyzed the extra cost for procurement of PPEs

**Results:** A total 625 patients were admitted during study period; 417 in precovid and 208 in covid era. There was 50% reduction in patients admissions during Covid era. There was no statistically significant difference in age and gender of both groups. A total of 840 (591 in preCovid era and 251 in Covid era) procedures were performed on these 625 patients. Elective and emergency procedures were significantly reduced in Covid era. There was 55.7% drop in the collective revenue generated in covid era as compared to that of Precovid era. The average length of stay was decreased in Covid era. No statistically significance difference was found in inpatient hospital charges of both groups except for two procedures ankle and proximal humeral fractures; that was significantly reduced in Covid era. There was significantly increase in use of PPE in covid era

**Conclusion:** The financial income of our service decreased more than 55% due to postponement of elective work. The number of elective and procedures related to musculoskeletal trauma also decreased. The cost for inpatient care did not increase during covid era. There was significant reduction in inpatient hospital stay during covid era. The hospital management had to spent additional expenses on procurement of PPEs

**Keywords:** Covid-19 pandemic, economic burden, Covid-19, Orthopedic, Trauma

## 2.172

### **EFFECTIVENESS OF AN EDUCATIONAL INTERVENTION ON THE DIAGNOSIS AND TREATMENT OF HEAT-EMERGENCIES IN EMERGENCY DEPARTMENT: A MULTICENTER, QUASI-EXPERIMENTAL STUDY**

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**Background:** Heat emergencies are major public health concern around the world with growing challenges of global warming and rapid climate change. This study aimed to measure the effectiveness of HEAT (Heat Emergency Awareness and Treatment) intervention on the diagnosis and management of patients presenting with suspected heat emergencies.

**Study Design and Method:** A quasi-experimental study was conducted in the Emergency departments (EDs) of four major hospitals of Karachi, Pakistan. The primary outcome was improvement in key temperature management strategies for patients presenting with heat emergencies. A 24/7 ED surveillance was established to document the diagnosis and management practices of emergency healthcare providers. Data was collected from the patients visiting the EDs during summer months from May to July of 2017 (pre-intervention) and 2018 (post-intervention) before and after the HEAT training intervention. Secondly, we assessed

knowledge of emergency healthcare providers in diagnosing and managing heat-related emergencies through KAT questionnaire.

**Results:** Results Overall we screened, 223109 and 247807 patients for heat emergencies in 2017 and 2018 respectively and a total of 245 emergency healthcare providers were trained for HEAT training. The proportion of patients being diagnosed with any heat emergency diagnosis by ED physician increased to 7.5% in post-intervention period (2018) as compared to only 3% in pre-intervention period (2017). Similarly, the practice of temperature monitoring increased 12.3% in 2018, as compared to only 1% in 2017. The practice temperature management (water sponging) improved to 5% in 2018 as compared to just 2% in 2017. The positive determinants of improved diagnosis rate were presence of emergency medicine residency program and increased knowledge of emergency healthcare providers regarding heat emergencies after the training sessions.

**Conclusion:** A large number of patients presenting in the ED had heat exposures and symptoms suggestive of heat emergencies but very few were diagnosed. Long-term and repeated training of emergency healthcare providers have the potential to significantly improve the diagnostic and therapeutic consideration of heat emergencies.

**Keywords:** Heat-Stroke, Heat Exhaustion, Heat Emergencies, emergency training, Pakistan

### 2.173

#### **DETECTION OF ATRIAL HIGH RATE EPISODES IN POST CIED IMPLANT PATIENTS PRESENTING TO TERTIARY CARE SETTING—A MULTICENTER EXPERIENCE FROM PAKISTAN**

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**Background:** Atrial high-rate episodes (AHREs) are good indicators of subclinical atrial fibrillation and can be identified in patients with cardiac implantable electronic devices (CIEDs).

The aim of this study is to measure the incidence of AHREs in CIEDs patient's presenting to two tertiary care hospitals in Karachi, Pakistan. Till date, no study has been done in our local population to determine the burden of AHREs

**Study Design and Method:** Cross-sectional, prospective study. All patients >18 years with CIEDs presenting to the device clinics were enrolled. The AHREs cutoff was predefined and AHREs were documented if they last for >30 seconds. Patients with known atrial fibrillation were excluded.

**Results:** N; 162, Mean age; 64.73±11.63 years, Men; 62.3 %. Mean AHREs cutoff; 182.27±20.931. Mean CHADS2VASc score; 3.10±1.475. In our study, 17.9 % of participants had history of congestive heart failure and 6.8% had prior cerebrovascular accidents. 54.9% were on beta-blockers , 37% used Angiotensin receptor blockers and Mildly dilated left atrium was seen in 43.8%, left ventricular ejection fraction of <30% in 19.8%, Severe mitral stenosis in 1.2% and Severe mitral regurgitation are seen in 3.1% patients. 32.1% patients had recent implants i.e., within one year. Dual chamber pacemaker (75.3%) was the most common CIEDs followed by CRT-D (11.1 %), dual chamber ICD and CRT-P (6.8%) each. Most common indication for implant was

atrioventricular block (60.5%) followed by LV dysfunction 25.3% and sinus node dysfunction 16%

AHREs incidence was 13.6%, 8% of patients had AHREs duration >5minutes, 3.1% (1-5 minutes), 1.9% (30 seconds -1 minute) and 0.6% (>30 seconds). Out of the patients who had AHREs, 8.6% presented to the device clinic within 1-6 months of AHREs occurrence

Outcome variable i.e. occurrence of AHREs was correlated with age, gender, comorbid, medications and time since implant. Univariate analysis was performed with the help of Chi-square test and Fisher's Exact Test and later for multivariate analysis variables with p-value of less than or equal to 0.20 were taken as candidate explanatory variables, multivariate binary logistic regression analysis was performed with the help of backward selection method , OR and 95% CI are reported and statistical significance criteria was p-value less than or equal of 0.05. Family history of coronary artery disease (p= 0.008, OR 5.62) and use of angiotensin receptor blocker was significant (p=0.023, OR 0.2) had significant association with AHREs.

**Conclusion:** The incidence of AHREs is considerably low in our population with CIEDs as compared to the studies done in other populations worldwide, although the CHADS2VASc score is high. Family history of coronary artery disease and use of angiotensin receptor blocker had statistically significant association with AHREs occurrence.

**Keywords:** AHRE, atrial fibrillation, cardiac implantable electronic devices



## 2.174

### **POTENTIAL ROLE OF COMPLETE BLOOD COUNT DERIVED RATIOS FOR PREDICTING DISEASE SEVERITY AMONG COVID-19 PATIENTS IN A LOWER-MIDDLE INCOME COUNTRY - A SINGLE CENTRE RETROSPECTIVE ANALYSIS**

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**Background:** As the whole world is grappling to find better ways to manage coronavirus disease 2019 (COVID-19) as we survive through this pandemic, several studies are being conducted to evaluate the value of different biomarkers in this disease. But all these biomarkers come with an additional cost and are subject to availability, both of which are a substantial concern for low and middle-income countries. Through this study we aim to analyze the role of these universally available cost-effective parameters of complete blood picture (CBC) and ratios derived from these parameters for predicting different outcomes in COVID-19 patients.

**Study Design and Method:** This retrospective study was conducted in Aga Khan University Hospital, whereupon all patient presenting to emergency department with COVID-19 were enrolled from late 2020 to early 2021. Data collected via pre-designed tool that include variables for demographic profile, comorbidities, arrival vitals, and outcome parameters like length of stay, intensive care admission, mechanical ventilation, vasopressor need and in-hospital mortality. Qualitative variables were expressed as frequencies and percentages, whereas quantitative variables were expressed as median and interquartile range. Wilcoxon rank sum test was used to compare the medians where applicable. P-value of less than 0.05 was considered statistically significant at 95% confidence interval.

**Results:** In process, will be completed within a week.

**Conclusion:** In process, will be completed within a week.

**Keywords:** COVID-19, CBC parameters, CBC ratios, prognostication

## 2.175

### **CHALLENGES OF CONDUCTING A GLOBAL, PHASE III, DOUBLE BLINDED RANDOMIZED CONTROL TRIAL IN A LOWER MIDDLE INCOME COUNTRY**

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**Background:** Conducting a global, phase III, double blinded randomized control trial in a lower middle income country (LMIC) presents with its unique challenges. A trial of this sort was conducted at the Aga Khan University Hospital where approximately 3000 participants were enrolled. This trial provided an opportunity to receive a Covid-19 vaccine in Pakistan when other vaccines had not been approved in the country.

**Study Design and Method:** A systematic assessment of the trial processes and procedures was conducted during which multiple challenges were brought to our attention. The reviewer examined the study in four phases: phase 1: initiation, phase 2: enrollment, phase 3: follow-up, phase 4: study completion. Each phase was looked at independently.

**Results:** Multiple processes were identified. The challenges faced during the initiation period were largely related to regulatory challenges, timelines and sponsor feasibility as well as material procurement delay. A wide variety of challenges were faced in the enrollment period; which include specimen transportation and stability, multiple middlemen (contract research organizations), lack of awareness of clinical

trials in an LMIC and an under established clinical research industry. Cultural challenges such as misinformation and distrust regarding the vaccine and crossing language barriers are just some of the examples. The follow up period presented challenges that were not anticipated; participants were lost to follow-up often due to circumstances unique to LMICs (such as connectivity issues). An unexpected emergency unblinding process had to be initiated and carried out swiftly and smoothly amongst other things. The completion phase, although early in it's stage, has already shown lost to follow-up to be a major challenge.

**Conclusion:** Conducting a randomized control trial in an LMIC posts a unique set of challenges during every phase of the study duration. These challenges need to be taken into account when conducting further trials in LMICs.

**Keywords:** Challenges, LMIC, Randomized Control Trial

## 2.176

### **HYPERAMMONEMIA OF UNKNOWN CAUSE IN A YOUNG POSTPARTUM WOMAN; A CASE REPORT**

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**Background:** Hyperammonemia is a medical condition described as increased or elevated serum ammonia levels. High serum levels of ammonia can cause neurotoxicity. Sudden onset severe hyperammonemia may cause severe encephalopathy with brain damage. It can result in cerebral edema, emesis, seizures, hypotonia, and death. We report a young postpartum woman who had a sudden rise in serum ammonia levels after vaginal delivery.

**Study Design and Method:** Case report conducted at The Aga Khan University Hospital in October 2021

**Results:** A twenty-four-year-old, married, postpartum woman was admitted to the intensive care unit (ICU) through the emergency department with complaints of fever, severe abdominal pain with distension, and altered levels of consciousness. The patient had a medical history of spontaneous vaginal delivery two weeks before this hospital admission, after which she gradually developed the above symptoms. However, the patient's past medical history was unremarkable with no hepatic disease, but her investigations revealed a progressive rise in serum ammonia levels. In ICU, she developed generalized tonic-clonic seizures. It was followed by a coma, tonsillar herniation, and death.

**Conclusion:** Postpartum hyperammonemia is a rare entity. It is a critical illness and must be evaluated for underlying metabolic disorders. Early diagnosis and treatment may result in better outcomes and reduced mortality among postpartum women with hyperammonemia.

**Keywords:** Ammonia; hyperammonemia; urea cycle disorder

## 2.177

### **EXTRA-PULMONARY THROMBOSIS IN PATIENTS WITH CORONAVIRUS DISEASE**

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**Background:** Coronavirus disease 19 (COVID-19) is a viral disease caused by SARS-CoV-2. COVID-19 is associated with a hypercoagulable state thus there is an increased incidence of thromboembolism. Extra-pulmonary thrombosis is an unusual thrombotic complication of COVID-19.

**Study Design and Method:** This case series was conducted at The Aga Khan University Hospital in June 2021. We report three cases of extra-pulmonary thrombosis; thrombus was identified in the celiac artery and splenic veins in case 1, left common iliac artery in case 2 and left

ventricular apical thrombus with splenic and renal infarcts in case 3.

**Results:** Case 1 was treated with a therapeutic dose of enoxaparin of 1 mg/kg twice daily. The patient was discharged without any complications on day 7th of admission. Case 2 also received therapeutic anticoagulation initially with unfractionated heparin and later switched to enoxaparin. The patient was discharged in stable condition on day 5th of admission. Case 3 was managed with an intravenous infusion of unfractionated heparin with targeted activated partial thromboplastin time of 22-90 seconds. The patient's ICU stay was complicated by pneumomediastinum and pneumothorax, upper gastrointestinal bleed, and superimposed bacterial and fungal infection. He continues to worsen clinically and passed away from these complications.

**Conclusion:** In conclusion, we observed that COVID-19 infection is a pro-thrombotic condition. It can provoke arterial and venous thrombosis. These can be managed with anticoagulation. Physicians should be vigilant while treating COVID-19 patients regarding these rare complications.

**Keywords:** COVID-19; thrombosis; thrombophilia; venous thromboembolism

2.179

### **ARRHYTHMIAS IN PATIENTS WITH COVID-19: CASE SERIES**

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**Background:** There are now well-documented cardiac complications of COVID-19 infection such as myocarditis, heart failure and acute coronary syndrome due to coronary artery thrombosis or SARS-CoV-2-related plaque ruptures. We reported two cases of arrhythmias who presented to the emergency department with complaint of generalized weakness and palpitations. Their Covid PCRs later turned out

to be positive. These cases were specifically selected because despite reported histories of normal conduction systems and lack of rate controlling agents as well as normal initial tests such as TSH, electrolytes, and echocardiography, these patients developed arrhythmias. Hence highly the correlation of the arrhythmias to SARS CoV2 infection.

**Study Design and Method:** Observational, Descriptive Study, Case series

**Results:** Although SARS-CoV-2 mainly causes respiratory problems, concomitant cardiac injury should not be overlooked because it may be a significant predictor of poor outcomes.

**Conclusion:** Patients diagnosed with COVID-19 infection should be monitored closely for the development of cardiac complications.

**Keywords:** Sinus node dysfunction, Atrioventricular block, Bradycardia, COVID-19, Arrhythmia, Supraventricular tachycardia

2.181

### **EXTENSIVE CAVITARY FUNGAL PNEUMONIA IN A PATIENT WITH COVID-19 DISEASE; CASE REPORT**

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**Background:** COVID-19 associated pulmonary aspergillosis (CAPA) is a new entity and is associated with high morbidity and mortality. COVID-19 is a pro-inflammatory and immunosuppressive disease, provoking fungal infections, especially by *Aspergillus* species. *Aspergillus* co-infection with coronavirus can be fatal and early diagnosis and treatment can improve clinical outcomes.

**Study Design and Method:** We describe a case of a critically ill COVID-19 female patient who was admitted to the Aga Khan University Hospital in May 2021. She was diagnosed with

extensive cavitory CAPA infection and acute respiratory distress syndrome (ARDS).

**Results:** A 57-year-old woman presented to the emergency department on May 2021 with a history of fever and dyspnea for 10 days. She was given intravenous remdesivir. Her chest x-ray a few days after admission showed multiple cavities. She initially improved but deteriorated again, with worsening hypoxia and pneumothorax and multiple cavitory lesions on HRCT of the chest. Despite optimal treatment, she couldn't make recovery. Interestingly, she had no predisposing risk factor for pulmonary aspergilloses such as chronic lung disease, diabetes, or use of immunosuppressant such as tocilizumab.

**Conclusion:** CAPA is an emerging entity with a worse prognosis. Worsening hypoxia and failure to improve can be an early sign for underlying pulmonary aspergillosis. Early identification and treatment can improve survival and outcomes in critically ill COVID-19 patients.

**Keywords:** COVID-19; aspergillosis; thick walled cavitation; CAPA

2.182

### **MEAN TEMPERATURE LOSS DURING GENERAL ANESTHESIA FOR LAPAROSCOPIC CHOLECYSTECTOMY: COMPARISON OF MALES AND FEMALES**

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**Background:** Mild hypothermia is common after general anesthesia. It is associated with discomfort and shivering. Greater fall of temperature is associated with more devastating complications. Data regarding the effect of gender on perioperative hypothermia is scanty

**Study Design and Method:** Ninety-seven elective laparoscopy patients were included through non-probability consecutive sampling. Intraoperatively, there was standardization of

monitoring equipment, drapes, operation room temperature (21-22 °C), humidity (50%), irrigation fluid temperature (37 °C), peritoneal CO2 temperature (21-22 °C), anesthetic fresh gas flow rates at induction and maintenance. Temperature recording equipment (nasopharyngeal probe) and temperature recording interval (10 minutes) were also standardized from induction till the end of surgery. Final temperature was recorded at the end of surgery before emergence.

**Results:** Mean temperature loss was  $0.73\text{ }^{\circ}\text{C} \pm 0.47^{\circ}\text{C}$ . Mean loss was significant in males compared to females with a mean difference of  $0.28^{\circ}\text{C} \pm 0.93^{\circ}\text{C}$ ; P-value= 0.003.

**Conclusion:** Mean temperature decreases significantly in laparoscopic cholecystectomy patients under general anesthesia. We recommend that more care is needed to prevent hypothermia in male patients because of their higher susceptibility to hypothermia.

**Keywords:** General anesthesia, Hypothermia, Subcutaneous fat

2.183

### **SKULL BASE OSTEOMYELITIS :A DREADED CLINICAL ENTITY**

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**Background:** Skull base osteomyelitis (SBO) is a challenging and much dreaded clinical entity frequently seen in Pakistan. The objective of this study is to review the presenting features, comorbidities, microbiology findings, complications and outcomes in skull base osteomyelitis.

**Study Design and Method:** In this retrospective study, we have included patients with clinical and radiological diagnoses of skull base osteomyelitis, presented to the Aga Khan University Hospital, Pakistan between July

‘2013 and October ‘2020 were in this retrospective study.

**Results:** Fifty-six patients were included in the study with a mean age was 58.12( $\pm$  17.79) years and there was male predominance ( 69.6%). Diabetes Mellitus was the most common comorbid illness ( 69.6 %) and the majority of patients had chronic sinusitis, otitis media and head and neck surgery in the last 2 years prior to the current presentation. The mean duration between onset of symptoms and presentation to healthcare facilities was 12 weeks ( $\pm$  13.96) . The common presenting symptoms were headache ( 68%) followed by facial asymmetry ( 41.1%), fever ( 39.3%), altered mental status ( 32)%, earache (30.4%) and hearing loss (30.4%). The majority of patients had fungal organisms isolated from tissue culture and organisms isolated were *Aspergillus flavus*, *Penicillium*, *Rhizopus* spp & *Absidia* spp. Cranial nerve (CN) paresis was present in 77% of patients and the most common CN affected was the 7th CN ( 55.4%) .Other complications were meningitis ( 55.4%), ischemic stroke ( 46.4 % ) , sepsis (32.1) and CVST ( 25 %). The overall mortality was 32.2 %. In subgroup analysis, common complications in the non-survivor group were sepsis, stroke, meningitis but only the presence of sepsis was found to be associated with mortality .( p-value < 0.001).

**Conclusion:** Skull base osteomyelitis is associated with significant morbidities and mortality. It poses significant diagnostic and therapeutic challenges. Early recognition and appropriate management of this potentially treatable but life-threatening condition are crucial to improving clinical outcomes.

**Keywords:** skull base osteomyelitis , cranial neuropathies, headache

2.184

### **ROLE OF PROCALCITONIN IN THE DIAGNOSIS OF CENTRAL FEVER**

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and Jinnah Postgraduate Medical Center*

**Background:** There is a need to identify inflammatory markers which can be used to diagnose central fever early in course of illness that could be used to curtail excessive use of antibiotics and thus contributes to antibiotics stewardship. The current study aims to assess the role of Procalcitonin ( PCT) in differentiating central fever from infectious fever.

**Study Design and Method:** We conducted a retrospective study of patients admitted with a neurological insult ( brain trauma, brain tumors, cerebrovascular accidents ) in a tertiary care hospital between April 2019 to September 2019. All patients who developed fever 48 hours after admission and had procalcitonin done as part of fever evaluation were assessed to include in the study.

**Results:** Out of 70 patients who met the inclusion criteria, 37 (52.8%) had fever secondary to an identifiable infectious etiologies and 33(47.1%) were classified as with central fever. The mean age was 42.9 years ( $\pm$  18) in the infectious group while 40.3 years ( $\pm$  18.2) in the central fever group and there was male predominance in both groups.

There were no differences observed in the fever pattern and duration of fever between the two groups. The median PCT value among patients with central fever was 0.09 ng/ml (IQR 0.05 – 0.19) and patients with infectious fever was 1.4 ng/ml (IQR 0.5-5.1) (p-value <0.001). Although CRP and ESR were low in patients with central fever as compared to those with infections, these differences did not reach statistical significance. Neutrophil counts were notably higher in the infectious fever group (median 83.5 $\pm$ 5.4) vs

central fever group (median 72.2±8.7) (p<0.001).

**Conclusion:** PCT levels were low in patients with central fever and may be considered a useful marker to differentiate between infectious fever from non-infectious one in patients with brain injury. This can prevent unnecessary antibiotic use and prolonged hospital stay.

**Keywords:** central fever , fever , procalcitonin

## 2.185

### **SEVERITY OF DISEASE AND OUTCOME OF COVID INFECTION IN VACCINATED INDIVIDUALS: A SINGLE CENTER STUDY.**

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**Background:** Several efficacious COVID-19 vaccines are available and can prevent SARS-CoV-2 infection and decrease the severity of illness. The objective of this study is to assess the severity of COVID-19 and outcomes in previously vaccinated patients.

**Study Design and Method:** We have included patients with COVID-19 presented to the department of Medicine, AKUH between February 2021 to September 2021 in this cross-sectional study.

**Results:** Out of 116 study participants, 57(49.1%) were unvaccinated, 11 (9.4%) had received only one dose and 48(41.37%) were fully vaccinated at the time of diagnosis of COVID-19. The mean age was 58years ( +/ - 15.1) and there was male predominance in all groups. The majority (88%) had received inactivated COVID -19 vaccine. The duration between immunization and symptoms onset was longer in fully vaccinated as compared to those patients who has received only one dose (p-value < 0.001). The majority (58%) of unvaccinated patients and 35% of fully vaccinated patients had critical COVID-19 (p-value 0.05). The common symptoms were fever,

cough and dyspnea in all patients. Prolonged stay in special care and requirement of NIV were common among unvaccinated patients (p-value 0.02). The over all mortality was 8.6% and higher mortality was observed in unvaccinated patients (p-value <0.001).

**Conclusion:** Critical stage of COVID-19 and mortality were higher in unvaccinated patients in comparison to fully vaccinated individuals. Strong efforts should be made to fully vaccinate the population to protect against severe COVID-19 and its complication. Like other vaccines recommended for adult population, COVID -19 vaccine uptake is still suboptimal.

**Keywords:** COVID-19 , Vaccine , severe COVID-19

## 2.186

### **IMPACT OF CHECKLIST IMPLEMENTATION ON DIAGNOSIS AND MANAGEMENT OF SEVERE ACUTE HYPERTENSION ASH IN AN EMERGENCY DEPARTMENT: A QUASI-EXPERIMENTAL STUDY**

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Department of Surgery, Sunnybrook's Health Science Centre*

**Background:** Hypertension is a global, public health problem. In Pakistan, due to non-existent primary health care, Emergency physicians are at a unique position of not only diagnosing but also intervening and altering the outcome of ASH.

The purpose of this study was to develop and implement a checklist and compare the management of patients presenting with ASH in an ED, primary outcome being the improvement in ED care and secondary as percentage reduction of blood pressure at the time of disposition.

**Study Design and Method:** This was a 2-year single center quasi experimental study. ERC-AKUH and the IRB at Johns Hopkins School of Medicine approved the study. All adult patients presenting to the ED triage with acute severe hypertension (systolic blood pressure (SBP)  $\geq 180$  mm Hg or diastolic blood pressure (DBP)  $\geq 120$  mm Hg) excluding pregnant women were enrolled in the study after informed consent. All data was reviewed by study physicians to validate the findings of end organ damage. Delphi method was used by a multidisciplinary team of national and international experts to help develop a clinical algorithm, checklist for management of acute severe hypertension, and a bilingual discharge instructions manual.

**Results:** A total of 502 patients were enrolled, 252 pre-checklist phase and 250 patients in the post-checklist phase. More patients were being discharged, 107(42.8%) compared to 89(35.3%) and fewer admitted in post checklist implementation phase ( $p=0.032$ ). Frequency of patients discharge on antihypertensive medication from ED increased, 15 [48.4%] in pre checklist and 21 [39.6%] in the post checklist phase.

Use of intravenous beta-blockers (stat dose) increased from 11(6%) to 30 (16.1%)  $p=0.002$ ; however, Use of Infusions reduced from 19(10.4%) to 5 (2.7%)  $p=0.003$  in post checklist implementation phase, complying with treatment algorithm. Also in patients presenting with end-organ involvement choice of medications became more in line with developed algorithm in post checklist phase ( $p=0.086, 0.035$ ). Majority, 65.7% ( $n = 46$ ) physicians in pre checklist phase and 68.8% ( $n = 44$ ) physician of post checklist phase correctly diagnosed and documented hypertensive emergency.

**Conclusion:** Checklist implementation improved the management and disposition of acute severe hypertension in patients presenting to ED, however there was no improvement in diagnosis of hypertensive emergency.

**Keywords:** Acute severe hypertension, Emergency department, Checklist, Acute care, Hypertension.

2.187

**CLINICAL AND BIOCHEMICAL OUTCOMES OF SODIUM-GLUCOSE CO-TRANSPORTER-2 (SGLT2) INHIBITORS IN TYPE 2 DIABETES MELLITUS PATIENTS AS A FOURTH ORAL ANTI DIABETIC MEDICINE.**

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**Background:** SGLT-2 inhibitors are a group of oral medications that work independently of insulin working as anti-diabetics by enhancing the excretion of glucose. The purpose of our study was to assess the improvement in terms of HbA1c, weight, blood pressure and BMI and the hepatics and renal effect in terms of SGPT and Creatinine in patients already on three oral glucose lowering agents when SGLT-2 inhibitor was added to their medications.

**Study Design and Method:** This retrospective, real world, single center study included 100 patients (mean age [Standard Deviation]: 53.8 [9.63] years) with poorly control type 2 diabetes. Data was recorded at three times, before the addition of SGLT-2 inhibitor and then at 3 and 6 month follow up after the drug had been added in patient's medications. Physical parameters namely weight, BMI and blood pressure were recorded in the clinic while HbA1c, SGPT and Creatinine were checked by laboratory.

**Results:** Improvement was seen in all parameters at both 3 and 6 month follow up interval. The reduction in HbA1c was statistically significant ( $P$ -value  $< 0.001$ ) with (Mean Reduction [Standard Deviation]) 0.81[1.02] % at 3 months and 1.07[1.11] % at 6 months. Weight was also significantly reduced ( $P$ -value  $< 0.001$ ) with (MR [SD]) 1.83[2.32] kg

at 3 and 4.02[6.04] kg at 6 months. Statistically significant reduction (P-value < 0.001) in BMI was also seen with 0.69[0.95] kgm-2 at 3 months and 2.13[3.41] kgm-2 at 6 months of follow up. The systolic blood pressure showed significant reduction (P-value < 0.05) of 5.9[15.76] mmHg at 3 months and 6.37[18.33] mmHg at 6 months. The creatinine and SGPT values of the patient showed minimal variation over the course of these 6 months of follow up.

**Conclusion:** Our study showed that SGLT-2 can be reliably used in patients in which diabetes is not being controlled by other glucose lowering agents and is safe for use in patients in which hepatic and renal function needs to be preserved.

**Keywords:** SGLT-2 inhibitors, Type 2 Diabetes Mellitus, Pakistan

2.188

### **CLINICAL PROFILE AND OUTCOMES OF ADULT ONCOLOGICAL PATIENTS PRESENTED TO THE EMERGENCY DEPARTMENT OF A TERTIARY CARE CENTER IN KARACHI. A DESCRIPTIVE CROSS-SECTIONAL STUDY**

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**Background:** Globally cancer is being considered as the second leading cause of deaths after cardiovascular diseases. The incidence of cancer is exponentially rising likely because of significant increase in elderly population and the changing treatment modalities also carries significant side effects as well. (1) It has been estimated that till date more than fifteen million people are living with the history of cancer in the United States, and this number is expected to cross 25 million in next twenty years. (2, 3) There is a considerable burden of cancer all over the world especially in low to middle income countries which constitutes around 85% of the world's population, (4) of them, half of the mortalities occur in Asia alone. Cancer patients

require an interdisciplinary approach for their care in which both Oncology and Emergency medicine physicians' involvement is important, therefore, knowledge of their presentation and prompt treatment of oncological emergencies is essential for the emergency department (ED) care provider.

To date, there is no local literature available on burden, clinical features, diagnosis, and outcomes of oncological emergencies presenting to emergency department.

The objective of this study was to determine the presentation, diagnosis, and outcomes of the common oncological emergencies in the ED and to improve knowledge among healthcare providers regarding their diagnosis and management and hence improve the outcomes.

**Study Design and Method:** This was a descriptive retrospective single center study conducted in the Emergency Department, AKUH from January 01, 2018, to December 31, 2018. Total sample size was 320. All adult patients with diagnosed solid or hematological malignancy presented to the emergency department were included. Demographics and clinical data were recorded from medical record files. The immediate outcomes were reported as hospitalization or discharge from the Emergency Department.

**Results:** Out of 320 patients, 52.2% were female patients. Almost two-third (n = 276) of the patients had a solid organ malignancy and 44 (13.8%) patients had hematological malignancy. The most common solid tumor in ED setting was Breast Carcinoma (18.8%) whereas among hematological malignancies, B-cell Lymphoma (6.6%) was more prevalent. The most common symptoms at presentation were vomiting (24.4%), fever (24.1%) and abdominal pain (19.4%). The most common discharge diagnosis among these patients were febrile neutropenia (17.8%), tumor bleed (10.6%), and chemotherapy induced vomiting/diarrhea (10.3%). Among 320 patients, 26 patients got expired during hospital stay.



**Conclusion:** The study identifies the common presentation, diagnosis and outcomes of oncological patients presented to the Emergency and through this we anticipate that knowledge about the diversity of cancer-related symptoms will help emergency physicians in early diagnosis and better management of these patients.

**Keywords:** Oncological emergency, Solid Tumor, Hematological Malignancy, Presenting Complains, Outcomes.

2.189

### **CLINICAL CHARACTERISTICS AND PREDICTORS OF MORTALITY AMONG PATIENTS WITH COVID – 19 ADMITTED AT A TERTIARY CARE CENTER IN KARACHI - PAKISTAN**

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**Background:** COVID-19, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) emerged in the Wuhan district of China around the end of 2019. Pakistan received its first case of corona virus on 26th February 2020. Due to the high variability among these patients, we conducted this study to compare the clinical characteristics and management of patients with COVID 19 who survived versus those who did not. Additionally, we want to determine the predictors of mortality in COVID-19 patients admitted in our hospital.

**Study Design and Method:** This was a cross-sectional study conducted at the Aga Khan University Hospital. All patients admitted with COVID-19 in the months of May 2020 and June 2020 were included. The data collected included demographics, comorbidities, clinical characteristics, imaging methods, laboratory findings, treatment options and outcomes.

**Results:** Out of a total of 423 patients, 250 (59.1%) were diagnosed to be COVID-19

positive through PCR. The mortality of COVID positive patients was 19.2%. Using multivariable analysis after adjusting for age and gender we found that the presence of ischemic heart disease (OR 2.758,  $p < 0.01$ ), malignancy (OR 0.5885,  $p = 0.001$ ), dyspnea (OR 3.062,  $p = 0.003$ ), CRP (OR 1.008,  $p < 0.001$ ), D-Dimer (OR 1.104,  $p = 0.002$ ), and Neutrophil to Lymphocyte ratio (OR 1.090,  $p < 0.001$ ) predicted a higher risk of mortality whereas fever and a higher lymphocyte count seemed to be negative predictors of mortality (OR 0.393,  $p = 0.011$ , OR 0.957,  $p = 0.014$ , respectively). Tocilizumab, vasopressors and plasma therapy was used at a higher frequency among patients who did not survive (37.0% vs 22.4%;  $p = 0.044$ , 68.8% vs 5.0%;  $p < 0.001$ , 16.7% vs 3.0%;  $p = 0.003$ , respectively). Out of a total of 423 patients, 250 (59.1%) were diagnosed to be COVID-19 positive through PCR. The mortality of COVID positive patients was 19.2%. Using multivariable analysis after adjusting for age and gender we found that the presence of ischemic heart disease (OR 2.758,  $p < 0.01$ ), malignancy (OR 0.5885,  $p = 0.001$ ), dyspnea (OR 3.062,  $p = 0.003$ ), CRP (OR 1.008,  $p < 0.001$ ), D-Dimer (OR 1.104,  $p = 0.002$ ), and Neutrophil to Lymphocyte ratio (OR 1.090,  $p < 0.001$ ) predicted a higher risk of mortality whereas fever and a higher lymphocyte count seemed to be negative predictors of mortality (OR 0.393,  $p = 0.011$ , OR 0.957,  $p = 0.014$ , respectively). Tocilizumab, vasopressors and plasma therapy was used at a higher frequency among patients who did not survive (37.0% vs 22.4%;  $p = 0.044$ , 68.8% vs 5.0%;  $p < 0.001$ , 16.7% vs 3.0%;  $p = 0.003$ , respectively).

**Conclusion:** We identified ischemic heart disease, malignancy, dyspnea, CRP, D-Dimer, and Neutrophil to Lymphocyte ratio as factors increasing the risk of mortality among patients while fever was associated with a decreased risk of mortality infected with COVID-19.

**Keywords:** COVID-19, epidemiology, mortality

## 2.190

### **COVID-19 VACCINE AND OUTCOME IN PATIENTS WITH SEVERE- CRITICAL COVID: A CASE SERIES**

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**Background:** Coronavirus disease 2019 (COVID-19) is a worldwide health problem. COVID-19 presents with heterogeneous clinical spectrum ranging from asymptomatic to septic shock and multi-organ dysfunction. Currently vaccination is the only effective solution of this COVID-19 pandemic. By now, 5 vaccines have been allowed on emergency basis in Pakistan for COVID-19 which are Sinopharm, Casino-bio, Sinovac, Sputnik V and AstraZeneca. Nonetheless, currently there is no data and literature regarding the use of vaccine and its outcome in critical COVID. The purpose of this study is to determine the impact of COVID-19 vaccine on the outcome of the patients admitted in critical care

**Study Design and Method:** Retrospective Case series.

All vaccinated patients admitted in COVID I.C.U of Aga Khan University Hospital from 2nd February 2021 till 30th August 2021

**Method:** After approval from Department research committee and exemption from Ethical Review Committee of Aga Khan University, data was collected retrospectively. Patient data including demographics, comorbidities, medication history and vaccination was obtained from the patient file. ICU nursing sheet was utilized to collect clinical examination data and any complication during ICU stay. Laboratory, microbiology, radiologic parameters and medication status was obtained from the online investigation and medication directory of Aga Khan University Hospital.

**Results:** Out of 20 patients which presented to us during this duration in the COVID ICU.

-Two patients were partially vaccinated

-18 Patients were completely vaccinated

-Sinopharm was used mostly

Outcome of vaccine ( as per brand )

-SinoPharm: 15 patients got vaccinated with Sino pharm 4 survived and 11 died

-CanSino Bio : 2 were observed to be vaccinated both died

-Sinovac : 2 were vaccinated and both died

- One Patient got vaccinated with J&J during the study and he Survived

-Two patients were partially vaccinated and they both survived

-5 out of the 18 completely vaccinated patients were discharged alive

**Conclusion:** We are currently working on Outcome association with different parameters and multivariate analysis. Thus we can come to conclusion after this. The conclusion will be presented in the Health Research Assembly

**Keywords:** COVID-19 Vaccination Mortality

## 2.191

### **CLINICAL CHARACTERISTICS AND OUTCOMES OF COVID-19 ACUTE RESPIRATORY DISTRESS SYNDROME PATIENTS REQUIRING INVASIVE MECHANICAL VENTILATION IN A LOWER MIDDLE-INCOME COUNTRY**

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**Background:** Covid-19 related acute respiratory distress syndrome (ARDS) requires intensive care which has a high-cost impact in lower-income countries. Outcomes of Covid-19 patients requiring invasive mechanical ventilation (IMV) in Pakistan have not been widely reported. Identifying factors forecasting outcomes will help in deciding optimal care levels and prioritizing resources.

**Study Design and Method:** A single-center, retrospective study on Covid-19 patients requiring invasive mechanical ventilation was conducted from 1st March to 31st May 2020. Demographic variables, physical signs, laboratory values, ventilator parameters, complications, length of stay, and mortality were recorded. Data were analyzed in SPSS ver.23.

**Results:** Among 71 study patients, 87.3% (62) were males and 12.7% (9) were females with a mean age of  $55.5 \pm 13.4$  years. Diabetes mellitus and hypertension were the most common comorbid conditions in 54.9% (39) patients. Mean SOFA and APACHE-II score on ICU admission and at 48 hours was  $7.32 \pm 2.9$  and  $7.14 \pm 4.3$  and  $17.4 \pm 8.1$  and  $15.8 \pm 8.9$ , respectively. Overall in-hospital mortality was 57.7%; 25% (1/4), 55.6% (20/36) and 64.5% (20/31) in mild, moderate, and severe ARDS respectively. On univariate analysis; PEEP at admission, APACHE II and SOFA score at admission and 48 hours; AKI; D-Dimer  $> 1.5$  mg/L and higher LDH levels at 48 hours were significantly associated with mortality. Only APACHE II score at admission and D-Dimer levels  $> 1.5$  mg/L were found to be independent predictors of mortality on multivariable regression (p-value 0.012 & 0.037 respectively). Admission APACHE II score area under ROC curve for mortality was 0.80 (95% CI 0.69-0.90); sensitivity was 77.5% and specificity 70% (cut-off  $\geq 13.5$ ).

**Conclusion:** There was a high mortality rate in severe ARDS. The APACHE II score can be utilized in mortality prediction in Covid-19 ARDS patients. However, larger-scale studies in

Pakistan are required to assess predictors of mortality.

**Keywords:** ARDS; COVID-19; Mechanical ventilation; Mortality

## 2.192

### **PROGNOSTIC VALUE OF LABORATORY MARKERS – AN EXPERIENCE FROM THE EARLY PHASE OF COVID-19 PANDEMIC OF A LOWER-MIDDLE INCOME COUNTRY**

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**Background:** The World Health Organization declared Covid-19 a public health crisis on 30 January 2020. Analysis of abnormalities in laboratory markers might help in identifying risk factors of mortality. In our study we aim to determine the possible risk factors for in-hospital death and to present the demographics, pre-existing comorbidities, initial complaints, hospital complications, patient outcomes and temporal changes of hematological findings during hospitalization of patients admitted in a tertiary care hospital in Karachi, Pakistan.

**Study Design and Method:** 423 patients were included in our single center retrospective observational study from March to May 2020. A systematic assessment of epidemiological, demographic, clinical, laboratory findings and outcome was performed and compared with a cohort of age and gender-matched non-Covid-19 patients.

**Results:** Overall mortality of Covid-19 was 19.2% and on multivariate analysis patients with ischemic heart disease and presenting complaints of fever and dyspnea were found to be significantly at higher risk of mortality while lymphocyte percentage was found to be negatively associated. Higher values of CRP, LDH, D-dimer, PT, APTT, INR, NLR, serum procalcitonin and serum ferritin were found to

be independently associated with mortality in Covid-19 patients.

**Conclusion:** Monitoring of laboratory markers like CRP, LDH, D-dimer, PT, APTT, INR, NLR, serum procalcitonin and serum ferritin are not only essential for management of hospitalized Covid-19 patients but can be used to identify those at higher risk of mortality.

**Keywords:** Covid-19, lower-middle income country, laboratory markers, mortality

## 2.193

### **NEW-ONSET AFEBRILE SEIZURES: ETIOLOGY, AND ITS CLINICAL OUTCOME IN PEDIATRIC PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT OF A TERTIARY CARE HOSPITAL**

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**Background:** Seizures are one of the common causes for hospital admissions in children with significant mortality and morbidity. Seizure, a transient occurrence of signs and/or symptoms resulting from abnormal excessive or synchronous neuronal activity in the brain. Proper diagnosis, classification, and management are always challenging in a child with seizure.

To determine the etiology, management profile and clinical disposition of pediatric patients who presented with new onset afebrile seizures to the emergency department of tertiary care hospital.

**Study Design and Method:** Descriptive study.

**Study Setting:** Study was conducted at the Emergency Department of the Aga Khan University Hospital, Karachi.

**Duration Of Study:** Six months after approval of synopsis from 29-03-21 till 29-09-21.

**Subjects And Methods:** Data was prospectively collected from patients after taking a verbal consent. 169 patients who met the diagnostic criteria were included. Quantitative data was presented as simple descriptive statistics giving mean and standard deviation and qualitative variables was presented as frequency and percentages. Effect modifiers were controlled through stratification to see the effect of these on the outcome variable. Post stratification chi square test was applied taking p-value of  $\leq 0.05$  as significant.

**Results:** A total of 169 patients who met the inclusion and exclusion criteria were included in this study. Mean age, duration of seizure and GCS in our study was  $3.72 \pm 3.24$  minutes and  $12.41 \pm 2.51$ . 84 (49.7%) and 85 (50.3%) were male and female. Out of 169 patients, 04 (2.4%) and 165 (97.6%) had and did not have in-hospital mortality. 29 (17.2%), 16 (9.5%), 63 (37.3%) and 12 (7.1%) had hypocalcemia, hypoglycemia, hyponatremia, hypernatremia.

**Conclusion:** Most of the seizures witnessed were of generalized tonic clonic type followed by simple partial and myoclonic seizures in our pediatric population. Hyponatremia was the commonest cause. It is important to delineate a detailed description of the clinical seizure for the correct diagnosis, treatment, and prognosis.

**Keywords:** Seizures, epilepsy, focal, generalized, febrile seizure, seizure disorder, hypocalcemia, hypoglycemia, hyponatremia, hypernatremia and mortality.

## 2.194

### **CLINICAL FEATURES, OUTCOMES, AND PREDICTORS OF MORTALITY IN HEPATIC HYDROTHORAX- A TERTIARY CARE CENTER STUDY**

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**Background:** Literature on hepatic hydrothorax in Pakistan is scarce. This study was conducted to determine clinical features, management, outcomes of hepatic hydrothorax and association with Child-Pugh scoring system and Model for End-Stage Liver Disease(MELD)score in CLD.

**Study Design and Method:** A 5-year retrospective cross-sectional analysis of patients admitted in Aga Khan University Hospital, Karachi from 2014-2019. Outcomes were measured by length of stay, in-hospital and 30-day, 90-day and 1-year mortality, recurrence and/or readmission.

**Results:** Total 46 patients were included, mean age was  $57.97 \pm 10.1$  years and 52.1% (24) were male. Most common symptom was dyspnea in 82.6% (38); followed by cough in 56.5% (26). Hepatitis C was most common cause of CLD in 63% (29), hepatitis B in 8.7% (4); 19.5% (9) had Non-B Non-C CLD and alcoholic liver disease in 6.5% (3). Ascites was present in 89% (41), 80.4% (37) had right-sided effusion, 15% (7) left-sided and bilateral in 4.34% (2). Mean MELD score was  $21.3 \pm 7.8$ . Median pleural fluid LDH levels was 118 IU/L (IQR 91-211) and median pleural fluid protein levels was 1.05g/dl (IQR 0.70-1.8). Medical management was done in 93.5% (43), thoracocentesis 78.3% (36), 19.6% (9) had pigtail-catheter insertion and one patient required chest tube. Post-procedure complications were observed in three patients and one patient developed

pneumothorax (2.1%). Mean length of hospital stay was  $6.3 \pm 5.7$  days. The 30-day mortality rate was 23.9% (11); among these 15.2% (7) died during hospital stay. Recurrence of hydrothorax during hospital stay or after discharge was observed in 54.3% (25) and readmissions were required in 52.2% (24). Although there was no significant difference in mean MELD scores of patients who developed recurrence ( $22.0 \pm 7.8$  vs  $20.5 \pm 8.12$  p=0.58) and with 30-day mortality ( $25.0 \pm 8.3$  vs  $19.9 \pm 7.3$  p=0.069), patients with MELD score >20 had a higher mortality rate (37.5% vs 9.1% p-value 0.024). Patients with Child-Pugh Class C disease also had a statistically significant higher mortality rate (90.9% vs 9.1% p-value 0.04).

**Conclusion:** There was a high recurrence and mortality rate of hepatic hydrothorax in our patient population which highlights poor outcomes of hepatic hydrothorax. Child-Pugh and MELD scoring system can be utilized as predictors of mortality in Pakistani patients with hepatic hydrothorax.

**Keywords:** cirrhosis, Hepatic hydrothorax, MELD score, Child-Pugh

## 2.195

### **OF FEAR, BURNOUT, AND STRESS: COMPARISON OF PSYCHOLOGICAL DISTRESS LEVELS AMONG FRONT-LINE HEALTH CARE WORKERS DURING DIFFERENT COVID-19 PANDEMIC WAVES IN PAKISTAN**

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**Background:** While studies have evaluated COVID-19 impact on mental health of health-care workers (HCW) in Pakistan, to our knowledge, there are no studies which have compared psychological stress levels during first and second waves. This study was done to assess

anxiety levels of Internal Medicine residents and identify risk factors for psychological stress.

**Study Design and Method:** Cross-sectional study was conducted in Internal Medicine Department Aga Khan University Hospital, Karachi and questionnaire comprising of demographic data and risk assessment tools, 9-item Patient Health Questionnaire (PHQ) and 7-item Generalized Anxiety Disorder scale (GAD-7) was used for data collection through an online survey questionnaire link. Data collection from internal medicine residents was done in May 2020 and April 2021.

**Results:** Total 88 responses were recorded. Response rate was 75.6% (56/74) and 43.2% (32/74) during first and second wave respectively. Mean age was  $27.9 \pm 3.2$  years and mean clinical career in years was  $3.2 \pm 2.1$ . 51.8% (29/56) and 68.7% (22/32) were not satisfied with community prevention measures and 75% (42/56) and 65.6% (21/32) considered interventions necessary in case of psychological distress during pandemic, whereas, 16.1% (9/56) and 3.1% (1/32) reported their family not supporting their front-line work, during first and second wave, respectively. There was a statistically significant difference in psychological distress levels as mean GAD-7 score were  $5.5 \pm 4.6$  vs  $8.9 \pm 6.0$  (p-value 0.008) and mean PHQ-9 score were  $6.8 \pm 5.9$  vs  $9.7 \pm 7.4$  (p-value 0.056) during first and second wave respectively.

**Conclusion:** There was a significant difference in anxiety levels during the first and second waves and family support for front-line work was higher during second wave. Further studies are required to assess these differences.

**Keywords:** burnout, Covid-19 pandemic, psychological distress, front-line health care workers

## 2.196

### **TEMPORARY EPICARDIAL PACING WIRES IN ISOLATED CABG: NECESSITY OR FORCE OF HABIT?**

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**Background:** Temporary Epicardial Pacing Wires (TEPWs) are routinely placed in Coronary Artery Bypass Graft surgery (CABG) to treat unforeseen post-operative arrhythmias. This study aims to determine the frequency of TEPWs use and its predictors in the immediate postoperative period in isolated CABG to limit its routine placement and hence to prevent catastrophic complications associated with them

**Study Design and Method:** This study involved 322 consecutive patients who underwent isolated CABG at the Aga Khan University Hospital Karachi, from September 2019 to August 2020. Demographic, peri operative and outcome variables regarding post-operative TEPWs use were extracted from patients medical records. Independent t-test and chi-squared test were applied for descriptive analysis. Univariate and multivariate logistic regression models were also built to explore predictors of TEPWs use in the sampled population

**Results:** A total of 322 isolated CABG patients were analysed, where only 27 (8.4%) patients required TEPWs. Mean age of the patients requiring TEPWs was  $66.3 \pm 8.9$  (p<0.001) and ejection fraction (%) was  $44.1 \pm 12.8$  (p=0.032). Increasing age and low Ejection fraction were found to be significantly associated with the use of TEPW in post-operative period of isolated CABG patients.

**Conclusion:** Routine use of TEPWs in the post-operative period of isolated CABG should be limited and only preferred in patients with a dire need, such as patients with increased age or a

low EF, since its use is likely to increase by 9% and 5% with each increase in age year and each decrease of EF respectively.

**Keywords:** Temporary epicardial pacing wires, low ejection fraction, isolated CABG

## 2.197

### **COMPARISON OF OUTCOME OF CARDIOPULMONARY RESUSCITATION IN COVID POSITIVE VERSUS COVID NEGATIVE PATIENTS; A TERTIARY CARE HOSPITAL EXPERIENCE FROM PAKISTAN**

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**Background:** Covid-19 has widely affected the hospital dynamics throughout the world including CPR processes. In hospital cardiac arrest, is associated with high mortality. The impact of Covid-19 on outcomes of IHCA remains unclear.

**Study Design and Method:** We therefore conducted a retrospective cohort study to compare the characteristics and outcome of CPR in Covid positive V/s Covid negative patients, at our institute from March '2020-Oct '2020. Data was retrieved from review of medical record of all cardiac arrest patients. Taking Covid-19 as the exposure variable, our sample population was divided into two cohorts.

**Results:** Eighty patients who underwent cardiac arrest were included in our study ;40 in each cohort. The mean age was 61 in the positive group and 65 in the negative group. There was no gender difference in covid positive group (50% of each) but male population was higher in negative group. (77%). The most frequent comorbidities were same (Diabetes, hypertension and ischaemic heart disease) in both groups. All of the patients had ARDS in Covid positive group while septic shock was commonest diagnosis (48.9%) in negative group.

In covid positive group, 74% of patients were in high dependency unit (HDU) at the time of cardiac arrest and 26% were in ICU. In negative group, 94% of patients were in HDU and 6% in ICU. The initial rhythm was Pulseless electrical activity (PEA) in 52% of the covid positive group and all of the patients (100%) in Covid negative group. The shockable rhythm was observed in 8% of covid positive patients while asystole was observed in remaining patients. The median duration of CPR was nearly same in both groups (15 minutes in positive patients and 17 minutes in negative patients). Although return of spontaneous circulation (ROSC) was achieved in 14% of patients in covid positive, none of them survived to discharge. ROSC was achieved in 30% of patients in negative group while survival to discharge was 15%, in this group. The odds ratio for mortality in COVID-19-positive cases, compared with COVID-19-negative cases, was 6.88 [95% confidence interval (CI) 0.789-60].

**Conclusion:** Covid-19 infection is associated with poor outcomes in IHCA compared to non-covid illnesses.

**Keywords:** covid-19, cardiac arrest, outcomes, comparison

## 2.198

### **PREDISPOSITION OF SOD1, GPX1, CAT LOCI VARIANTS AND THEIR LINKAGE OF HAPLOTYPES IN CATARACTOGENESIS OF TYPE 2 DIABETES MELLITUS**

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**Background:** Cataract is one of the major causes of blindness throughout the world. In diabetes mellitus, high oxidative stress in turn accelerated

the formation of cataract. Primary antioxidant enzymes SOD1, GPX1 and CAT play a significant role in the dissociation of reactive oxygen species inside the lens to resist the oxidative stress. Thus, aim of this study was to examine the role of SOD1 50 bp Indel, CAT -262 C/T and GPX1 C/T variants with modulation of their differential expression in the pathogenesis of diabetic cataract.

**Study Design and Method:** It was a case control study. Blood samples of n=680 patients were collected after taken informed consent in four study groups (n=170 each). Genotyping of SOD1 50 bp Indel, CAT -262 C/T and GPX1 C/T variants was performed by allele specific PCR. Estimations of SOD1, CAT and GPX1 enzymes level were carried out by sandwich ELISA. Cataract lenses of diabetic and senile subjects were recruited for expressional analysis via Western Blotting. Data was analyzed using statistical and bioinformatics' software.

**Results:** Results indicated the significant role of mutant allele of GPX1 C/T variant to the susceptibility of cataract in diabetes ( $p < 0.001$ ). SOD1 and CAT variants showed no association with ageing of lens. Linkage disequilibrium analysis revealed the co-inheritance of haplotypic markers 7 and 8 in cataract patients with diabetes ( $D' = 1$ ,  $LOD = 2.45$ ). Serum level of three enzymes was significantly reduced in DC group ( $p < 0.001$ ). Expression of GPX1 enzyme was -2.7 fold diminish in diabetic cataract lenses as compared to senile cataract.

**Conclusion:** Findings suggested the predisposing role of GPX1 C/T genetic variant in reducing the expression of GPX1 enzyme which may be associated with augmented progression of cataract in diabetes. Therefore, it could serve as a potential antioxidant biomarker to develop strategies against the onset of cataract in diabetic patients.

**Keywords:** Cataract, diabetes, genetic variants, antioxidant, linkage disequilibrium

2.199

### **PREVALANCE OF VITAMIN D DEFICIENCY IN PATIENTS WITH UVEITIS PRESENTED AT TERTIARY CARE HOSPITAL**

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**Background:** Various studies have reported association between Hypovitaminosis D with non infectious uveitis. We aim to determine prevalence of hypovitaminosis in infectious uveitis, particularly in patients with Tuberculous associated uveitis (TBU), that is highly prevalent in our region.

**Study Design and Method:** We retrospectively reviewed laboratory and medical record of 120 patients presented at the ophthalmology clinic. we analysed associated of IGRA and vitamin D subgroups based on serum vitamin D levels.

**Results:** We found that 26 out of those who were IGRA negative and 18 of those tested IGRA positive had deficient levels of vitamin D. However, the correlation was not statistically significant between the deficiency of vitamin D and IGRA with P-value of 0.272.

Collectively, a significant deficiency of vitamin D levels was seen amongst both IGRA positive and IGRA negative patients (45; 69.84%). On statistical analysis, this co-relation was found to be not statistically significant. We also analysed the frequency vitamin D deficiency amongst both genders and found that hypovitaminosis D (both vitamin D deficient and insufficient) was present in 68.75% of females and 93.54% of males showing statistically significant difference in both genders with P-value of 0.046

**Conclusion:** Hypovitaminosis D was found to be prevalent amongst patients with infectious uveitis.



**Keywords:** Interferon gamma release assay ,  
Uveitis, Hypovitaminosis D, Vitamin D  
deficiency

## 2.200

### **MANAGEMENT OF ETT AIR LEAK- A SIMPLE YET EFFECTIVE MANEUVER**

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University*

**Background:** We present a case 45 year old  
male, presented after road traffic accident.

Patient was received in ER and managed as per  
the advanced trauma life support guidelines. His  
GCS on presentation was E4V5M6

His trauma workup was done. Radiology  
revealed anterolateral atlanto-axial dislocation,  
splenic laceration, right pelvis open book  
fracture, extra peritoneal bladder rupture and  
fractures of the transverse processes of multiple  
lumbar vertebrae and right humerus.

General Surgery, Orthopedic Surgery,  
Neurosurgery and Urology teams were consulted  
and patient was shifted to intensive care unit.  
Cervical traction was applied and cervical  
fixation was planned. Patient was intubated in  
operating room with endotracheal tube size 8mm  
( Medtronic). During intubation in line  
stabilization was done and video laryngoscope  
was utilized for minimal cervical manipulation.  
His surgery lasted for 7 hours. Postoperatively,  
he was shifted in ICU intubated. On presentation  
he was on norepinephrine infusion  
0.08mics/kg/min. He was kept on mechanical  
ventilation on assist/ control mode. He had a  
central venous catheter on right internal jugular  
vein and an arterial line on right radial. At 1:00  
am, the assigned staff was changing the dressing  
of his central venous catheter. However, by  
mistake he cut the endotracheal tube pilot line.  
Due to pilot line damage, endotracheal cuff was  
deflated and there was a significant airleak. The  
patient dropped his tidal volume which resulted  
in tachypnea and tachycardia. Rush call was

generated. Fraction of inspired oxygen as  
increased to 100% and a mapelson C circuit was  
opened for ventilation. Due to pilot line damage  
that endotracheal tube was ineffective. Thus, a  
plan for reintubation with a new endotracheal  
tube was made. However, due to background of  
cervical spine damage and minimal  
manipulation of cervical spine, anaesthesia was  
called for the intubation. Anaesthesia team was  
on the way but the patient was getting hypoxic.  
To combat that issue we used a 20 G IV cannula,  
inserted it's needle in the pilot line of damaged  
endotracheal tube, slid the catheter in the pilot  
line and attached a 10 CC syringe on the  
cannula. With the 10 CC syringe we inflated the  
endotracheal tube cuff and the plunger of  
syringe was tapped to prevent backward flow of  
plunger.

Eventually, due to absence of leak, his vital  
volume improved and there was also  
normalization of heart rate and SpO<sub>2</sub>.

Later on, anaesthesia arrived. As, his  
endotracheal tube was managed with this  
maneuver, thus the management of airway via a  
new endotracheal tube was no longer an  
emergency. Thus, later his endotracheal tube  
was changed electively under a controlled  
environment.

We encountered an emergency due to damage of  
pilot line of endotracheal tube. This was  
managed effectively at that time with utilization  
of simple maneuver. There have been several  
previous studies describing pilot balloon repair  
in both adult and pediatric populations. Each  
study describes a unique method of tracheal tube  
repair. Kovatsis et al<sup>7</sup> described 3 methods of  
pilot balloon repair employed in the context of  
pediatric tracheal tube placement through  
supraglottic airways. One method for repair  
involved an epidural clamp connector. Other  
methods were described involving IV catheters  
connected to a Luer Lock valve port adapter.  
Singh et al<sup>8</sup> described similar methods,  
including use of a Luer Lock as well as a triple  
stopcock valve to replace the pilot balloon.

**Study Design and Method:** Case Report

**Results:** NA

**Conclusion:** In order to prevent such events most important is staff education. Staff should be educated regarding safe usage of scissors and sharps on bedside of the patient. Moreover, the maneuver we used was although simple yet really effective in the mentioned emergency situation. We recommend that the staff who are assigned with patient care with endotracheal tube and tracheostomy tube should be educated about this maneuver. Although this is not a permanent situation yet it can help to manage the patient in emergency and buy some time until definite airway is changed

**Keywords:** endotracheal tube, intubation, cuff leak

## 2.201

### **CLINICAL OUTCOMES OF IMMUNOMODULATORY THERAPIES IN THE MANAGEMENT OF COVID-19: A TERTIARY-CARE EXPERIENCE FROM PAKISTAN**

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**Background:** The pharmacological management of COVID-19 has evolved significantly and various immunomodulatory agents have been repurposed. However, the clinical efficacy has been variable and a search for cure for COVID-19 continues.

**Study Design and Method:** A retrospective cohort study was conducted on 916 patients hospitalized with PCR-confirmed COVID-19 between February 2020 and October 2020 at a tertiary care academic medical center in Karachi, Pakistan.

**Results:** The median age was 57 years (IQR 46-66 years). The most common medications administered were Methylprednisolone (65.83%), Azithromycin (50.66%), and Dexamethasone (46.6%). Majority of the patients (70%) had at least two or more medications used in combination and the most frequent combination was methylprednisolone with azithromycin. Overall in-hospital mortality was 13.65% of patients. Mortality was found to be independently associated with age greater than or equal to 60 years (OR= 4.98; 95% CI: 2.78-8.91), critical illness on admission (OR = 13.75; 95% CI: 7.27-25.99), use of hydrocortisone (OR = 12.56; 95% CI: 6.93-22.7), Ferritin $\geq$ 1500 (OR=2.07; 95% CI: 1.18-3.62), Creatinine (OR= 2.33; 95% CI: 1.31-4.14) and D-Dimer $\geq$ 1.5 (OR =2.27; 95% CI: 1.26-4.07). None of the medications whether used as monotherapy or in combination were found to have a mortality benefit.

**Conclusion:** Our study highlights the desperate need for an effective drug for the management of critical COVID-19 which necessitates usage of multiple drug combinations in patients particularly Azithromycin which has long term implications for antibiotic resistance particularly in low-middle income countries.

**Keywords:** Covid-19, Immunomodulatory therapies, clinical outcomes

## 2.202

### **EFFECTIVENESS OF INACTIVATED COVID19 VACCINES IN INPATIENT POPULATION AT A TERTIARY CARE HOSPITAL IN PAKISTAN**

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**Background:** In the unprecedented COVID-19 pandemic, the rollout of vaccines was done to improve immunity against SARS-CoV-2. However, the effectiveness of the vaccine has

not been studied in Pakistan in terms of reducing disease severity in hospitalized patients. With the implementation of nation-wide vaccination programs in Pakistan, it is necessary to assess whether inactivated vaccines being administered to the general public have been efficacious in reducing mortality and improving overall outcomes in COVID positive patients.

**Study Design and Method:** This is a case control study in AKUH's COVID-positive inpatient population admitted between May till September 2021 to observe the association between vaccination status and clinical outcome (alive or dead) as well as classic markers of disease severity (age, comorbidities, length of hospital stay, maximum oxygen requirement)

**Results:** Out of 1124 patients, 614 (54.7%) are males and 509 (45.3%) are females with median age of 58 years. Majority of the patients are unvaccinated (n=504, 45.9%), while some are partially vaccinated (n=88, 8%), fully vaccinated (n=265, 24.1%) or have unknown vaccine status (n=242, 22%). In the 882 patients in whom vaccine status could be ascertained, 383 patients were admitted on high flow O<sub>2</sub> (with cut-off taken as 5L/min) of which majority were unvaccinated (n=181, 47.2%) while some were fully vaccinated (n=88, 21.6%). Of the 289 patients admitted on low flow oxygen, 131 (45.3%) were unvaccinated and 93 (32.1%) were fully vaccinated. Overall, 144 patients died of which 69 (48%) were unvaccinated and 31 (21.5%) were fully vaccinated

**Conclusion:** Inactivated vaccines have significant implications on outcomes such as oxygen requirement and mortality in in-patients and further evaluation is needed to determine effectiveness at reducing clinical COVID19 severity and improvement in outcomes

**Keywords:** COVID19, Vaccine

## 2.203

### **METHYLPREDNISOLONE VERSUS DEXAMETHASONE FOR TREATMENT OF SEVERE OR CRITICAL COVID-19: A QUASI-EXPERIMENTAL OPEN LABEL STUDY (MD TREAT)**

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**Background:** WHO declared COVID-19 as a pandemic on 11th March 2020. It has emerged as a pandemic public health menace and emerging public health risk. Researchers are currently looking for an effective treatment against Covid-19; however, rapid geographic distribution, proposed clinical presentation, absence of a vaccine and specific diagnostic tests are presumable challenges to combat this pandemic. In this emerging public health issues and due to absence of known efficient therapy many different drugs that are under trial as a treatment for COVID-19 infection. Steroids are also being used as an important part of the treatment in moderate to severe disease as it is associated with symptom resolution and early recovery.

**Study Design and Method:** We conducted a retrospective quasi-experimental, open label, non-randomized cohort study to determine whether intravenous or oral dexamethasone reduces mortality compared with intravenous methylprednisolone in patients with severe or critical COVID-19. The study was conducted on all patients aged 18 and over admitted at a 700-bedded academic medical center.

**Results:** There were a total of 706 participants of people suffering from moderate to severe COVID-19 of which there were 477 male and 229 female participants

In the group that was administered Dexamethasone, 187 recovered and there were 11 deaths (OR = 1.0) In the methylprednisolone

group 385 recovered and there were 72 deaths (OR = 3.17, CI = 1.64-6.13) reported with a p-value of 0.001.

Our results showed that patients on Methylprednisolone had poorer outcomes. Patients on greater than 3 drugs, with Creatinine greater than 1.5 or Ferritin greater than 1500 had higher mortality rates and it was clinically significant.

**Conclusion:** We conclude that use of methylprednisolone was associated with higher mortality compared to dexamethasone in COVID-19

**Keywords:** steroids, COVID-19, dexamethasone

## 2.204

### ***I-N HOSPITAL MORTALITY IN SEPTIC SHOCK PATIENTS, A COMPARISON BETWEEN EARLY AND LATE ADMINISTRATION OF ANTIBIOTICS, A PROSPECTIVE COHORT STUDY***

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**Background:** Septic shock remains a major cause of morbidity and mortality, in hospitalised patients, throughout the world. Improved outcomes were observed, with the implementation of a structured resuscitation, focusing largely on intravenous (IV) fluid resuscitation, timely broad-spectrum antibiotics, and vasopressor therapy. The association of the time to antibiotic administration on outcomes has produced disparate results

**Study Design and Method:** Study design:

Prospective cohort study

**Results:** In our study, 76 patients, of septic shock, were included. The median time to antibiotic administration was 2 hours, from recognition of septic shock. Early antibiotics group comprised of 55 patients and late

antibiotic group has 21 patients. Antibiotics were administered within 1 hour, of recognition of shock, in 42% of our patient population. Between 2-6 hours, further 32% of our patient population, received antibiotics, thus majority of our patient population (72.36%), received antibiotics within first 6 hours of septic shock. 26% of the patients, received their antibiotic, after 6 hours. The mortality rate of early antibiotic administration was 23.06% while that of late administration was 19.04%. The highest mortality was observed in the patients receiving antibiotic within first hour of shock recognition. (31.25%). Majority of these patients (65.62%) have ApacheII score of 25, or above. Adjusted survival analysis showed that, being treated with early antibiotics, reduces the hazard of death by a factor of 0.089 or 91%, keeping Apache score, baseline resuscitation fluid, age, gender, immunosuppression and steroids use constant {p- value=0.009, CI (-4.23-0.59)}

Compliance rate for timely antibiotic administration, was the highest of all component of septic shock resuscitation protocol, at our institute, though mortality benefit were lower than that of fluid administration in our study.

**Conclusion:** Early administration of antibiotics is associated with reduction in hazard of death, although it seems that in unadjusted analysis, time to first antibiotic, doesn't show association with mortality. Administration of timely antibiotic had the best compliance among all components of septic shock protocol. Fluid administration in our study, appear superior, to time of antibiotic administration. The adherence though is completely different for both component and therefore is biased

**Keywords:** antibiotics mortality time

## 2.205

### **LONG-TERM CLINICAL OUTCOMES AND RISK FACTORS FOR MORTALITY AMONG PAKISTANI PATIENTS WITH SLE**

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**Background:** Systemic Lupus Erythematosus is a chronic, multi-systemic autoimmune disease. Outcomes are distinct in different ethnic groups and emerging data from developing countries highlight the need for more data to better understand clinical phenotype and outcomes. We describe clinical presentation, Disease activity, and risk factors for mortality among SLE patients presenting to our hospital.

**Study Design and Method:** Demographic, clinical and laboratory data were collected and analyzed on patients with SLE who attended the Aga Khan university Hospital, Karachi from 2012 till 2019. Demographical data included age, gender, ethnicity, disease duration and socioeconomic status. SLE disease activity was assessed with the Systemic Lupus Erythematosus Disease Activity Index (SLEDAI) and Safety of Estrogens in Lupus National Assessment (SELENA) modification and physician global assessment (PGA). Univariate and multivariate analyses were done to assess factors associated with mortality.

**Results:** Two hundred and thirty two patients (185 female) were included, whose mean age was  $35.3 \pm 14.7$  years and mean disease duration  $8 \pm 2$  years. Systemic fever was common in 86 (53.4%) of the patients, followed by mucocutaneous, musculoskeletal and renal involvement manifested as follows: oral ulcers 57 (35.4%), alopecia 52 (32.3%), arthritis 57 (35.4%), proteinuria 69 (43%), hematuria 43 (26.7%), renal insufficiency 35 (21.7%) and requiring hemodialysis 21 (13%). In the multivariate analysis, we identified that independent risk factors for mortality included

high SLEDAI composite score OR 1.09 (95% CI 1.04-1.14)  $p < 0.001$ , serositis OR 11.17 (95% CI 3.05-40.08)  $p < 0.001$ , lupus nephritis OR 7.1 (95% CI 2.28-21.1)  $p = 0.001$ , high score on physician global assessment (PGA) OR 5.03 (1.32-19.06)  $p = 0.017$ , and lupus myocarditis OR 10 (95% 1.07-92.2)  $p = 0.04$ .

**Conclusion:** Like other published studies from Indo-Asian region, there was predominant mucocutaneous, musculoskeletal and renal involvement. High SLEDAI score, lupus nephritis, lupus myocarditis, serositis and moderate to severe disease on PGA were independently associated with mortality.

**Keywords:** Systemic Lupus Erythematosus, Disease activity, SLEDAI

## 2.206

### **DISTRIBUTION OF DAPTOMYCIN MINIMUM INHIBITORY CONCENTRATIONS AMONG STAPHYLOCOCCUS AUREUS CLINICAL ISOLATES.**

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**Background:** Daptomycin, a lipopeptide antibiotic, active against various gram-positive bacteria, has been approved for treatment of skin and soft-tissue infections, bacteraemia and infective endocarditis caused by *Staphylococcus aureus*. Owing to the increase in MICs and toxicity associated with the use of vancomycin alternative agents are needed for the treatment of *Staphylococcus aureus* infections. Current guidelines of British Society for Antimicrobial Chemotherapy (BSAC) recommend daptomycin therapy as an alternative in patients with native and prosthetic valve endocarditis who are intolerant of vancomycin or with vancomycin-resistant *Staphylococcal* infections. Furthermore, daptomycin has also been recommended by the Infectious Diseases Society of America (IDSA), as an agent for empirical therapy for

Staphylococcal and Streptococcal skin and soft tissue infections. Having the past data suggesting the increasing role of daptomycin in treating Staphylococcus aureus infections, we explore the distribution of daptomycin MIC's in various Staphylococcus aureus clinical isolates.

**Study Design and Method:** Through consecutive (non-probability) sampling method we collected a total of 169 clinical isolates of Staphylococcus aureus, including pus, tissue and blood specimens, received in the Section of Microbiology, Department of Pathology of Aga Khan University Hospital from May, 2020 to October, 2020. Minimum inhibitory concentration (MIC) for Daptomycin (Sigma-Aldrich, Merk KGaA, Darmsadt, Germany) was determined via Broth microdilution methods for each of the isolates and the quality of the results was assessed by processing Staphylococcus aureus ATCC strain 29213 along with the isolates. Daptomycin MIC equal to or greater than 1.0 mcg/ml was considered sensitive and above 1.0 mcg/ml as resistant, according to the Clinical and Laboratory Standards Institute guidelines, 2021.

**Results:** Of the 169 isolates tested, 85.2 % represented skin & soft tissue infections (n=144) and 14.8% (n=25) represented cases of bacteraemia. 87.5 (n=126) of the SSTI isolates were pus samples from cutaneous and subcutaneous abscess while 12.5% (n=18) were tissue samples from non-healing and necrotic wounds. Daptomycin MIC for the ATCC strain 29213 was within range [0.25 mcg/ml (0.12 – 1.0 mcg/ml as per CLSI standard)]. All the isolates tested were found to be sensitive for Daptomycin with MICs between the range 0.006 – 0.5 mcg/ml [89.3 % (n=151) of the isolates had an MIC of 0.25 mcg/ml, 5.3% (n=9) had an MIC of 0.5 mcg/ml, 3.6% (n=6) had an MIC of 0.12 mcg/ml and 1.8% (n=3) had MIC of 0.006 mcg/ml].

**Conclusion:** Our study findings demonstrated low in-vitro MICs for Daptomycin in 100% of the tested isolates from a diverse variety of

patient specimens. Keeping in view, the safety profile of daptomycin and the favourable results of our study, Daptomycin seems to be a promising alternative in treating cases of SSTIs and Bacteraemia.

**Keywords:** Daptomycin; Staphylococcus aureus; Bacteremia; Skin & soft tissue infections

## 2.207

### **VALIDATING THE PEDIATRIC APPENDICITIS SCORE (PAS) AS A TOOL FOR DETERMINING THE CLINICAL OUTCOME OF PEDIATRIC PATIENTS WITH SUSPECTED ACUTE APPENDICITIS IN PEDIATRIC EMERGENCY DEPARTMENT OF A LOW TO MIDDLE INCOME COUNTRY**

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**Background:** Background: Appendicitis is commonly encountered in children presenting with acute abdominal pain to the Emergency Department (ED). The Pediatric Appendicitis Score (PAS) is a readily applicable tool that can reduce unnecessary radiation exposure in children in resource limited ED.

**Study Design and Method:** Methods: This validation study was through retrospective chart review of children between 4-18 years of age with clinical suspicion of acute appendicitis, presenting to the pediatric ED. Diagnostic accuracy was determined through a combination of sensitivity, specificity, predictive values, and area under the curve (AUC).

**Results:** Results: A total of 104 children with mean age 10.9 years (Standard Deviation (SD)  $\pm$  3.5 years), of whom 76% were male, met eligibility criteria. Around  $\frac{3}{4}$  of the patients initially presented with right lower quadrant (RLQ) abdominal pain. The majority of patients had moderate to high PAS (n=95, 91 %, score of

$\geq 4$ ) and biopsy-proven appendicitis (n=99, 95%). The likelihood ratio calculated for low, equivocal and high risk PAS was 0.10, 2.17 and 2.53 respectively. Diagnostic accuracy of an equivocal PAS (score 4-6) in predicting acute appendicitis in our patients showed sensitivity of 96.8%, specificity 80%, positive predictive value 98.9% and AUC 0.84.

**Conclusion:** Conclusion: The PAS showed good diagnostic accuracy in predicting acute appendicitis in children presenting to the ED of an LMIC.

**Keywords:** Keywords: PAS, Acute Appendicitis, Emergency department (ED), Low Middle Income Country

## 2.208

### **MEDICATION RELATED CRITICAL INCIDENTS IN PAEDIATRIC ANAESTHESIA; A FIFTEEN YEAR REVIEW IN A TERTIARY CARE CENTRE**

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**Background:** A critical Incident (CI) is defined as an incident that can potentially be harmful or is harmful to a patient during anesthetic management. Its value is well established in learning from mistakes and thus improving patient safety and systems. Our objective was to analyze the medication errors in paediatric population reported in our critical incident reporting system (CIRS) database over the last 15 years (2004-2018) and to review measures taken for improvement based on the reported errors.

**Study Design and Method:** A retrospective review of the critical incident record in the department was conducted from January 2004 until December 2018. Medication errors in patients below 18 years were identified and entered on a data extraction form which included surgical specialty, ASA status, time of incident, phase and type of anaesthesia and drug handling,

type of error, class of medicine, level of harm, severity of adverse drug event (ADE) and steps taken for improvement.

**Results:** A total 165 medication errors were reported in the paediatric population during this period. Human error (86.5%) was followed by system error (9%), equipment failure (2%) and no error (2.5%). In 13% reports errors lead to adverse events with 9% significant and 4% serious outcomes. Standardization in terms of syringe sizes and labelling were the main stepwise improvement done in the system.

**Conclusion:** CI related to medication is a practical low cost tool that can be used for evaluation and improvement in the system.

**Keywords:** Paediatric, Anaesthesia, Critical Incident, Quality improvement, adverse events

## 2.209

### **Clinical Presentation of Celiac Disease in Adults at a Tertiary Care Hospital in a Developing Country**

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**Background:** Celiac Disease is a disorder that impacts physical, social and emotional health. Requiring life-long management, it poses a major economic burden on the healthcare system. Our objective was to study celiac disease in patients from initial presentation to diagnosis and to ascertain the effect of a gluten free diet on improvement in disease process and symptoms in a low resource setting.

**Study Design and Method:** This was a retrospective cross-sectional study conducted at a tertiary care referral centre in Karachi, Pakistan. Medical records of patients ( $\geq 18$  years) from 2008 to 2018 with a diagnosis of celiac disease were reviewed. Data on

demographics, presenting complaints, investigations, endoscopy results and follow up visits was collected.

**Results:** 126 patients were included (61.6% females, mean age 35.5 years). The most common intestinal and extra-intestinal symptoms were abdominal pain (56.3%) and fatigue (24.6%) respectively. After microcytic anemia (36.5%), increased ALT (27.2%) was the most common laboratory derangement. Atrophic mucosa (29.4%) was commonly reported on endoscopy, and biopsy findings showed increased intraepithelial lymphocytes (92.9%) and villous atrophy (77.8%). 42.0% subjects reported improvement on a gluten free diet in at least one of three parameters: symptoms, laboratory values or esophagogastroduodenoscopy on a gluten free diet. 48.4% subjects did not have complete follow-up.

**Conclusion:** The most commonly reported symptoms by celiac disease patients were abdominal pain, diarrhea and fatigue. Thus, patients presenting with vague abdominal symptoms and anemia should be investigated for celiac disease. A concerning majority of subjects was lost to follow up, reflecting a poor understanding of the disease process.

**Keywords:** Celiac Disease, Diet, Gluten-Free, Autoimmune Diseases

## 2.210

### **FREQUENCY AND FACTORS LEADING TO POSTPARTUM DEPRESSION IN FATHERS VISITING A TERTIARY CARE HOSPITAL IN KARACHI, PAKISTAN**

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**Background:** Postpartum depression can result in devastating effects for the parents and family. Postpartum depression has historically been associated primarily with mothers. Recently,

there is an increasing interest about depression in fathers. Paternal depression is a neglected area in Pakistan, where socio-demographic factors are very different. The aim of my study was to determine the frequency of paternal post-partum depression and factors leading to depression in fathers in post-partum period.

**Study Design and Method:** A cross-sectional study was conducted from November 2018 to October 2019. Data was prospectively collected from patients after taking a verbal consent. 232 patients who met the diagnostic criteria were included. Depression was assessed in both the parents during 0-12 months after child birth using a validated tool i.e. Edinburgh Postnatal Depression Scale. Risk factors were also ascertained. Quantitative data was presented as simple descriptive statistics giving mean and standard deviation and qualitative variables was presented as frequency and percentages. Effect modifiers were controlled through stratification to see the effect of these on the outcome variable. Post stratification chi square test was applied taking p-value of  $\leq 0.05$  as significant.

**Results:** A total of 232 parents visiting outpatient clinics were included in this study. Out of 232 parents, 54 (23.2%) fathers had postpartum depression. Frequency distribution of factors related to postpartum depression showed maternal depression 48.3%, low socioeconomic status 24.1%, low educational status 4.7%, more than one child 48.3%, unintended pregnancy 27.2% and pre-existing illness 8.6%.

**Conclusion:** Postpartum depression is an under-recognized yet important clinical problem. Through this study, we were able to trace significant presence of paternal depression after childbirth. If overlooked, postpartum depression can lead to adverse child development outcomes. There is an ever-increasing need for physicians to address and treat patients with paternal and maternal postpartum depression.

**Keywords:** Postpartum depression, maternal depression, family system, educational level,



financial status, pre-existing illness, number of children, last pregnancy

### 2.211

#### **EXPLORING THE EDUCATIONAL AND PSYCHOSOCIAL SUPPORT FOR FAMILIES AND PATIENTS WITH NEWLY DIAGNOSED PEDIATRIC CANCERS**

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**Background:** The pediatric cancer cases diagnosed each year is increasing at a rapid rate. With high health risks and infant mortality associated to pediatric cancer, it is crucial to recognize educational and psychosocial support among patients and caregivers to alleviate care burden. To provide them with intensive supportive care in the initial phase and equipping them to deliver specialized treatment is valuable to the child health

**Study Design and Method:** a qualitative and exploratory study was conducted at a Private-Tertiary Care Hospital in Karachi. Through purposive sampling, participants (N=10) were selected to conduct in-depth interviews. The data was analyzed via Qualitative content analysis method manual using NVIVO 11 software. The data was analyzed via Qualitative content analysis method manual using NVIVO 11 software. The themes were constructed from the categories emerged from the data codes

**Results:** The result signifies four themes that indicate severe mental distress among family and children with newly diagnosed pediatric cancers substantially require mental health professionals for emotional strength, there is utmost necessity of a multidisciplinary team to increase their health literacy, inadequate educational support due to limited access to resources, and insufficient psychosocial support

system with healthcare setting. The findings also highlight that child's level of understanding of diseases, language barrier, and financial crisis also impede support provision.

**Conclusion:** The initial phase of childhood cancer demands appropriate individualized educational psychosocial interventions, psychological assistance to improve coping responses, and increased exposure of social support groups in assisting patients and families. Formulating new policies, need-focused services, psychoeducation, and future research are discussed.

**Keywords:** Pediatric cancer, caregiver, education, psychosocial, supportive care, healthcare, children, Pakistan

### 2.212

#### **PERCEPTION OF INITIAL MALOCCLUSION AND ITS CORRELATION WITH PAIN LEVELS EXPERIENCED BY YOUNG ORTHODONTIC PATIENTS – A SINGLE ARM LONGITUDINAL STUDY**

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**Background:** Pain is an undesired sequela of orthodontic treatment that acts as a deterrent for most young patients. A patient's perception of their malocclusion and orthodontic treatment can influence their reaction to treatment such as the mean pain levels they experience after initiation of treatment.

**Study Design and Method:** A single arm longitudinal study was conducted at a tertiary care hospital that included 26 pre-treatment patients between the ages of 13-18 years. A questionnaire was administered to evaluate perception of their malocclusion before treatment initiation. Visual analogue scale (VAS) logs were given to measure pain over the following 7 days after orthodontic appliances were placed. Repeated measures ANOVA was

used to analyze any differences between pain scores at the time points and linear regression analysis with generalized estimating equations was performed to see if any relationship existed between mean pain scores and the patient's perception.

**Results:** Statistically significant differences were seen between mean pain scores at all-time points studied with the highest mean pain scores reported on the day of procedure at bedtime. Regression analysis showed a relationship between pain and a patient's perception of crookedness ( $\beta = -25.58$ , 95% CI = -40.142, -11.033) and their willingness to recommend orthodontic treatment to family and friends ( $\beta = 29.53$ , 95% CI = 8.63, 50.43).

**Conclusion:** Pain after orthodontic treatment begins after installation of appliances, peaks at bedtime and decreases progressively over the next 7 days. Subjects who experienced less pain were more conscious of the reason why they needed orthodontic treatment.

**Keywords:** Orthodontic pain, Patient perception, Malocclusion

## 2.213

### **COMPARISON OF ANTI-MICROBIAL EFFICACY OF CALCIPEX AND METAPEX IN ENDODONTIC TREATMENT OF CHRONIC APICAL PERIODONTITIS- A RANDOMIZED CONTROLLED TRIAL**

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**Background:** Chronic apical periodontitis is difficult to treat due to the presence of resistant bacteria in inaccessible areas like lateral canals and dentinal tubules. Calcium hydroxide is the most widely used intracanal medicament in such cases. To compare the anti-microbial efficacy of calcipex and metapex in endodontic treatment of teeth diagnosed with chronic apical periodontitis in reducing the microbial load (CFU/ml).

**Study Design and Method:** A Randomized controlled trial was conducted at the dental clinics of Aga Khan University Hospital, Karachi, Pakistan from Aug 2019- March 2021. Sixty patients above the age of 16 with chronic apical periodontitis were part of the trial. Patients undergoing endodontic treatment were randomized into one of the two study groups Calcipex or Metapex. Microbial samples were obtained before intracanal medicament placement (S1) and after medicament removal on 7th day (S2). Microbial culture was done in lab and CFU/ml reported. Paired t-test was used to assess difference between antimicrobial effects within groups of medicaments. Independent sample t-test was used to assess antimicrobial effect between groups.

**Results:** There was no statistically significant difference between Calcipex and Metapex at pre-medicament (S1) in terms of mean Colony Forming Units/ml ( $p=0.98$ ). Similarly there was no statistically significant difference among the two, post medicament at S2. ( $p=0.30$ ). Intra-group comparison of bacterial count reduction in both the groups was statistically significant after the intervention. (Group A:  $p$  value=0.05, Group B:  $p$  value=0.02).

**Conclusion:** According to the results, both Calcipex and Metapex are equally effective in reducing the microbial load in cases of chronic apical periodontitis.

**Keywords:** Chronic apical periodontitis; calcium hydroxide; microbial count; bacterial culture; iodoform

## 2.214

### **EFFECT OF BONDED AND REMOVABLE RETAINERS ON OCCLUSAL SETTLING AFTER ORTHODONTIC TREATMENT: A SYSTEMATIC REVIEW AND META-ANALYSIS**

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**Background:** Retention is considered to be a vital part of orthodontic treatment and plays an essential role in the post treatment clinical success

**Study Design and Method:** We searched the Cochrane Library, CINAHL Plus, PubMed, Web of Science, Orthodontic journals, and Google scholar for eligible studies. We included randomized control trial (RCT) along with Cohort studies. Studies that reported occlusal contacts/areas during retention with fixed bonded and removable retainers Hawley retainers(HR) and Essix retainers (ER) were included. To assess the quality of the RCTs Cochrane risk of bias tool was utilized, whereas Newcastle-Ottawa Scale was used for assessing the quality of cohort studies.

**Results:** We included six articles in our systematic review after scrutinizing 219 articles and eliminating them based on duplication, titles and objectives. Bonded retainer (BR) allowed faster and better posterior occlusal settling as compared to Hawley retainer (HR). However, HR showed good occlusal settling in the anterior dental arch. Essix retainer showed a decrease in occlusal contact during the retention phase. Meta-analysis showed no statistically significant difference between BR and removable retainers.

**Conclusion:** HR allowed better overall occlusal settling as compared to other retainers in comparison. However, BR allowed faster settling in the posterior teeth region. Essix retainer showed poor settling of occlusion. Overall, there are insufficient high-quality RCTs to provide additional evidence, and further high-quality RCTs research is needed.

**Keywords:** Orthodontic Retainers, Occlusal contact, Hawley, Fixed, Vacuum-formed

## 2.215

### **FREQUENCY AND CAUSATIVE FACTORS OF GASTRO-ESOPHAGEAL REFLUX DISEASE AMONGST POST GRADUATE TRAINEES OF A TERTIARY CARE HOSPITAL**

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**Background:** Gastroesophageal reflux disease (GERD) has a common occurrence amongst the adult population. The disease significantly affects daily lifestyle and work efficiency. Little data is available to determine the prevalence of GERD amongst medical personnel and scarce amongst postgraduate trainees. We aimed this study to determine frequency and associated risk factors of GERD among postgraduate trainees (PGTs) of all disciplines working in a tertiary care Hospital.

**Study Design and Method:** A cross-Sectional study was conducted and an online survey was e-mailed to all post-graduate trainees at Aga Khan University Hospital during a period of October to December, 2020. GERD-Q questionnaire scoring was used for the diagnosis of GERD. Participants with GERD-Q score of  $\geq 8$  were considered to have GERD, while others who got a score of  $< 8$  were not considered as diseased. Stratification analysis was then performed to observe the effect modifiers of study variables.

**Results:** A total of 204 participants responded with a female pre-dominance (58.3%). The median age of our study participants was 29 years. Median GERD-Q score was 6.00, with 30.4% participants diagnosed as being suffering from GERD. Associated factors with GERD included BMI ( $p=0.015$ ), prior history of GERD ( $p<0.001$ ), exacerbation after residency ( $p<0.001$ ), Surgical specialty ( $p=0.049$ ), caffeine consumption ( $p=0.044$ ), stress ( $p<0.001$ ), altered food intake habits ( $p<0.001$ ), and lack of sleep ( $p=0.011$ ). On multivariable logistic regression, self-reported GERD, Surgical specialty, minimal use of tea/coffee products, skipping breakfast, altered food intake habits and less frequent physical exercise were independently associated factors with GERD in PGTs.

**Conclusion:** Prevalence of GERD in PGTs was found to be 30.4%. Prior history, Specialty, less

coffee consumption, being overweight, altered food intake habits, stress and lack of sleep were associated risk factors in PGTs.

**Keywords:** Gastroesophageal reflux disease; Postgraduate trainees, Frequency, Risk-factors

## 2.216

### **COMPARISON OF BRACKET BOND FAILURE WITH AEROSOL AND NOVEL NON-AEROSOL GENERATING BONDING TECHNIQUE DURING SARS-COV 2 PANDEMIC AMONG ORTHODONTIC PATIENTS: A RETROSPECTIVE COHORT STUDY**

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**Background:** As per CDC guidelines, dentists must avoid aerosol generating procedures during SAR-CoV 2 pandemic. This study aimed to compare the rate of bracket bond failure with aerosol and non-aerosol generating bonding techniques

**Study Design and Method:** A retrospective cohort study was conducted on a sample size of 44 patients (880 teeth), equally divided into two groups of conventional aerosol generating and non-aerosol generating bonding techniques during SARS-CoV 2 pandemic. The rate of bracket survival and total bracket breakages between both groups were assessed by survival regression analysis. The influence of pre-treatment factors such as ANB, FMA, overjet, overbite, upper and lower crowding were also assessed on the rate of bracket survival.

**Results:** There was a statistically significant difference between conventional aerosol (ABT) and non-aerosol generating bonding techniques (NABT). The mean bracket survival with ABT was  $176 \pm 77.89$  days and NABT was  $162 \pm 83.34$  days. NABT showed 2.65 hazard ratio of bracket survival as compared to conventional ABT. There was a significant ( $p = 0.02$ ) influence of overjet on the rate of bracket

survival. The posterior segment had a highly significant ( $p < 0.00$ ) increased rate of bracket survival as compared to the anterior segment in NABT. However, this difference was insignificant in ABT.

**Conclusion:** There was an increased rate of bracket failure with the non-aerosol generating bonding as compared to the conventional aerosol generating bonding technique. The rate of breakages in the anterior quadrant with non-aerosol generating bonding technique was comparable to aerosol generating bonding technique.

**Keywords:** Bracket bonding, SARS-CoV 2, Orthodontic treatment

## 2.218

### **UTILITY OF BIOMARKERS IN PREDICTING COMPLICATIONS AND IN HOSPITAL MORTALITY IN PATIENTS WITH COVID-19**

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**Background:** In this study, we aim to determine the association between the laboratory biomarkers (C-reactive protein (CRP), Ferritin, lactate dehydrogenase (LDH), Procalcitonin and D-dimer) with complications and in-hospital mortality in COVID-19 patients.

**Study Design and Method:** This single center, cross-sectional study was conducted at the Department of Emergency Medicine of Aga Khan University Hospital. Descriptive statistics were presented as Mean $\pm$ SD and Median along with Range. The frequencies and percentages were calculated for all categorical variables. Univariate and multivariate analysis was carried out to evaluate the significant association between the laboratory biomarkers and in-hospital mortality.

**Results:** A total of 310 adult COVID positive patients were included. The most common complication was acute respiratory distress syndrome (ARDS) (37.1%), followed by myocardial injury (MI) (10.7%), deep vein thrombosis (DVT) (0.6%) and pulmonary embolism (PE) (0.3%). In hospital mortality was 15.2%. All biomarkers were significantly elevated in patients who developed ARDS, whereas LDH and D-dimer were significantly elevated in patients who had myocardial infarction. In univariate analysis it was observed that increased values of all biomarkers were significantly associated with prediction of in-hospital mortality using binary logistic regression analysis (OR > 1.0, P <0.05). In multivariate analysis, increased levels of LDH and D-dimer at admission were significantly associated with increased odds of mortality (P <0.05).

**Conclusion:** Serum CRP, ferritin, Procalcitonin, LDH and D-dimer levels at the time of admission can predict complications like ARDS and MI and also predict mortality in COVID-19 infection. Serum LDH and D-dimer are the best amongst them for predicting mortality

**Keywords:** Biomarkers, Complications, Emergency Department

## 2.219

### **CHLORINE GAS HAZMAT INCIDENT IN KARACHI, PAKISTAN: A CLINICAL EXPERIENCE FROM AN EMERGENCY DEPARTMENT OF A TERTIARY CARE HOSPITAL.**

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**Background:** Chlorine gas is one of the most important industrial chemicals used in the production of thousands of products. In this study, we aimed to determine the clinical characteristics, management, and outcomes of patients who presented with manifestations from

a chlorine gas HAZMAT incident at the emergency department of a tertiary care center.

**Study Design and Method:** This single center case series was conducted in the emergency department of a tertiary care hospital of Karachi, Pakistan. Demographic and clinical data were recorded from the medical record files. Mean and standard deviation were calculated for normally distributed continuous variables whereas frequencies were calculated for categorical variables. A Chi-square test with a p-value <0.05 was applied to examine the association between the risk factors and complications.

**Results:** A total of 51 patients were included in the study. All patients were male and young-to-middle age with a mean age of 33.10 + 8.37 years. The most common organ systems affected in our patients were respiratory (96%), followed by eye (86.3%) and central nervous system (27.4%). Eye irritation (86.3%) followed by shortness of breath (84.3%), cough (70.5%), chest heaviness (43.1%) and drowsiness (17.6%) were the most commonly seen symptoms among patients. Most of them were admitted from the Emergency department (n= 36, 70%), of whom three developed toxic pneumonitis and one developed pneumomediastinum.

**Conclusion:** In this study, most of the patients showed complete resolution of symptoms after receiving supportive treatments. The development of complications was rare, and there was no mortality.

**Keywords:** Chlorine gas, HAZMAT incident, emergency department

## 2.220

### **UNILATERAL THYROID LOBECTOMY AS DAYCARE PROCEDURE: A CROSS SECTIONAL STUDY WITH LITERATURE REVIEW ON SAFETY AND COST EFFECTIVENESS**

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**Background:** Thyroid nodules are common globally in almost one fifth of adult population. The gold standard treatment for thyroid nodule is thyroid lobectomy or total thyroidectomy depending upon the diagnosis. Thyroidectomy has a few known complications but as per ATA consensus statement it is a safe surgery to be done as daycare procedure. We in our study want to access the feasibility and safety of thyroid lobectomy as day care surgery and its effect in decreasing over all financial burdens.

**Study Design and Method:** This retrospective chart review was done from 2006 to 2021. Total 624 patients underwent thyroid lobectomy among which only 32 were done as daycare surgery. Data analysis was done using SPSS Version 23.

**Results:** 34% of population was male. Mean age of study population was 40 years. Bethesda II was the most encountered diagnosis with percentage of 59. Majority of patients were discharged after 6 hours of post-operative observation. The only complication encountered was seroma which was seen in a single patient.

**Conclusion:** Thyroid lobectomy appears to be a safe procedure with drastic difference in overall cost as a day care procedure. We recommend switching of practice of inpatient thyroid lobectomy to daycare in carefully selected candidates.

**Keywords:** Thyroid lobectomy, Day care surgery, Safe surgery, ERAS, Cost effectiveness

## 2.221

### **MALIGNANCY RATE IN THYROID NODULES WITH ATYPIA OR FOLLICULAR LESION OF UNDETERMINED SIGNIFICANCE**

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**Background:** Atypia of undetermined significance (AUS) or follicular lesion of undetermined significance (FLUS) is one of the six diagnostic categories of the Bethesda System for Reporting Thyroid Cytopathology. Among its six categories, category III, or atypia of undetermined significance/follicular lesion of undetermined significance (AUS/FLUS) was introduced for cytological features that are neither definitively benign nor definitively neoplastic, and, as such, was meant to encompass a small number of lesions that were difficult to classify. The prevalence of malignancy among Bethesda category III cytology is variable, ranging from 5% to 37% in the literature. Our study focuses on the diagnostic distribution of Bethesda-III nodules in our institution, and we analyzed the outcomes of AUS/FLUS cases comparing them with reports in the literature

**Study Design and Method:** A total of 495 patients underwent surgical intervention for thyroid nodules from January 2015 to December 2017. The present study included 81 cases reported as Bethesda category III, and their medical records were reviewed

**Results:** Out of 495 fine-needle aspiration cytology samples, 81 (16.4%) samples were labeled as AUS/FLUS. Among these 81 patients, the mean age was 43.0 years ( $\pm 13.9$ ), with only 11 (14%) patients older than 55 years of age. Most of our patients were female (n=69;

85.2%), and the rest were male. The rate of malignancy based on the final histology was of 33.3% (n=27). The majority were 17 cases (21%) of papillary carcinoma, followed by follicular carcinoma (n=6) (7.4%

**Conclusion:** The risk of malignancy can be higher than it is commonly believed, and guidelines should be based on the data from the institutions themselves for a better assessment of the outcomes

**Keywords:** atypia of undetermined significance; thyroid nodule; Bethesda; fine-needle aspiration

2.222

### **THE EFFICACY OF BETHESDA SYSTEM FOR PREDICTION OF THYROID MALIGNANCIES- A 9 YEAR EXPERIENCE FROM A TERTIARY CENTER**

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**Background:** The best initial investigation for thyroid nodule is fine needle aspiration (FNA). Bethesda System is an international standardized system of reporting thyroid nodules and recommends subsequent management. Every institution should assess the risk of malignancy in each category to avoid unnecessary thyroid surgeries, with this aim we conducted a review at our center to calculate risk of malignancy in each category. A recent meta-analysis showed that even using ultrasound guidance during FNA, the diagnostic accuracy merits limited confidence due to bias, imprecision and inconsistency (12). Our study reports the malignancy risks in thyroid nodules as per Bethesda categorization by studying the incidence of malignancy in each category. We also compared the accuracy of FNA when done using ultrasound guidance versus direct FNA by palpation of nodule.

**Study Design and Method:** Retrospective 9-year (2009–2018) review of thyroid FNAs done at a tertiary care Centre. The FNA was stratified according to The Bethesda System.

Histopathology reports of the operated cases were used to evaluate the cytology for diagnostic accuracy.

**Results:** There were 495 patients who underwent thyroidectomy. The mean age of the cohort was 42.51 +/- 13.2 years and 387 (78.2%) were females. The frequency of Bethesda categories I, II, III, IV, V, and VI were 9.1%, 55.6%, 16.4%, 6.5%, 9.3%, and 3.2% respectively. Malignancy rate in operated thyroid nodules were 37.8%, 8.4%, 33.3%, 50.0%, 89.1%, and 100% for Bethesda categories I to VI, respectively. The sensitivity, specificity, negative predictive value and positive predictive value and their 95% CIs were calculated as 81.30 (73.28 – 87.76%), 77.06 (72.12 – 81.51%), 91.64 (88.3 – 94.1%) and 57.14 (51.79 – 62.33%). The overall diagnostic accuracy was 78.22 (74.12 – 81.95%).

**Conclusion:** All the Bethesda categories showed greater malignancy risks than other reported studies. Knowledge of local rates of malignancy is important to accurately predict the risk of malignancy even when reported with internationally accepted nomenclature like the Bethesda System

**Keywords:** Bethesda, Fine needle aspiration, Malignancy risk, Thyroid nodule

## 2.223

### **ROLE OF WRITTEN PRE-OPERATIVE EDUCATIONAL INTERVENTION IN REDUCING PARENTAL ANXIETY**

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**Background:** Approximately 47% of the parents of paediatric patients admitted for elective surgery exhibit anxiety. The reduction in anxiety is proportional to the information provided to the parents pre-operatively.

**Study Design and Method:** This was a randomized controlled, blinded trial. Parents of seventy-two pediatric patients aged between 3 to 8 years undergoing elective day care procedures, were enrolled. They were divided into an intervention (group I) and a non-intervention (group NI) group. Both groups received counselling in the clinic. Anxiety was measured at three points by Visual Analogue Scale (VAS); when the parents reached surgical day care, when they were in the pre-operative bay and finally in the Post Anaesthesia Care Unit (PACU). The parents in group I were provided with a standardized brochure after the first baseline reading.

**Results:** The baseline mean VAS score before the intervention was higher in Group I i.e., 6.69 (1.97 SD) compared to 5.69(1.45 SD) in Group NI which was statistically significant (p 0.017). In Group I the mean VAS score was significantly reduced after intervention with a mean VAS 4.08 (1.36 SD). This was also significantly different to Gp NI, mean VAS 6.08(1.66), p-value 0.0005. The mean VAS score in the PACU was reduced in both groups but didn't show a significant difference between the groups [Group I (2.00 (1.09) vs Gp NI 2.25(1.08); p 0.333].

**Conclusion:** Providing knowledge in the form of standardized written material to the parents on day of surgery before anaesthesia, helped in attenuating the pre-operative parental anxiety

**Keywords:** anxiety, visual analogue scale, preoperative care, patient education

## 2.224

### **SINGLE BALLOON ENTEROSCOPY – A TERTIARY CARE HOSPITAL EXPERIENCE.**

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**Background:** Single-Balloon Enteroscopy (SBE) allows ease of access for small bowel visualization and has multiple diagnostic and therapeutic indications. This study aims to investigate the indications, safety, and clinical yield of SBE and determine its effect on disease outcome.

**Study Design and Method:** A retrospective, descriptive study was conducted at a tertiary care hospital in Karachi, Pakistan. Medical records of all adult patients ( $\geq 18$  years) who underwent SBE between January 2010 and August 2021 were reviewed. Data on patient demographics, enteroscopy details, hospital course, and clinical outcomes was collected.

**Results:** 57 patients were included (54.4% male, mean age  $50.0 \pm 17.4$  years). Obscure gastrointestinal bleed (38.6%) was the most common indication for enteroscopy, followed by diarrhea (22.8%) and anemia (12.3%). A majority of procedures were performed as outpatient in the endoscopy suite (89.5%) under monitored anaesthesia care (94.7%). 86% of enteroscopies were performed up to the distal jejunum. The most common enteroscopy findings were inflammation and ulcerations (45.6%), followed by normal mucosa (31.6%) and vascular malformations (19.3%). Of the 29 biopsies taken, 23 showed non-specific inflammation (79.3%). Most procedures were diagnostic (89.5%), and were successfully completed without any complications (98.3%). Radiological interventions (10.5%) and surgical



interventions (14.0%) were performed during the enteroscopy. As a result of the enteroscopy findings, 73.2% of patients had a change in diagnosis and/or management.

**Conclusion:** SBE is a suitable modality and effective viable technique for investigating diseases in the small bowel. The most common indication for SBE was obscure gastrointestinal bleed, and the most common finding was inflammation and ulcerations. SBE is shown to be technically efficient, easy to perform and reasonably safe, and is associated with high diagnostic and therapeutic yield.

**Keywords:** Single-balloon enteroscopy, Enteroscopy, Small intestine, Obscure gastrointestinal bleed

## 2.241

### **THE IMPACT OF A PALLIATIVE CARE CONSULTATION IN AN OUT-PATIENT SETTING AT A TERTIARY CARE CENTRE IN PAKISTAN- AN INTERIM ANALYSIS**

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**Background:** Palliative care focuses on the relief and prevention of suffering for patients who have a serious or life-limiting condition with a goal to improve the quality of life of the patient and the family. We aimed to assess the impact of a palliative care consultation on symptom management for patients at a tertiary care center and to determine the symptom clusters as reported by the patients receiving the palliative care consultation

**Study Design and Method:** A Prospective observational study conducted in Palliative care out-patient clinics at Aga Khan University Hospital. A total of 51 out of 75 patients have been interviewed. Palliative performance scale was performed by doctor and patient symptoms

were assessed at the initial visit and 1 month follow-up visit using the Edmonton Symptom Assessment Scale (ESAS). Data analysis was conducted using IBM SPSS Statistics 21. Mean and standard deviation was calculated for continuous variables. Distribution of ESAS scores was assessed using the Shapiro-Wilk test. Wilcoxon Signed Rank Test was used to compare total ESAS score and symptoms score at baseline with follow-up. A p value of < 0.05 was considered significant

**Results:** Of 51 patients, 28(54.9%) were male and 23(45.1%) female with an average age of 58.0 ( $\pm$  17.9) years. All patients had a diagnosis of cancer and majority of the patients, 41(80%) had palliative performance scale of less than 70%. Most common symptoms reported were pain, tiredness and lack of appetite. Frequent pain sites were head, right upper quadrant, umbilical and back pain. The ESAS score reported after 1 month visit was 21 (13-28) as compared to the initial visit 26 (16-35) P < 0.001.

**Conclusion:** A palliative care out-patient consultation resulted in a decrease in total ESAS score, pain and depression and an improvement in appetite in patients.

**Keywords:** Palliative care out patient care, Edmonton Symptom Assessment System, Palliative performance scale

## 2.242

### **COMPLIANCE OF CHECKING HBA1C IN A TERTIARY CARE HOSPITAL OF PAKISTAN**

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**Background:** HbA1c value represents average blood glucose over past 2-3 months. A link between HbA1c and diabetic complications has been confirmed. The objective was to see compliance of checking HbA1c in tertiary care hospital of developing world.

**Study Design and Method:** This was retrospective observational study done from 1st February 2019 to 31st March 2019 in Aga Khan University Hospital, Karachi. All patients of age 18 years and above, admitted with diagnosis of diabetes mellitus (DM) were included. If HbA1c was less than 7% the patients were labelled as having controlled DM, otherwise, uncontrolled DM. If HbA1c of patients with controlled DM was not checked in last six months and if HbA1c of patients with uncontrolled DM was not checked in last three months then it was labelled as non-compliance of checking HbA1c.

**Results:** Out of 1732 diabetic patients only 94 patients fulfilled inclusion criteria. Out of these 94 patients 43 (45.7%) were male. Mean HbA1c was 7.90% (1.4) and 69 (73.4%) patients had uncontrolled diabetes mellitus. Overall, the compliance of checking HbA1c was 58.5%. In uncontrolled diabetes mellitus patients, the compliance of checking HbA1c was 45% and in controlled diabetes mellitus patients the compliance was 96%.

**Conclusion:** The compliance of checking HbA1c is inadequate in diabetic inpatients. The considerable prevalence of diabetes and the benefits of timely interventions in diagnosed patients to prevent complications suggest the need for comprehensive awareness among doctors for checking HbA1c.

**Keywords:** HbA1c, Compliance, Developing country

2.243

### **CLINICOPATHOLOGICAL CHARACTERISTICS AND TREATMENT OUTCOME OF PATIENTS WITH METASTATIC DIFFERENTIATED THYROID CANCER**

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**Background:** Differentiated Thyroid Carcinoma (DTC) is slow growing tumor with 20% of cases having distant metastasis. Its prognosis can vary in accordance with its histological characteristics, extension and spread. The data on metastatic DTC patients in Pakistan is scarce therefore the purpose of our study was to assess the clinicopathological characteristics and treatment outcomes of metastatic DTC in our population.

**Study Design and Method:** This retrospective, single center study was carried out on 117 patients with metastatic DTC with their age at diagnosis, gender, tumor size, extent & spread of tumor and its histologic characteristic recorded. The treatment they received and the outcome in terms of status at last follow up was also recorded.

**Results:** The median age of diagnosis was found to be  $46.6 \pm 17.2$  years with almost equal male to female ratio. The most common site of metastasis was lung followed by bone. Papillary carcinoma was the most common subtype with 89.7% of the cases followed by follicular carcinoma occurring in 7.7%. The overall survival in years was found to be  $5.6 \pm 2.6$  years. Ninety six percent had complete surgical resection followed by RAI in 91.5%. Age, the extrathyroidal extension of the primary tumor and distant metastasis are the main factors in predicting the outcome in metastatic DTC.

**Conclusion:** Our study shows that the most significant factor in predicting the outcome in metastatic DTC are age, extra thyroidal extension of primary tumor and distant metastasis.

**Keywords:** Differentiated Thyroid Carcinoma, metastasis, Pakistan

## 2.244

### **EVALUATION OF BONE MORPHOLOGY IN POSTERIOR MANDIBLE FOR IMMEDIATE IMPLANT PLANNING- A CONE-BEAM COMPUTED TOMOGRAPHY (CBCT) BASED STUDY.**

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**Background:** Immediate Intra-socket implant planning can improve procedural outcomes with pre-procedural evaluation on Cone Beam Computed Tomography.

**Study Design and Method:** Images were evaluated on GALAXIS Galileos Implant software. Relationship of the root apex to the lingual plate and lingual plate morphology was assessed by applying Mann-Whitney U test, Chi-square (or Fisher's exact test, where applicable). Inter-cortical distance was measured, descriptive statistics were computed using SPSS 23.0, independent t-test and paired sample t-test was applied. Level of significance was kept at 0.05.

**Results:** A total of 82 CBCT scans were evaluated. Least inter-cortical width was recorded at the level of the second premolar, on both sides of the mandible ( $9.30 \pm 2.16$  mm on the left and  $9.14 \pm 1.99$  mm on the right). Most width was recorded at the level of second molar ( $11.10 \pm 1.69$  on the left and  $10.93 \pm 1.46$  on the right side). On the left side, significant difference in width was recorded between the genders at the level of second molar. On the right side, significant difference in width was recorded between the genders at the level of first and second molar. Between the right and left side, significant difference in width was recorded at the level of the first molar only.

**Conclusion:** Immediate implant placement is more technique sensitive in area of molars due to proximity and undercut of the lingual cortex. Bilateral symmetry exists in bone morphology in posterior mandible.

**Keywords:** Immediate implant, Cone Beam Computed Tomography, Posterior Mandible

## 2.245

### **A COMPARATIVE EVALUATION OF PROTAPER RETREATMENT FILES AND ULTRASONIC RETREATMENT TIP FOR EFFECTIVE REMOVAL OF GUTTA-PERCHA DURING ENDODONTIC RETREATMENT: AN IN-VITRO STUDY.**

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**Background:** Re-treatment requires removal of the root canal filling material and regain access to apical foramen. Various chemo-mechanical methods have been identified for gutta-percha removal including especially designed NiTi Files for retreatment. However, there is limited literature on Ultrasonic removal of gutta percha with conflicting results. This study aims to compare percentage means of remaining Gutta-Percha (GP) between Pro-Taper retreatment files and ultrasonic retreatment tip with digital periapical radiograph during root canal retreatment.

**Study Design and Method:** This experimental invitro study was conducted on sixty-four canals that were prepared and thermoplastically obturated. PTUR files and Ultrasonic retreatment tips were used to remove GP from the canals. Standardized radiographs analysed on image J software were used to measure the remaining GP in canal. Mean percentage of remaining GP were compared for the two groups using independent t-test. Chi-square test was used to find association of remaining GP percentage w.r.t canal location. Level of significance was kept  $< 0.05$

**Results:** Mean percentage remaining gutta percha was  $17.17 + 22.54$  for Pro-Taper Retreatment Group while  $16.86 + 7.80$  for Ultrasonic retreatment tips. Mean time required to remove maximum gutta-percha was  $174.68 +$

47.22 sec and 292.31 + 79.82 sec in PTUR and Ultrasonic Retreatment tip groups respectively.

**Conclusion:** The results of this study suggest that the instrument groups are equally effective in removing gutta percha from the canals for root canal retreatment. Pro-Taper Retreatment Files are more efficient in removing gutta percha from Middle and Apical 1/3rd of canal.

**Keywords:** Endodontics, Root Canal Treatment, ultrasonic

## 2.246

### **RETINOPATHY OF PREMATURITY, AN IMPORTANT PUBLIC HEALTH PROBLEM IN PAKISTAN: A REVIEW**

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**Background:** Retinopathy of Prematurity (ROP) is the significant cause of blindness in children globally. Although the incidence of ROP is greater in premature infants worldwide, statistics show that it is more common in low-middle-income countries. Multiple causes and complications of ROP in low middle-income countries have been reported, therefore the purpose of this literature review was to review the findings from literature about the burden, causes, outcomes, and important preventive measures of ROP for low middle-income countries, especially in Pakistan.

**Study Design and Method:** A comprehensive review of the literature was conducted from published articles. Research studies were selected that included risk factors of ROP, screening, and diagnosis of ROP, treatment of ROP, and prevention of ROP. The studies included were descriptive, observational studies, comparative studies, and correlational studies. Inclusion criteria included only full-text papers in the English language. All relevant articles

were preferred and there was no restriction on publication date as few older articles contained important content relevant to the subject.

**Results:** The cause of the high rate of ROP in Low-middle income countries (LMICs) includes a high rate of preterm babies, lack of awareness regarding ROP, financial instability, and insufficient treatment and screening programs at the newborn units. ROP is found to be the significant cause of preventable blindness in South Asia. There are three different levels of prevention aimed at reducing the burden of ROP in LMICs. Primary prevention aims at reduction in preterm births, secondary prevention aims at early diagnosis of the disease and tertiary prevention aims at reducing deterioration of conditions due to disease.

**Conclusion:** The emphasis on preventive measures especially primary and secondary level prevention can help in decreasing the burden of ROP. This requires a multidisciplinary approach at all levels including at the level of policymaking, program implementation, health care providers, and community level.

**Keywords:** ROP, LMICs, Pakistan, Prevention, Literature review

## 2.247

### **COMPARISON OF TWO DIFFERENT METHODS IN THE REMOVAL OF OIL BASED CALCIUM HYDROXIDE FROM ROOT CANAL SYSTEM: A TRIPLE BLINDED RANDOMIZED CLINICAL TRIAL**

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**Background:** To compare the effectiveness of rotary master apical file (RMAF) with ultrasonic activation of endodontic file (UAF) in the removal of silicon oil based calcium hydroxide from the canal.

**Study Design and Method:** ERC approval and informed consent was obtained. 60 cases with necrotic teeth in which silicon oil based intracanal medicament was to be placed were randomized in one of the two groups using sealed envelopes containing assignment codes for medicament removal: RMAF and UAF group. After standard protocol of coronal access, cleaning and shaping, silicon oil based intracanal medicament was placed using lentulo spiral drill. A periapical radiograph was taken after intracanal medicament placement to check for adequate adaptation. On 7th day, after instrumentation and medicament removal according to respective group, a second radiograph was taken to evaluate the effectiveness. Effectiveness was calculated using a graded scale. Teeth were statistically analyzed using the Mann Whitney U and Chi-square test.

**Results:** There was no statistically significant difference in the removal efficiency of group RMAF and Group UAF at coronal ( $p=0.74$ ) middle ( $p=0.71$ ) and apical third ( $p=0.68$ ). According to the graded score both techniques were equally effective in cleaning at all thirds of canal (RMAF= Apical: $1.09\pm 0.70$ , Middle: $0.61\pm 0.80$ , Coronal: $0.33\pm 0.48$  and UAC= Apical: $1.00\pm 0.77$ , Middle: $0.52\pm 0.74$ , Coronal: $0.28\pm 0.46$ ). There was also no statistically significant association between the removal method and the location of tooth in maxillary or mandibular arch. ( $p=0.35$ )

**Conclusion:** Both the removal methods, Ultrasonic activation of file and Rotary master apical file, for oil based calcium hydroxide intracanal medicament were equally effective in all the thirds of canal. And none of the techniques were able to completely remove the oil based Ca(OH)<sub>2</sub>. There was no association of tooth location with intracanal medicament removal method.

**Keywords:** calcium hydroxide, metapex removal, adhesion failure, intracanal medicament, clinical trial

2.248

### **CBCT BASED EVALUATION OF POSITION OF MENTAL FORAMEN AND ITS RELATION TO APICES OF MANDIBULAR POSTERIOR TEETH IN A SAMPLE OF PAKISTANI POPULATION**

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**Background:** To radiographically determine the position of Mental Foramen (MF), its distance to nearest apex and prevalence of anterior loop (AL) of mandibular nerve in a sample of Pakistani population using CBCT.

**Study Design and Method:** It is a cross-sectional study in which 96 CBCT scans were analyzed to determine horizontal position of MF and classify according to Tebo and Telford classification. The vertical distance from MF to nearest tooth apex was measured and mandibular nerve configuration determined as either linear, perpendicular or anterior loop. Data were statistically analyzed and a p value  $<0.05$  was considered significant.

**Results:** The most frequent location of MF was along the long axis of 2nd premolars for both right (52.1%) and left sides (51%) followed by position between 1st and 2nd premolars for both right (29.2%) and left sides (39.6%). The minimum distance from MF to nearest root apex was  $3.75 \pm 2.59$ mm and  $3.99 \pm 2.26$ mm on right and left sides respectively. There was bilateral symmetry on both sides. The most frequent mandibular nerve configuration on the right and left side was linear (72.6% and 78.1% respectively), followed by perpendicular pattern on both sides (24.2% and 16.7% respectively) with anterior loop being least common (right side: 3.2% left side: 5.2%).

**Conclusion:** The most common position of MF is along the long axis of 2nd premolars followed by between the two premolars on both right and left sides. The information in this article allows

clinicians to modify their pre-operative surgical protocols to avoid irreparable injuries to mental nerve.

**Keywords:** CBCT, mental foramen, mandibular teeth, Pakistani population, Tebo and Telford classification, mandibular nerve

## 2.249

### **CONGENITAL OBSTRUCTIVE MULLARIAN ANOMALIES: EIGHT-YEAR EXPERIENCE AT ONE TERTIARY-CARE CENTER, KUALA LUMPUR, MALAYSIA.**

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**Background:** Obstructive mullarian anomalies are extremely rare and challenging, usually present at puberty with primary amenorrhea, cyclical lower abdominal or abdominal mass. Hematometra/hematocolpos are suggestive features of obstruction on imaging.

The aim of this study was to review the case of obstructing vagina managed at Paediatric & Adolescent Gynaecology (PAG) unit, department of Obstetrics & Gynaecology, Hospital Canselor Tuanku Muhriz, University Kebangsaan Malaysia (HCTM-UKM).

**Study Design and Method:** This Retrospective case series, has reviewed medical records of patients with obstructive mullarian anomalies, from Jan 2012-Dec 2019. Cases were identified from electronic records and data was collected on pre-designed proforma was analysed on SPSS-19. Categorical variables reported as frequency and percentage, while continuous variables as mean/standard deviation (SD).

**Results:** Twentyeight pateitns with obstructive Mullarian anomalies were managed druing the study duration. The average age at presentation

was 16.79 years (range 10-31years). Twenty had menarche at 11.95years (range 9-15 years), five never had periods while data for three were missing. Four got married and two had pregnancies. Chief presenting complaint was abdominal pain (n=15) and dysmenorrhea (n=11). Twenty three were diagnosed as obstructive hemivagina with ipsilateral renal abnormalities (OHVIRA), two had cervical atresia, two vagina atresia and one transverse vaginal septum. Twenty six had uterine anomalies, twenty three had hematocolpus, fourteen had Hematometra while six had associated hematosalpinx. Renal anomalies were present in 22 (all ipsilateral) and endometriosis was identified in 11 patinets. Twenty six had surgeries including Resection of Vaginal Septums (n=21), Drainage of Hematocolpos (n=20), and Drainage of Hematometra(n=5). Laparoscopy was performed in eleven cases. Seven patients had repeat surgeries for recurrence, including hemihysterectomies, drainage of hematomas, excision of vagina septums.

**Conclusion:** Obstructive anomalies of vagina needs early referral to a tertiary centre specialized in managing these cases. It ensures correct diagnosis, appropriate management and optimal outcomes of this rare anomaly.

**Keywords:** OHVIRA, Hematometra, Hematocolpos, Obstructive Mullarian Anomalies

## 2.250

### **XY FEMALES: EXPERIENCE FROM HOSPITAL CHANCELLOR TUNKU MUKHRIS, UNIVERSITY KEBANGSAAN MALAYSIA.**

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**Background:** ‘Differences of Sex Development’ including XY females are conditions with divergences between genetic, gonadal and genital sex. With estimated prevalence of 3.5 cases per 100,000 live female births Androgen Insensitivity Syndrome and Gonadal Dysgenesis are more common conditions, while 5-alpha-reductase deficiency, 17-hydroxysteroid-dehydrogenase deficiency and other rare mutations were seen rarely. Accurate diagnosis is challenging but is essential to tailor the management according to individual needs with multidisciplinary approach.

**Study Design and Method:** Retrospective data of all XY females managed at Pediatric and Adolescent Gynecology unit, Hospital Canselor Tuanku Muhriz, University Kebangsaan Malaysia, from January 01, 2012 to December 31, 2019 were reviewed after ethical approval. Cases were identified through purposive sampling from medical records and data was collected on predesigned proforma.

**Results:** Out of nineteen patients, including two pairs of siblings, seven were categorized as Androgen Insensitivity, five as Swyer’s syndrome, four as mixed gonadal dysgenesis while one with complete gonadal agenesis. Diagnosis of two siblings were not established yet. Mean age was  $22.85 \pm 8.33$  years, height was  $155.4 \pm 27.27$ kg and BMI was  $23.4 \pm 5.9$  kg/m<sup>2</sup>. Adolescents mostly (n=13) presented with primary amenorrhea, while pre-pubertal girls presented with ambiguous genitalia (n=03) and inguinal swelling (n=01). One patient presented with acute abdomen and one for infertility. Only three had minor genital abnormality (Prader 1-3), while breast and pubic hair were mostly underdeveloped. Fourteen patients underwent surgery and gonads were removed in 13, mostly laparoscopic (n=10). Three had gonadectomy before puberty, while surgery was planned after the age of 30 years in two patients and gonads were totally absent in one.

**Conclusion:** XY female is a small but heterogeneous group and needs individualized

care and tailored management plan. Referral to specialized center with multidisciplinary care is recommended for accurate diagnosis and management.

**Keywords:** XY females, Differences of Sex Development, Androgen Insensitivity Syndrome, Gonadal Dysgenesis, Swyer’s syndrome.

## 2.251

### **BLACK STONE POISONING WITH A UNIQUE COMPLICATION OF POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME (PRES)**

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**Background:** To date, no case has been reported of p-PD poisoning with a neurological complication such as PRES, this is the first case to the best of our knowledge which reported it.

**Study Design and Method:** Case report

**Results:** Published in BMJ recently

**Conclusion:** PRES can have a fatal outcome, early identification in black stone poisoning patients can prevent mortality.

**Keywords:** Black stone poisoning ,PRES

## 2.252

### **CEPHALOMETRIC PREDICTORS FOR OPTIMAL SOFT TISSUE PROFILE OUTCOME IN ADULT ASIAN CLASS I SUBJECTS TREATED VIA EXTRACTION AND NON-EXTRACTION. A RETROSPECTIVE STUDY**

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**Background:** The aim of this retrospective study was to identify cephalometric predictors associated with favorable soft tissue profile outcomes after premolars extraction and non-extraction in class I malocclusion subjects

**Study Design and Method:** A total of 80 Subjects treated with non-extraction and premolars extraction (40 subjects each), were equally divided into favorable (FG) and unfavorable (UFG) groups using subjective and objective soft tissue profile outcome assessment methods. An independent t-test was utilized for the comparison of cephalometric measurements between the non-extraction (NE) and premolars extraction (PME) treatment modalities. Cox proportional hazard algorithm regression analysis was performed to identify cephalometric factors associated with favorable soft tissue outcomes.

**Results:** The pre-treatment mean age of the NE group was  $20.2 \pm 2.3$  and PME group was  $20.2 \pm 2.5$  years. After dividing the sample of the NE and PME groups according to subjective and objective soft-tissue outcome assessment criteria, FG and UFG consisted of 20 subjects each. Cox proportional hazard algorithm regression analysis found upper incisor to NA angle (95% CI: 1.033, 1.196) to be associated with FG in NE and upper incisor to SN (95% CI: 1.018, 1.206) and ANB angle (95% CI: 1.165, 3.608) in PME. There was a statistically significant strong correlation between subjective and objective evaluation methods ( $p = <0.001$ ).

**Conclusion:** Cephalometric analysis is a valuable tool to predict soft-tissue outcomes

after NE and PME. Increased upper incisors inclinations at the start of NE treatment result in favorable soft tissue profile outcomes. Slightly convex profile and proclined maxillary incisors are the predictors of favorable soft tissue profile outcome after PME. There was a statistically significant association between subjective and objective evaluation criteria of soft tissue outcomes.

**Keywords:** Malocclusion, Angle Class I, Cephalometry, Soft tissue

## 2.253

### **EFFECT OF DIRECT VERSUS INDIRECT BONDING TECHNIQUE ON THE FAILURE RATE OF MANDIBULAR FIXED RETAINER – A SYSTEMATIC REVIEW AND META-ANALYSIS**

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**Background:** Fixed retainer failure is a common cause of relapse and may require additional orthodontic treatment. The two main methods for bonding the mandibular fixed retainer include direct and indirect techniques. To best of our knowledge, this topic has not been explored previously in a systematic review and meta-analysis. Therefore, the objective of this systematic review was to evaluate the effect of direct versus indirect bonding technique on the failure rate of mandibular fixed retainer.

**Study Design and Method:** Online databases (PubMed, Dental and Oral Science, CINAHL, and Cochrane Central Register of Controlled Trials, Scopus) were systematically searched electronically for articles up until April 2021. Randomized, non-randomized clinical trials and cohort studies on human subjects were considered regardless of language or year of publication. Orthodontic patients in their retention phase (mandibular 3 x 3 fixed retainer), in which direct bonding technique as control and indirect as intervention were included. The outcome assessed was retainer failure rate. Two authors independently examined and extracted



the data from the studies that satisfied the inclusion criteria. Risk of bias was assessed using the Cochrane Collaboration's tool and the Newcastle-Ottawa Scale. The meta-analysis was conducted using the RevMan software V.5.3.5.22.

**Results:** Four articles fulfilling the inclusion criteria were included in qualitative and quantitative synthesis. Retainer failure rates were analyzed in a total number of 266 patients bonded with mandibular 3 x 3 retainers after orthodontic therapy. Direct bonding technique of fixed retainer on 131 patients was compared with indirect technique on 135 patients. There was no statistically significant difference in the rate of retainer failure between the two methods (95% CI, 0.66, 1.39).

**Conclusion:** Within the limitations of insufficient evidence this systematic review and meta-analysis concluded that there is no difference in the failure rate of mandibular fixed retainers between direct and indirect bonding techniques.

**Keywords:** Retainers Fixed Bonded Retainer Orthodontics Direct bonding Indirect bonding Shear bond strength In vivo

2.254

### **COMPARISON OF MICROLEAKAGE AROUND TWO TEMPORARY RESTORATIVE MATERIALS IN COMPLEX ENDODONTIC ACCESS CAVITIES: AN IN-VITRO EXPERIMENTAL STUDY**

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**Background:** Teeth requiring root canal treatment (RCT) may have pre-existing restoration, that needs to be retained for functional aesthetic and isolation reasons. In these cases, two-visit RCT temporary restoration has to seals against two different interfaces (complex endodontic access cavity) i.e, at tooth-temporary restoration and temporary-permanent

restoration interfaces. Therefore, this study aims to compare the mean microleakage (in millimeters) around two temporary restorative materials (Cavit and Dia-Temp) at tooth-temporary restoration and temporary-permanent restoration interfaces, within the complex endodontic access cavities in the extracted human teeth.

**Study Design and Method:** It was an in-vitro experimental study. Sixty teeth were randomly allocated into 2 experimental groups. Teeth in each group had conventional class II cavities prepared and restored with the composite filling. After 14 days of aging in normal saline, complex endodontic access cavities were prepared in these teeth. This was followed by placement of either Cavit or Dia-Temp temporary restorative materials to seal the access cavities. After immersion in 1% methylene blue dye, the teeth were sectioned and observed under stereomicroscope (magnification X25.6) for dye penetration. Measurement was made at two interfaces 'a' and 'b' (temporary restoration-tooth and temporary restoration-pre-existing restoration), respectively. Depth of dye penetration in millimeters was recorded as the microleakage. Independent sample t-test was applied to compare the mean difference in dye penetration measurements in the two study groups at interfaces 'a' and 'b's. A p-value of < 0.05 was taken as statistically significant

**Results:** Dia-Temp material showed microleakage of  $0.14 \pm 0.26$  mm at interface 'a' and  $0.07 \pm 0.17$  mm at 'b', respectively. Whereas, Cavit showed microleakage of  $0.54 \pm 0.42$  mm at 'a' and  $0.88 \pm 0.51$  mm at 'b' interface.

**Conclusion:** In complex endodontic access cavity, compared to Cavit, Dia-Temp showed significantly less microleakage at the tooth-temporary restoration and pre-existing permanent filling-temporary restoration interfaces.

**Keywords:** Microleakage; Complex endodontic access cavity; Temporary restorative material.

## 2.255

### **COMPARISON OF MARGINAL ACCURACY IN TWO DIFFERENT MATERIALS USED IN PROVISIONAL CROWN & BRIDGE – AN IN VITRO EXPERIMENTAL STUDY**

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**Background:** To determine the difference in the marginal accuracy at buccal, lingual, mesial and distal margins of temporary crowns fabricated with bisacryl based temporary crown material.

**Study Design and Method:** Two bisacryl based temporary crown material, Integrity and Protemp 4, were used to fabricate twelve temporary crowns each using the direct method. A pre-operative polyvinyl siloxane impression served as a template for temporary crown fabrication. A right mandibular molar tooth on a typodont was prepared to receive a crown. The provisional crown material was syringed onto the template and allowed to cure following the manufacturer's instructions. All four surfaces of the crown were observed under a stereomicroscope equipped with digital SLR camera at 25.6x magnification. Once focused, the image of each surface was captured and a photographic record maintained. An image processing software was used for measurement of marginal discrepancy. Marginal accuracy between four surfaces was assessed using one-way ANOVA. To check for interaction between the material, surfaces and marginal discrepancy Factorial ANOVA was used. A p-value of <0.05 was considered significant.

**Results:** Mean marginal discrepancy for provisional crowns fabricated with Protemp 4 and Integrity was  $410 \pm 222 \mu\text{m}$  and  $319 \pm 176 \mu\text{m}$  respectively. The marginal discrepancy between the two groups was statistically significant ( $p = 0.027$ ) with buccal margin exhibiting the most discrepancy ( $p < 0.01$ ).

**Conclusion:** Conclusions: Integrity showed less microleakage than Protemp 4. Among all walls, buccal wall showed the most microleakage. Marginal accuracy is dependent upon the type provisional crown material and side of the prepared axial wall.

**Keywords:** Crowns; Marginal Adaptation; Provisional Restoration

## 2.256

### **NASOPALATINE CANAL (NPC) CHARACTERISTICS ON CONE BEAM COMPUTED TOMOGRAPHY (CBCT)**

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**Background:** The nasopalatine canal is a bony conduit that exits through the pre-maxilla. Due to its close approximation with maxillary anterior teeth, pathologies within the canal are often misdiagnosed as dental infections, leading to unnecessary dental intervention. To improve our understanding of this anatomical structure, it is important to understand its anatomical variations with respect to race, age and gender

**Study Design and Method:** Ninety CBCT scans of a Pakistani population were evaluated in this study. The shape and dimensions of the NPC were observed along with the buccal bone anterior to the NPC. Independent t test was used to compare the differences in the measurements associated with age and gender. Chi-squared test was applied to check any association among canal shape with gender.

**Results:** The mean length and width of the NPC was found to be:  $11.28 + 1.90 \text{ mm}$  and  $2.62 + 0.91 \text{ mm}$  respectively. The NPC was significantly longer and wider in males than females ( $p=0.00$ ,  $p=0.02$ ). The mean diameter of foramen of Stenson was  $2.99 + 1.17 \text{ mm}$  and incisive foramen was  $6.09 + 1.80 \text{ mm}$ . The mean width of the buccal cortical bone at three levels was  $7.20 + 1.70 \text{ mm}$ ,  $6.12 + 1.31 \text{ mm}$  and  $6.12 + 1.31 \text{ mm}$ , showing a wider buccal bone in males than females.

**Conclusion:** Type A canals were the most frequently observed. Furthermore, the mean length of the NPC was calculated to be 9.38-13.18 mm in our population. There is a statistically significant difference in the dimensions of the width and length of the NPC with respect to gender. No significant differences were observed with respect to age.

**Keywords:** Cone Beam Computed Tomography, Nasopalatine Canal, Pakistani Population

2.257

### **FREQUENCY OF HEPARIN INDUCED THROMBOCYTOPENIA (HIT) IN PATIENTS AT A TERTIARY CARE HOSPITAL.**

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**Background:** Heparin-induced thrombocytopenia (HIT) is a life-threatening complication of exposure to heparin (e.g. unfractionated heparin, low molecular weight [LMW] heparin) that occurs in a small percentage of patients exposed, regardless of the dose, schedule, or route of administration.

HIT results from an autoantibody directed against endogenous platelet factor 4 (PF4) in complex with heparin. This antibody activates platelets and can cause catastrophic arterial and venous thrombosis. Untreated HIT has a mortality rate as high as 20 percent; although with improved recognition and early intervention, mortality rates have been reported as below 2 percent.

This study was planned to see the ratio (in percentage) of HIT positive patients with respect to gender, age and platelet count in a Tertiary Care Hospital.

**Study Design and Method:** : HPF4A performed by ID-PaGIA Heparin/PF4 Antibody Test Kit.

**Results:** Total of 222 patients were included in our study from 1st January 2021 to July 31st 2021. Among these 222 patients 21[9.5%] cases

were HIT positive. Out of these 21 cases 57.14% [12 cases] were Male while 42.86% [9 cases] were Female. Age wise 90.5% [19 cases] were above 40 years of age while 9.5% [2 cases] were below 40 years of age. History wise 47.62% [10 cases] were COVID positive previously. Median platelet count was 53.5 x 10<sup>9</sup>/L ranging from lowest 16 x 10<sup>9</sup>/L to highest 99 x 10<sup>9</sup>/L.

**Conclusion:** Positive cases of HIT were 9.5% in period between June 2021 to July 2021 out of which Male were 57.14% while Female were 42.86%. 90.5% HIT positive cases were above age of 40 years. 47.62% HIT positive cases were previously COVID positive. Median platelet count was 53.5 x 10<sup>9</sup>/L ranging from lowest 16 x 10<sup>9</sup>/L to highest 99 x 10<sup>9</sup>/L.

**Keywords:** Heparin Induced Thrombocytopenia (HIT), Low molecular weight heparin, Platelet count.

2.258

### **PRIMARY PEDIATRIC BONE LYMPHOMA TREATMENT, A CASE SERIES**

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**Background:** Lymphoma is a malignant disease primarily originating from the lymphoid cells. Lymphoma can be classified as Hodgkin HL and Non Hodgkin lymphoma (NHL), wherein non Hodgkin lymphoma has reed Sternberg cells in it. Mostly lymphoma in bones presents with non-Hodgkin lymphoma with 80% are Diffuse Large B cell subtype (DLBCL). Primary bone lymphoma (PBL) is very rare in which out of all NHL less than 1 % is PBL, 5% of extra nodal lymphomas and Accounting for 3-7% of all primary bone malignancies. The reason we have to address pediatric lymphoma separately from adult counterpart is pediatric lymphoma appears different from adult malignancies. The course of the disease is more indolent and curable from

adult patients. On the contrary pediatric patients presents late for diagnosis and have extensive bone involved. Even in such cases literature says that 95% remission is achieved.

Apart from all this surgery is not recommended unless there is a pathological fracture or an impending fracture which may increase morbidities.

**Study Design and Method:** All patients with PBL that were diagnosed and/or treated at AKU from at time period of 2000 to 2019 were included in case series retrospectively as part of this study. Diagnosis was based on a biopsy of the tumor location. This has been emphasized that patients who have primary lesion in the bone were included. Patients were included in this study regardless of sex, race, and age and co-morbid. Moreover, patients who received treatment for Primary Lymphoma in areas other than bone, received treatment for a Secondary Lymphoma of bone or patients who otherwise do not fall in the inclusion criteria were excluded from the study.

**Results:** case 1, case 2 case 3

**Conclusion:** The purpose of the study was to create awareness that PBL can be managed with chemotherapy and if needed radiotherapy. On the contrary a pathological fracture or impending fracture may need surgery. PBL lesions can undergo surgery, but biopsy proven is necessary because surgery in chondrosarcoma is contraindicated

**Keywords:** pediatric bone lymphoma, knee, hip, pelvis

2.259

**OUR EXPERIENCE OF TREATING ADULT BONE LYMPHOMA, A RETROSPECTIVE CROSS-SECTIONAL STUDY IN A TERTIARY CARE CENTER, AGA KHAN UNIVERSITY HOSPITAL, KARACHI**

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**Background:** According to the WHO classification, primary lymphoma of the bone (PLB) is defined as a monostotic disease involving a single skeletal site with or without the involvement of the regional lymph nodes, or as a polyostotic disease affecting multiple skeletal sites without visceral or lymph node involvement. Due to the low prevalence even in countries with good record maintenance as the United States, the information on PLB is scarce. This study aimed to determine the experience in diagnosing and treating adult patients with PLB in a tertiary care hospital of Karachi. The paediatric population was excluded because PLB in children is treated as a systemic disease rather than an isolated bone  
Pathology

**Study Design and Method:** A retrospective cross sectional study was conducted on all patients diagnosed with PLB or treated at AKU from 2005 to 2019. The diagnosis was based on a biopsy of the bone tumour. Patients were included in this study regardless of sex, race, age and co-morbids. Moreover, patients who had primary lymphoma other than bone or had received treatment for a Secondary Lymphoma of bone were excluded.

**Results:** There were 17 patients with PLB including 13 (76.5%) males and 4 (23.5%) females with a mean age of  $44 \pm 16.5$  years. Nine patients were between 30-59 years of age at diagnosis. The mean follow-up time of patients was  $80 \pm 46.7$  months. Six patients had

tumours of pelvic bone followed by tibia (5) and femur (4). Four patients had a pathological fracture at the time of presentation whereas 2 (11.8%) required surgical fixation of the pathological fracture. The stage of the tumour was based on Ann Arbor classification. Nine (52.9%) cases had Stage 1 disease, 7 (41.2%) had stage IV disease with metastasis in extra nodal tissues. As for treatment, every patient received chemotherapy whereas 5 (29.4%) received adjuvant radiotherapy. Complete remission in the size of the tumour was seen in 11 (64.7%) patients while 6 (35.3%) had partial remission. Post-treatment, 4 (23.5%) patients expired. The mean Overall Survival (OS) time was  $80.18 \pm 46.71$  months with a survival rate of 76.5%

**Conclusion:** Primary lymphoma of the bone can be treated with medical regime and good prophylactic surgeries to avoid pathological fracture such as intramedullary nailing.

**Keywords:** Lymphoma, Pelvic bone, Pathological fracture, Survival, Metastasis

## 2.260

### **TREATMENT AND OUTCOMES OF SOFT TISSUE SARCOMA OF GROIN, HIP AND THIGH: A RETROSPECTIVE REVIEW FROM A TERTIARY CARE HOSPITAL**

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**Background:** Sarcomas are a diverse group of tumours, malignant in nature, with different clinical features and outcome. These rare tumours arise from skeletal and extra-skeletal connective tissues including the peripheral nervous system. They primarily affect the limbs, pelvic girdles and the retro-peritoneum but can occur in any part of the body. Due to the relative rarity of these tumours, there is only a handful of literature available even during this day and age. The treatment strategies have changed over the years but one approach has been universally accepted by all tumour facilities around the

globe which is the application of multimodal approach towards these tumours. However, the management and outcomes of soft tissue sarcomas in our part of the world have never been evaluated. Hence this study reviews the management and outcomes of soft tissue sarcomas, showing the frequency of the thigh, hip and groin sarcomas at our institute.

**Study Design and Method:** Data of soft tissue tumours registered from 2017-2018 was retrieved during January 2019 to March 2019 from Aga Khan University Hospital, Karachi bone and soft tissue tumour registry. A retrospective review was performed and all soft tissue tumour cases treated with surgical intervention (with adjuvant /neoadjuvant therapy) or palliative intention were included

**Results:** Total 119 cases of soft tissue tumours (STS) were identified out of which 85 were malignant cases (sarcomas) while 30 were benign. On presentation 84 (70.6%) were primary cases. On topographical distribution, there were 25 patients who had hip, groin and thigh sarcoma. Of these, 15 were males and 10 were females. As treatment, neoadjuvant radiation was done in 4 (16%) patients and adjuvant chemo/radio therapy was given to 13 (52%) patients. Wide margin excision was performed in 19 (76%) patients and 4 (16%) had amputation. Reconstruction was offered to 3 (12%) patients. In post-surgical complications, 1 (4%) patient had wound infection. On final surgical histopathology, majority of the sarcomas were liposarcomas, myxofibrosarcoma, synovial sarcoma and Leiomyosarcoma. Post-surgery recurrence occurred in 7 (28%) patients. Overall survival was 76%.

**Conclusion:** In treatment of soft tissue sarcoma, limb salvage is an achievable option and survival results are also good.

**Keywords:** Limb salvage, Synovial sarcoma, Radiotherapy, Recurrence, Leiomyosarcoma.

## 2.261

### **FUNCTIONAL OUTCOMES AND COMPLICATIONS OF TOTAL HIP ARTHROPLASTY WITH DUAL MOBILITY CUP : AN AUDIT**

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**Background:** Hip replacement has always being a challenging surgery for orthopaedic surgeons. Regardless of awareness about bone health, neck of femur fractures are on a rising trend in developed and developing countries.<sup>1</sup> The implant to choose is very difficult at times. Conventional total hip arthroplasty (THA), bipolar hemiarthroplasty, and various other implants are available in femoral head replacement. The purpose of this study was to determine the functional outcomes of total hip arthroplasty with a dual mobility cup at our center.

**Study Design and Method:** After receiving an exemption from the Ethics review committee of the hospital, data collection for audit was started in January 2019. Records from July 2016 to June 2018 were included. All patients who underwent total hip arthroplasty with dual mobility prosthesis without any age limit were included. A proforma was prepared to collect the required information. Data was entered and analyzed on SPSS v. 21.

**Results:** Two hundred and ten patients were included, 114 females and 96 males. Of the total, 188 patients underwent unilateral surgery while 22 had bilateral hip arthroplasty. The mean postoperative hospital stay was  $5.91 \pm 3.9$  days. Mean pre-op Harris score was  $33.7 \pm 7.6$  and the post-op mean score was  $75.9 \pm 5.34$ . Eighty-three (39.5 %) patients had the neck of femur fracture, 31 (14.8%) had osteoarthritis while 28 (13.3%) had avascular necrosis. Post-surgery complications included, wound infection, surgical site haematoma, NSTEMI, and only one

patient reported dislocation after use of dual mobility cup.

**Conclusion:** The dislocation rate which was the prime concern, has been reduced with the use of dual mobility implant in total hip arthroplasty patients.

**Keywords:** Total hip replacement, Femoral head, Osteoarthritis, Arthroplasty, Wound infection.

## 2.262

### **ALK POSITIVE SIGNET RING CELL ADENOCARCINOMA OF LUNG ORIGIN : A CASE SERIES AND REVIEW OF LITERATURE**

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**Background:** Signet ring cell morphology is commonly seen in adenocarcinoma originating in the gastrointestinal tract, where it represents CDH gene mutations and is associated with poor clinical course. Adenocarcinoma of lung rarely shows these features and is reported to be a clue to ALK rearrangements within the tumor. Immunohistochemical analysis of ALK expression by tumor cells is considered to be a surrogate marker for ALK rearrangements in lung adenocarcinoma. In this study, we report 5 cases of lung adenocarcinoma having signet ring morphology and positive ALK expression (ALKD5F3) by immunohistochemistry.

**Study Design and Method:** This is a cross-sectional study, using non-probability consecutive sampling. 05 cases of lung adenocarcinoma with signet ring morphology, reported in 2021 by the section of histopathology, department of pathology & laboratory medicine at Aga Khan University were identified from the ILMS database, using keywords "signet ring" and "lung adenocarcinoma". The slides were retrieved and examined for the presence of signet ring morphology and expression of ALK by

immunohistochemistry by 03 pathologists. Demographics were recorded. Radiological findings were also reviewed.

**Results:** The ages of these patients ranged from 17 to 60 years. Three patients were in their 4th decade of life. 04 out of them were females, including the youngest patient. All cases were core biopsies from the tumor. 04 of these patients showed pure signet ring morphology, defined by presence of cells with abundant intracytoplasmic mucin, pushing the hyperchromatic nucleus to the periphery. No other morphological variant was identified in these cases. One case however, showed accompanying mucinous component. This was received as a block for second opinion. Lung origin of these tumors was confirmed by positive staining with immunohistochemical stain TTF-1. All cases showed positive staining for ALKD5F3 immunohistochemical stain.

**Conclusion:** Presence of signet ring cell features in lung adenocarcinoma is extremely rare. These tumors are known to be associated with ALK rearrangements, which can be confirmed using immunohistochemistry, resulting in saving time for the patient and early induction of chemotherapy. Though these tumors follow a poor clinical course as compared to other variants of lung adenocarcinoma, the knowledge of this variant and the use of immunohistochemistry can immensely help in patient management.

**Keywords:** Signet ring, Lung, ALKD5F3

2.263

**INTERVENTIONS BY PHARMACIST'S TO PREVENT MEDICATION ERRORS IN THE EMERGENCY DEPARTMENT OF A TERTIARY CARE HOSPITAL KARACHI, –A DESCRIPTIVE ANALYSIS.**

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**Background:** An adverse event (AE) can be defined as an unintended complication or injury leads to extended hospital length of stay, disability or death due to healthcare system management rather underlying disease condition of patient's itself. There is very limited data related to contribution of hospital pharmacist's interventions in the Emergency Department of a tertiary care hospital available in Pakistan. That why we aim to highlight the role of ED pharmacist in reduction of medication error so the study findings can be disseminated in the region. The aim of this study was to estimate the near-misses to prevent medication error reporting by Emergency Department (ED) Pharmacist in a tertiary care hospital Karachi, Pakistan.

**Study Design and Method:** The aim of this study was to estimate the near-misses to prevent medication error reporting by Emergency Department (ED) Pharmacist in a tertiary care hospital Karachi, Pakistan.

**Results:** A total of 3205 pharmacist interventions were documented and analyzed during the study period. About 2947 (92%) of the interventions were found to be moderately to very significant. Significant interventions were mostly belong to age group >60 year of age 593 (27.5%). 862 (27%) interventions were of antibiotics followed by PPI/ H2 –antagonist/GI protective agents 619(19%), while the most frequent intervention type was therapeutic interchange 744 (23%) followed by dose adjustment/therapeutic drug monitoring and renal dose adjustments that was 539(17%) and 521(16%) respectively. The overall average time consumed per intervention was 12 minutes.

**Conclusion:** Our study shows that pharmacist interventions play pivotal role in preventing medication errors in the emergency department of a tertiary care hospital. Thus, presence of pharmacist in ED is very important for prescribing appropriateness, preventing, identifying, solving the drug related problem and optimizing drug therapy management.

**Keywords:** Pharmacist Interventions, medication error, Emergency Department, Tertiary care hospital, Pakistan

## 2.265

### **ALTERNATIVE METRICS - REVISITING THE DIGITAL IMPACT OF SCIENTIFIC RESEARCH**

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**Background:** Alternative metrics abbreviated as altmetrics is an interesting tool that illustrates the global online attention received by a publication, thus redefining the way we analyze the impact of research. However, no study to date has been done in our part of the world to assess the impact of a publication beyond the limits of an academic environment. Considering the importance of these alternative measures of impact, we intended to perform an institutional-based pilot study to get an insight into the outreach of our publications.

**Study Design and Method:** The publication record of the Operative Dentistry faculty at the Aga Khan University Hospital between the years 2010 to 2021 was searched using three electronic databases (Google Scholar, Altmetric Explorer, and PubMed). After the final screening, all the publications in PubMed indexed journals including in vitro studies, randomized controlled trials, original research articles, case reports, and letters to the editor, for which the Altmetric Attention Score (AAS) was available on the Altmetric Explorer were included in the study.

**Results:** Out of a total of 225 publications, only 34 studies were eligible to be included in our analysis. The cumulative citation count for the publications in the past decade was 617 whereas the AAS was reported to be just 158. Furthermore, there were 16 Facebook mentions and 163 Tweets all together. Nevertheless, the Tweets had a wider geographic distribution and

were found to be more trending among the members of the general public.

**Conclusion:** The publications by the Operative Dentistry faculty during the past decade had a modest social impact in the community in terms of Attention Score. Nevertheless, the publications had a diverse geographic as well as demographic spread, demonstrating wider outreach to the non-scientific community.

**Keywords:** Alternative metrics

Online attention

## 2.266

### **MEDICINE RECONCILIATION PROJECT USING PDSA CYCLE**

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**Background:** Medication reconciliation is a major safety measure for admitted patients at AKUH .It is meant to be completed within 24 hours of the patient being admitted to the hospital. The electronic medicine reconciliation form was introduced only a year back in 2018 and non-compliance to electronic MEDICINE RECONCILIATION FORM was a major issue in the hospital's medicine department .

The overall baseline compliance of general medicine ward to the new electronic system was only 4 percent at the start of the project .

**Study Design and Method:** A multidisciplinary team was made first and meetings were held to discuss the problem of noncompliance to medical reconciliation. A written questionnaire was distributed among residents, interns and staff working in the medicine department to assess the reasons of non-compliance to the medical reconciliation.A multitude of factors—such as patients' lack of knowledge of their medications, physician and nurse workflows, and lack of integration of patient health records across the continuum of care—all contributed to a lack of a complete medication reconciliation.Although the biggest reason was



knowledge among trainees about the whole electronic process as the biggest cause of non-compliance.

We conducted a number of educational sessions for internal medicine residents and interns to increase awareness and address concerns. We also shared education material with them on how to complete the medication reconciliation electronic form.

We also involved medicine consultants informing them about the whole process and advised them to check with their trainees about medicine reconciliation at time of initial evaluation of patients.

We collected data of medical compliance on daily basis and shared with trainees without specifying names. We also made a strategy of notifying the internal medicine team members through WhatsApp group created

**Results:** The interventions were gradually incorporated by the residents. The medical reconciliation if not done by oncall team was done in the morning by the team member looking after that patient. More computer systems were provided for accessibility issues. Newly inducted interns and residents had education about medical reconciliation on their initial orientation days. A constant check was maintained to look for any hurdle in the process and address it there. We also involved nursing staff in the process along with primary consultants. The whole process improved our compliance from 4 percent to 25 percent then 82 percent and eventually 95 percent at end of 4 months period.

**Conclusion:** Based on our intervention and its success we recommend following steps in the Reconciliation Process

Accurate list of medicines from patient or family. Each health care setting needs to develop standards for who is responsible and how the process will be completed

Clearly Identify Responsibilities for the Process

Identify team roles and responsibilities for medication reconciliation standard location in the patient electronic chart and determining who will put the medication history onto the agreed upon place in the chart and multiple evaluation at all stages of the process

Consider Use of a Standardized Form

Have an Explicit Time Frame for Completion

Design Education Programs for Health Care Professionals

Design and Implement a Monitoring Process at all levels of care from nursing staff to consultant, as a team work

Educate Patients and Family Members To Serve as Advocate

**Keywords:** medicine reconciliation PDSA cycle compliance

2.267

### **NEWBORN SCREENING PROGRAM FOR CONGENITAL HYPOTHYROIDISM: A SHORT-TERM FOLLOW-UP STUDY**

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**Background:** Newborn screening (NBS) refers to an Essential Public Health Program of biochemical testing. At our center NBS based on dried blood spot (DBS) for congenital hypothyroidism (CH) was introduced in Jan 2019. The CH is an endocrine disorder, which if left untreated may lead to seriously impaired mental and physical development.

**Objective:** This study aimed to evaluate the short term follow-up of NBS program for CH

**Method:** This audit was performed at Biochemical Genetics laboratory (BGL), Section of clinical Chemistry, Dept. of Pathology and

Lab Medicine, AKU. Four quality indicators were defined according to the standards by Clinical Laboratory Improvement Amendments on Newborn Screening Follow-up Guideline, including:

- Coverage of Newborns screened (total newborns screened/total babies born)
- Dried blood Spot (DBS) specimen rejected
- Positive screening results received and communicated
- Confirmed cases of CH out of the positive cases.

The DBS specimen were collected from newborns delivered at AKU from January 2019 to Sep 2020, between 48- 72 hour of life and after 24 hours of birth in case of early discharge.

**Results:** During 30 months' period, 14302 neonates were screened with mean age of 48±12 hours. The four indicators were as follows:

- Coverage of Newborns screened was 92% (n=12389).
- 0.66% (n=95) DBS specimen were rejected and most common cause of rejection was DBS cards not dried properly
- 2.6% (n=373) had TSH levels greater than 10 mIU/L and 100% of these were communicated.
- out of 373 patients screen positive for CH, confirmatory tests were performed in 47.8% (n=168) only and of these only 16 patients were confirmed to have CH. The incidence of CH in this cohort of 1:894.

**Conclusion:** Outcome assessments is important for tracking performance and to improve the quality of the newborn screening system.

**Keywords:** newborn screening, follow-up, congenital hypothyroidism

## 2.268

### **TAKE HEED OF THE TOXIC POTENTIAL OF PHARMACEUTICAL VITAMIN D SUPPLEMENTS: A CROSS-SECTIONAL SURVEY FROM A TERTIARY CARE CENTRE**

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**Background:** The increased awareness about vitamin D deficiency provoked significant increase in supplementation. This study aims to determine the frequency, clinical features, and pharmacological factors of hypervitaminosis D in children

**Method:** A retrospective cross-sectional study was conducted. All children <18 years with 25-hydroxyvitamin D (25OHD) levels performed between January 1 to December 31, 2018 at AKUH Clinical Laboratory were evaluated. Medical records of children at AKUH with vitamin D level >50ng/ml were reviewed for clinical features and pharmacological risk factors.

**Results:** A total of 118,149 subjects were tested for serum 25OHD level in 2018, out of which 16,316 (13.8%) were children. Of these, 16.6% (n=2720) were registered at AKUH for consultation. Twenty-two percent (n=602) had serum 25OHD levels >50 ng/ml. The median age and 25OHD levels were 3.1(17.93) years and 70.1(100) ng/ml with 57.3% (n=345) boys.

Use of vitamin D supplementation was reported in 33.1% (n=197) and of these 97.9% (n=193) were prescribed by physicians. Mega-doses were utilized by 34.17% (n=68) while rest had taken different combination in tablets/syrups form. In mega-doses, 600,000 (44.1%, n=30) and 200,000 units (45.5%, n=31) vitamin D injections were commonly prescribed. The main indications for prescribing were aches/pains (25.8%, n=51), developmental delay (25.3%,

n=50), and vitamin D deficiency (24.8%, n=49). The main symptoms of hypervitaminosis D or toxicity were abdominal pain (13.7%), and constipation (15.7%).

**Conclusion:** Vitamin D supplementation should be done cautiously in children as toxicity though rare but may happen and cause serious effects specially with frequent mega doses and prolonged supplementation

**Keywords:** vitamin D supplementation, Hypervitaminosis D, vitamin D toxicity, vitamin D deficiency, Children, Pakistan

## 2.269

### **COMPARISON OF BRACKET BOND FAILURE WITH AEROSOL AND NOVEL NON-AEROSOL GENERATING BONDING TECHNIQUES DURING SARS-COV 2 PANDEMIC AMONG ORTHODONTIC PATIENTS: A RETROSPECTIVE COHORT STUDY**

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**Background:** As per Center of Disease Control guidelines, dentists must avoid aerosol generating procedures during SARS-CoV 2 pandemic. This study aimed to compare the rate of bracket bond failure with aerosol and non-aerosol generating bonding techniques.

**Study Design and Method:** A retrospective cohort study was conducted on a sample size of 44 patients (880 teeth), equally divided into two groups of conventional aerosol generating and novel non-aerosol generating bonding techniques during SARS-CoV 2 pandemic. The rate of bracket survival and total bracket breakages between two groups were assessed by survival regression analysis. The influence of pre-treatment factors such as ANB, FMA, overjet, overbite, upper and lower crowding were also assessed on the rate of bracket survival.

**Results:** There was a statistically significant difference between conventional aerosol bonding technique (ABT) and non-aerosol generating bonding technique (NABT). The mean bracket survival with ABT was  $176 \pm 77.89$  days and NABT was  $162 \pm 83.34$  days. NABT showed 2.65 times greater risk of bracket debond as compared to conventional ABT. There was a statistically significant ( $p = 0.02$ ) influence of overjet on the rate of bracket survival. The posterior segment had a higher rate of bracket failure which was statistically significant ( $p < 0.001$ ) as compared to the anterior segment in NABT. However, this difference was statistically insignificant in ABT.

**Conclusion:** There was an increased rate of bracket failure with the non-aerosol generating bonding as compared to the conventional aerosol generating bonding technique. The rate of breakages in the anterior quadrant with non-aerosol generating bonding technique were comparable to aerosol generating bonding technique.

**Keywords:** Bracket bonding, SARS-CoV 2, Orthodontic treatment

## 2.270

### **CLINICAL CHARACTERISTICS & TREATMENT OUTCOME OF PEDIATRIC NON-HODGKIN'S LYMPHOMA AT A TERTIARY CARE HOSPITAL IN PAKISTAN**

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**Background:** Lymphomas are the third most common tumors in children. Non-Hodgkin lymphomas (NHL) are aggressive, needing intensive chemotherapy with guarded outcomes in Low- & Middle-Income Countries due to delayed diagnosis, abandonment of therapy, and toxicity-related deaths.

**Study Design and Method:** This is a retrospective study which was conducted at our

institute and included all patients under 18 years of age who had newly diagnosed NHL from 2010-2020. The data was collected on a structured proforma, and included patient demographics, presentation, treatment provided, development of complications and treatment outcome.

**Results:** A total of 92 patients were enrolled in the study, mean-aged  $14.35 \pm 5.809$  years, majority being male 69 (75%). Fever was the most common presentation, 42/92 (45.7%), followed by shortness of breath in 20 (21.2%) and abdominal pain in 17 (18.5%) patients. Top three diagnoses were Burkitt Lymphoma 40 (43.5%), T Cell Lymphoblastic Lymphoma 17 (18.5%) and Diffuse Large B Cell Lymphoma-14 (15.2%). Common treatment related complications (51, 55.4%) were gastrointestinal, 8 (15.7%), neurological 5 (9.8%). Most toxicities were reported with the use of FABLMB96 therapy (23, 45.1%), followed by AALL0434 therapy (12, 23.5%). Among the study cohort 17 patients died (18.5%), 19 patients were lost to follow up (20.7%). PFS (progression free survival) and OS (overall survival) in the study cohort was 60.4%, and 81.3% respectively

**Conclusion:** Survival for those treated is comparable which can be improved with early identification and proper timely referrals, supportive care, and interventions to decrease treatment abandonment

**Keywords:** Lymphoma, Pediatric, Patient Presentations, Clinical Outcomes

2.271

### **CONGENITAL TUBULAR DUPLICATION OF THE SMALL BOWEL: CASE REPORT & REVIEW OF LITERATURE**

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**Background:** Duplications of the alimentary canal are scarcely come across in clinical practice and are therefore usually misdiagnosed at first. These duplications are found either as duplication cysts or as tubular enteric duplications with their symptoms varying depending on the location of the duplication

**Study Design and Method:** We present the case of a six-month-old child who presented to our emergency department with primary complaint of recurrent per rectal bleed for the last two days which wasn't associated with either loose stools or nausea & vomiting. Radionuclide scan done showed an area of active bleed in the small bowel. Following a preliminary diagnosis of Meckel's Diverticulum or an AV malformation, the child was taken to the operation room for exploratory laparotomy. Intra-operatively there was tubular duplication of the small bowel arising from the root of the mesentery. The length of the duplicated segment was 70cm, however after meticulous dissection 30cm of bowel was separated and saved from resection. The child remained stable and was discharged home on the 7th post-operative day. Final histopathology revealed cyst like structure covered by mucosa on both sides and sharing a common submucosal and muscular layer. Features were consistent with Meckel's diverticulum and duplication cyst. On his follow-up visit, he had no significant complaints and was doing clinically well.

**Conclusion:** The key to treating patients with tubular duplication is to take an aggressive diagnostic approach and do elective surgical procedure to excise the duplicated section in an optimal state of the patient to avoid complications.

**Keywords:** Congenital Tubular Duplication, Meckels Diverticulum, Pediatric Surgery

## 2.272

### **PERCEPTIONS OF MEDICAL STUDENTS REGRADING THE IMPACT ON JOB MARKET DUE TO AN INCREASED USE OF ARTIFICIAL INTELLIGENCE IN MEDICINE**

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**Introduction:** Artificial Intelligence (AI), provides accurate diagnosis and precision treatment. With medical students forming the next generation of healthcare workforce, this first-of-its-kind paper gauges the perceptions these individuals have on the impact on AI on the job market.

**Study Design and Method:** A cross sectional analytical study which recruited medical students from all five years of medical school was done. The variables assessed were students' knowledge of AI, their perception on the impact of AI on the healthcare job market, and their choices of choosing a medical specialty

**Results:** The average age of the respondents was  $22.23 \pm 1.43$  years, with a fair mix of both sexes ( $\text{♂}$ : 48.7%,  $\text{♀}$ : 51.3%), and belonging to the following years of medical school (Y1:4.7%, Y2:19.7%, Y3:31.1%, Y4:29.5%, Y5: 15%). The knowledge of AI was assessed using 11 questions, with the average score being  $4.94 \pm 1.92$ , and its involvement in medicine was assessed on 36 questions, with scores averaging  $15.34 \pm 3.77$ . Amongst these students, those scoring  $\geq 70\%$  were considered having satisfactory knowledge of AI (41, 21.2%). Of these 41 students, 28 (68.3%) believed that it's worth spending on AI as compared to humans; 19 (46.3%) believed that AI can downscale the physician workforce [ $> 20$  years (35, 85.3%) in

low income countries, and 10-20 years (21, 51.2%) in high income countries]

**Conclusion:** The students should be cognizant of the impact AI will have on the healthcare system, and choose future specialties which have lower chances of outdated the current medical job

**Keywords:** Artificial Intelligence, Job Market, Medical Students, Medical Education

## 2.273

### **IMPACT OF SODIUM GLUCOSE CO-TRANSPORTER TYPE 2 INHIBITORS ON ALANINE AMINO-TRANSFERASE LEVELS OF PATIENTS WITH TYPE 2 DIABETES HAVING NONALCOHOLIC FATTY LIVER DISEASE IN PAKISTANI POPULATION: A RETROSPECTIVE COHORT STUDY**

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**Background:** People with Type 2 diabetes (T2DM) tend to have increased tendency of Non-alcoholic fatty liver disease (NAFLD) that may lead to greater risk of Non-alcoholic steato-hepatitis, cirrhosis, and hepato-cellular carcinoma, hence resulting in increased mortality

**Objective:** To determine the changes in ALT levels after initiation of SGLT2-i in T2DM patients aged 30 – 60 years having NAFLD over a period of one year presenting to an Endocrine outpatient clinic of tertiary care hospital in Karachi.

**Methods:** We retrospectively examined the effects of SGLT2-i in 120 patients with T2DM having elevated ALT levels, using a validated questionnaire tool. Patients were of 30 – 60 years of age and followed up in Aga Khan University Hospital (AKUH), adult endocrine

clinic, during August 2018 – July 2019. We used Generalized Estimating Equation (GEE) for the analysis of our longitudinal data.

**Results:** At baseline, the overall mean age was  $48.9 \pm 7.3$  years, male to female ratio was 1.3:1 (57.5% vs 42.5%), and the mean BMI was  $32.5 \pm 5.7$  kg/m<sup>2</sup> [Table 1]. Approximately, 15% of the patients developed adverse events, most reporting increased frequency of urination (10.2%). Multivariable analysis using GEE showed that after adjusting for LDL and TG, the reduction in mean ALT by SGLT2-i use was observed to have different patterns at different levels in the presence of gender. Among male patients taking 10 mg Empagliflozin, there was an average of 4.2 IU/L [p-value 0.02] decrease in mean ALT levels as compared to female patients not taking any SGLT2-i, after adjusting for LDL and TG.

**Conclusion:** We observed an average reduction in mean ALT when SGLT2-i was added in standard treatment of patients with diabetes having NAFLD. Apart from educating for diet and lifestyle modification, early intervention with SGLT2-i may improve hepatic dysfunction and decrease the morbidity resulting from NAFLD.

**Keywords:** Sodium-glucose cotransporter-2 inhibitors (SGLT2-i), Non-alcoholic fatty liver disease (NAFLD), Type 2 Diabetes Mellitus.

# Health Profession Education

### 3.4

#### **BUDDING MEDICAL PROFESSIONALS AND COVID-19: THE IMPACT OF COVID-19 ON MENTAL HEALTH AND MEDICAL STUDENTS**

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**Background:** Due to the Novel Coronavirus Disease, medical education has transformed from a physical to an online-medium. Given the need for physical education with regards to clinical studies, particularly in low-and-middle-income countries (LMICs), where online education can be challenging there is a need to explore the factors that affect online education. This study assesses the perspective and mental health of students whose medical education has been impacted by the pandemic.

**Study Design and Method:** An online-questionnaire was distributed through social media platforms from October-to-December 2020 through Google-Forms among medical students across Pakistan. Two grading-scales were used to score anxiety and depression. Descriptive statistics and a logistic regression analysis was used to identify factors associated with anxiety and depression among medical students.  $P < 0.05$  was considered as significant. Data was analyzed using STATA v.15

**Results:** Total of 433 medical students participated in the study where 68.1% had some form of depression and 10.9% had anxiety. Around 65%-participants disagreed with the preference for online-classes. Seventy-percent agreed on “Has the thought of the pandemic made you worry about your academic future” being associated with COVID-19 related-

depression (OR: 2.03, 95%CI: 1.32-3.11). Multivariate analysis showed agreeing to “COVID affected my educational performance” was associated with anxiety (OR:1.45, 95%CI: 1.03-2.06) and depression (OR: 1.27, 95%CI: 1.03-1.56).

**Conclusion:** Being part of the Low- and-Middle-Income Countries (LMIC), online-education itself becomes a challenge. Given the continued shutdown of universities across the country and the growing anxiety and depression amongst the students, adequate measures should be taken to help in coping up with the current challenge.

**Keywords:** COVID-19; Medical education; Medical students; Mental health

### 3.5

#### **THE MISSING DOCTORS: UNDERSTANDING WHY WOMEN DOCTORS QUIT MEDICAL PRACTICE IN PAKISTAN**

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**Background:** Women doctors are an integral part of the healthcare delivery workforce globally. In Pakistan, the number of women choosing medical profession has increased in last decade, with 80-85% of all medical students being women. However, according to the Pakistan Medical & Dental Council, the proportion of women doctors in healthcare delivery workforce remains under 50%. This study aimed to assess the factors contributing to this attrition among women doctors and explore potential interventions that can mitigate this attrition rate.



**Study Design and Method:** A cross-sectional survey was conducted between December 2019 to December 2020 by disseminating questionnaires to over 100 medical colleges and hospitals in Pakistan. Baseline characteristics and reasons to pursue medicine were assessed. In addition, the questionnaire explored alternative career options and reasons that had led to discontinuation of medical practice for women who discontinued practice for >1 year. Furthermore, potential interventions that can alleviate attrition among women doctors were explored.

**Results:** A total of 662 women doctors responded; 31.6% had discontinued medical practice while rest were practicing. Only 24.9% [52 of 209] of non-practicing women doctors pursued alternative careers, with academic medicine and community health sciences being most common pursued options.

Women doctors who were married vs single, who graduated in 2001-2010 vs 2011-2020, and who were from Sindh vs Punjab were more likely to discontinue practice ( $p < 0.001$ ). The most pertinent reasons for discontinuing medical practice included inability to simultaneously manage motherhood/childcare or household responsibilities, lack of daycare facilities at work, medical workplace being unsupportive of motherhood, and limited maternity leaves. Flexible working hours, daycare facilities, and weekly work hour limits were the most common proposed interventions to reduce attrition.

**Conclusion:** Considering the devastating impact of attrition among women doctors on healthcare delivery system, it is imperative to address the need for flexible working hours, daycare facilities, and work hour limits. These would allow women to continue practice while simultaneously managing motherhood and personal life responsibilities.

**Keywords:** Women in medicine, women doctors, discontinuation of medical practice

### 3.6

#### **GENDER DISPARITIES AGAINST WOMEN SURGEONS: A PERSISTENT OBSTACLE FOR PAKISTAN**

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**Background:** Women in surgery are burdened with gender disparities, particularly in Pakistan. Such disparities can lead to burnout and attrition among women surgeons with drastic implications for population health and surgical care delivery system.

**Study Design and Method:** A narrative review was carried out on PubMed, Medline, and Scopus using different combinations of the following search terms: “Women OR Female”, “Surgery OR Surgical Field”, “Harassment”, “Discrimination”, and “Challenges”. English articles published till 30th September 2021 that explored disparities against women surgeons were reviewed.

**Results:** This review identified three main barriers faced by women in surgery. First, the work environment is unfavorable for women with inadequate support for pregnancy and parenting, limited mentorship and sponsorship opportunities, widespread harassment, negative perceptions among surgical community and patients, poor surgical identity, and limited opportunities for career advancement and leadership. Second, the surgical sphere is dominated by males resulting in exclusion of women from potential career development opportunities unless they conform to male standards. Lastly, women surgeons are hindered by societal pressures secondary to long-standing stereotypes and disproportionate work-life expectations and conflicts.

**Conclusion:** This situation warrants targeted and collaborative efforts by all stakeholders involved. Potential interventions that can be implemented include reassessing maternity leave policies, introducing daycare facilities at work, promoting shared paternity responsibilities, increasing recognition and compensation for mentorship, training surgeons in mentorship and sponsorship, introducing safe-disclosure programs and zero-tolerance policies towards harassment, ensuring transparency in pay and funding, conducting regular audits to ensure correction of gender pay gaps, encouraging all-inclusive networking spaces, and promoting confidence-building activities for women surgeons.

**Keywords:** Women, surgery, sexism, sexual harassment, non-sexual harassment

### 3.8

#### **FACTORS INFLUENCING THE INTENTION TO PURSUE SURGERY AMONGST FEMALE PRE-MEDICAL STUDENTS: A CROSS-SECTIONAL STUDY IN PAKISTAN**

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**Background:** While gender disparities in surgery are documented worldwide, it is unclear to what extent women consider surgery as a career before embarking on their medical school journey. This study aimed to report the percentage of pre-medical women in Pakistan who intend to eventually specialize in surgery and assess the factors motivating and deterring this decision.

**Study Design and Method:** An online cross-sectional survey was conducted amongst female pre-medical (high school) students across Pakistan. Multivariable logistic regression was performed to determine motivating and deterring factors associated with the intention to pursue surgery.

**Results:** Out of 1219 female high-school students, 764 (62.7) intended to join medical school. Amongst these 764, only 9.8% reported an exclusive intent to pursue surgery, while just 20.3% reported considering other specialties in addition to surgery. Significant motivators to pursue surgery exclusively were the intellectual satisfaction of pursuing surgery (adjusted odds ratio: 2.302), having opportunities to travel internationally for work (2.300) and use cutting-edge technology (2.203), interest in the specialty of surgery (2.031), the social prestige of becoming a surgeon (1.910), and considering one's personality well-suited to surgery (1.888). Major deterrents included the lack of interest in surgery (adjusted odds ratio: 3.812), surgical education and training being too difficult (2.440) and lengthy (1.404), and the risk of aggressive behaviour from patients (2.239).

**Conclusion:** Even before entering medical school, a majority of women have already disregarded considerations of a surgical career. Deterrents likely stem from women being pressured to conform to deep-seated societal expectations to dedicate their time and energy to domestic responsibilities.

**Keywords:** Pre-medical, surgery, female, motivators, deterrents

### 3.9

#### **THE IMPACT OF SHORT ICU ROTATION ON RESIDENTS' EXPERIENCE IN THE COVID 19 PANDEMIC A MIXED METHODS STUDY**

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**Background:** Intensive care unit (ICU) rotation is an integral part of most but not all residency programs. COVID-19 pandemic provided a unique opportunity as sudden increase in demand called for an unprecedented decision of utilizing doctors from all disciplines in critical care setups. We aimed to study the impact and utility of an ICU rotation as well as the need for mandatory rotations for all clinical specialties.

**Study Design and Method:** A mixed methods study was conducted with purposive sampling for all the doctors who rotated through COVID ICU between May and September 2020. A cross-sectional survey was undertaken, followed by two focused group discussions.

**Results:** 68 out of 86 responded to the questionnaire online, however, 59 forms were found complete, so this completed form was analyzed. 34(57.6%) doctors belonged to Surgical and allied programs and 25(42.3%) to Medicine and allied specialties. 57.6% had previous ICU experience. Majority of the participants reported apprehension at the time of posting as they felt inadequately prepared for an unfamiliar situation. Both groups, with and without prior experience, found the rotation equally challenging (82.3%vs84%) and gained similar practical skills (35.3%vs16%), however, those with experience gained significantly more knowledge (58.5%vs32%, 0.047). On opinion regarding mandatory ICU rotation, majority in both groups agreed to having a mandatory rotation (82%vs72%) with an optimal duration of 1-2months. The biggest barrier to learning for

experienced vs non-experienced residents was differences in critical care practices among different units (27.1%) versus inadequate exposure due to short rotation (27.1%), respectively. The FGDs found that residents from the medicine/allied considered the rotation as a learning opportunity while those from the surgical/nonclinical specialties considered it a waste of time as it was not a part of their curriculum.

**Conclusion:** As residents with prior ICU experience were more confident in dealing with critical COVID 19 patients, mandating ICU rotation for all residency programs might theoretically enhance the quality of our response to emergency situations. However, the actual utility of such a rotation in terms of residents' learning experience can only be ensured by identifying specialty specific needs and designing well-balanced competency-based curriculum.

**Keywords:** ICU rotation; COVID-19; pandemic response; Intensive care, Challenges

### 3.10

#### **TRAINING IN CARDIOTHORACIC SURGERY: THE ROLE FOR SIMULATION**

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**Background:** Adequate cardiothoracic surgical (CTS) training is essential for provision of quality care to patients. Over the recent years, simulation-based training has been advocated as an adjunct to traditional surgical training.

**Study Design and Method:** The PubMed and Google Scholar databases were accessed, and papers published between 2000 and 2021 were retrieved to explore the topics; 'Utility of simulators in Cardiothoracic Surgery training' and 'CTS simulation in LMICs, particularly

Pakistan'. Low and high-fidelity simulators were also explored in detail.

**Results:** Simulation has opened doors for trainees to practice an array of realistic full-length procedures in a safe and controlled environment with the window to make mistakes and consider them as learning points. Low-fidelity simulators (Synthetic models) and high-fidelity simulators (Tissue-based porcine simulators, Beating heart model by Chamberlain Group, Ramphal cardiac surgery simulator (RCSS), UNC Thoracic Surgery Simulator and Orpheus perfusion simulator) are employed in CTS training for a variety of different procedures including vascular anastomosis, cannulations, valve repair/replacement, coronary artery bypass surgery, heart transplantation, open and thoracoscopic lobectomies, pericardial window, hilar dissection, and thoracic resections. There is significant evidence to demonstrate the effectiveness of CTS simulation in improving surgical skills and operating room performances in addition to building confidence among trainees. Literature has reported high OSATS score (Objective Structured Assessment of Technical Skills) among trainees taught with simulation technology, especially high-fidelity simulators.

**Conclusion:** Incorporating simulation-based training as an adjunct to traditional apprenticeship model of training will enhance surgical abilities and confidence among trainees and provide them a room for making mistakes and improving their proficiency in order to perform better in operating room. Despite the need, use of simulation in CTS training remains limited in Pakistan, attributed to the high financial demands. However, cost-effective methodologies should be explored to be able to utilize simulation in a low resource setting.

**Keywords:** Surgery, patient simulation, simulation training, high fidelity simulation training, low fidelity simulation training.

### 3.12

#### **EVALUATING CLINICAL LEARNING ENVIRONMENT FOR POSTGRADUATE TRAINEES AT A TERTIARY CARE CENTRE**

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**Background:** The clinical learning environment (CLE) is “the overlapping space between the clinical or workplace based learning environment, and the educational context and practices. It is the strongest predictor of preparedness for practice. Resident perceptions of their CLE serve as quality indicator of the education taking place at the workplace. The purpose of the current study is to measure residents’ perceptions regarding their CLE at the Aga Khan University (AKU) using Postgraduate Hospital Educational Environment Measure (PHEEM) inventory.

**Study Design and Method:** This cross sectional study (ERC#: 2020-5536-14919) was conducted at AKU. An email explaining the purpose of the study, and consent form was sent to all the 500 residents currently enrolled in all 34 residency programs at AKU. Those consented were sent the online PHEEM inventory. One-way ANOVA was used to measure difference between gender, year of training and residency programs. P-values of <0.05 was taken as significant.

**Results:** A total of 347 (69.4%) residents responded. The overall mean score was 107/160±21.4 indicating ‘more positives than negatives but room for improvement’. The mean scores for the subdomains of Autonomy, Teaching, and Social support were found to be 33±7.24 (More positive perception), 42±8.9 (Moving in right direction) and 27±6.2 (More pros than cons) respectively. There was no difference in the CLE perceptions on the basis of

gender. There were significant differences in the CLE scores on the basis of residency program with highest in Radiology (122.3±13.5) and lowest in Surgery (95.47±19.0); and across years of residency training with highest in first year (111.3±17.8) and lowest scores in the final year (81.5±34.3) of training.

**Conclusion:** The overall CLE for the postgraduate programs at AKU was perceived as 'more positive than negative'. Remedial measures addressing the areas identified through PHEEM can improve the quality of the CLE in the residency program(s).

**Keywords:** Learning Environment, residency training, teaching and learning

### 3.15

#### **TEACHING BLOOPERS: THE FUN PART OF THE ONLINE TEACHING TEACHING!**

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**Background:** Background: During COVID-19 pandemic, the institutions in Pakistan have started online learning. Many institutions have become interested in how to best deliver course content online, engage learners and conduct assessments. "The best players learn from their mistakes and cope with failure as well as success. The major part of the world is on quarantine due to the serious outbreak of this global pandemic Covid-19.

**Study Design and Method:** Method: This is a scholarly article in which the teaching bloopers has been explored. Though effective instructor presence in an online course requires consideration and planning, the benefits are many. Teachers employ different strategies to deal with errors occur in the classrooms Strong instructor presence has been shown to increase participation, facilitate knowledge acquisition, and foster a healthy learning community.

**Results:** Remote learning is new for everyone, so, expectedly, there are some hiccups along the way. The sudden shift to digital teaching was challenging for students, but it appears that they adapted quickly to the new situation Parents, students, and educators are all in new situations and learning along the way.

**Conclusion:** Even though remote learning may be a learning experience for everyone, you can still find the humor in it. These funny teachers were at the heart of the new learning style, and they overcame the hardships and were able to laugh at themselves. Teachers had to deal with the issue of improvising with teaching materials and supplies. They also had to set up a teaching space free from background distractions and people walking by. Many times, however, these plans and setups failed and were recorded on video.

**Keywords:** Keywords: online teaching, Bloopers, Humor

### 3.16

#### **STEP TOWARDS SAFE PN THERAPY: KNOWLEDGE ASSESSMENT OF PHYSICIANS ABOUT NEONATAL PARENTERAL NUTRITION & TEACHING SESSIONS BY PHARMACIST TO FILL THE GAPS**

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**Background:** Primary physicians has important role in improving PN care and outcomes through active involvement in determining nutritional necessity and the goals of therapy. To evaluate the current knowledge of physicians and improve it by different teaching methods, like sessions and flyers, mails

**Study Design and Method:** The Number of prescribing errors in PN orders & Pharmacist time consumed on order corrections every day was studied. Average number of inpatient orders for adult & pediatric population, Number & type

of prescribing errors were evaluated .Found mostly related to wrong route of administration ( 5/days), wrong calculation(7/day ) ,wrong patient selection ( 10/month ) , hepatic adjusted doses ( 7/day ) .

As Pharmacist is not clinically involved in this process so time spend per order is about 7-10min (Tracing the ordering Doctors, paging, waiting, discussion, correction of order and reconfirmation) in all mentioned steps.

Sessions were conducted of NICU & Surgery and Oncology wards residents. In NICU senior fellow took the lead , 30 Doctors including neonatologists till interns attended the session In Surgery and Oncology wards senior Resident took the lead , 35 residents attended the session.

**Results:** A questionnaire containing 10 questions was filled by the physicians, pre and post the session Pre-test average was 3 and Post –test average is 8

**Conclusion:** To improve the PN therapy care in the hospital knowledge of primary physicians needs to be improved about

- What Is PN, when to start this therapy, Safe route of administration, Special considerations in special disease stat, Monitoring Complications associated with therapy, How to associated complications with patient disease stat and therapy, How to treat that complication by change

**Keywords:** Pharmacist, Parenteral Nutrition, TPN

### 3.17

#### ***SPECIALIZED LECTURES IN EMERGENCY MEDICINE (SLEM) – STRENGTHENING THE DEVELOPING COUNTRY EMERGENCY MEDICINE EDUCATION VIRTUALLY THROUGH COMMUNITIES OF PRACTICE EDUCATION THEORY.***

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**Background:** The primary aim of SLEM was to develop collaborations in emergency medicine education with improvement in knowledge and skills in clinical practice of emergency medicine and to develop a global platform of emergency physicians conforming to the principles of community of practice to improve residency training and to recognize our residency program amongst the developed country residency programs

**Study Design and Method:** The program was initiated with an understanding of the impact of social relationships on social learning underpinned with the idea of community of practice. The program involves physicians from the United States, United Kingdom and Canada working in emergency medicine and critical care. The topics were diverse and pertinent to the emergency medicine practice of Pakistan.

**Results:** From March to October 2021 we had 14 presenters in SLEM. 28% of our presenters were professors, 57% Assistant Professor and remaining Associate Professors. The feedback taken from the presenters were on a 4 point Likert scale from fair, good, very good to excellent. The participants that were in majority in all the sessions were residents 95% with 3% faculty (early to senior level). Majority 98% of the participants find the talk relevant to the clinical practice, engaging and the attention span remained the same during the 45 minutes.

**Conclusion:** SLEM has played an important role in strengthening the academic component of our residency in this COVID pandemic. Despite the sessions are held virtually and after hours, the engagement of the residents and faculty and subsequent feedback of increased knowledge and improvement in clinical practice is satisfactory.

**Keywords:** Emergency Medicine, Communities of practice, medical education

### 3.18

#### **EFFECTIVENESS OF POINT OF CARE ULTRASONOGRAPHIC LIFE SUPPORT IN EMERGENCY (PULSE) TRAINING IN MANAGEMENT OF CRITICALLY ILL PATIENT - A QUASI EXPERIMENTAL STUDY**

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**Background:** Point of care ultrasound (POCUS) is being increasingly used by emergency physicians in patients who are critically ill. It is not only time and cost-effective, but it is highly accurate in the diagnosis and management of critically ill patients presenting to the emergency department where access to diagnostic imaging may be delayed. The purpose of this study was to evaluate the effects of POCUS training course on the knowledge and skills acquisition of junior to mid-level residents of emergency department.

**Study Design and Method:** A single day point of care ultrasonographic life support in emergency (PULSE) training course was conducted in October 2021 at Aga Khan University Hospital, Karachi, Pakistan. A standardized training curriculum was developed that included lectures and hands on training sessions. The pre-course assessment tools included a written examination to evaluate baseline knowledge and image interpretation skills. The same assessment tool was administered post-course, along with a course evaluation. Most of the participants were junior residents from the emergency training program and rest were mid level to senior residents. Data was analyzed using paired sample test keeping a significant p-value of <0.05

**Results:** In total 32 participants attended the course. Twenty two junior residents (PGY 1 and 2) with experience of fewer than two years were evaluated in pre and post test analysis. Mean and percentage group performance improved from 9

and 45% before intervention to 13 and 67% after intervention (p-value <0.05). Both before and after training all participants agreed that the course improved their clinical skills.

**Conclusion:** All participants showed improvement in their knowledge and confidence regarding the use of point of care ultrasound in life-threatening conditions. Future studies are needed to compare the effectiveness of short training courses on image acquisition skills to determine ideal course design.

**Keywords:** Emergency Department, POCUS, ultrasonography

### 3.19

#### **DENTAL HYGIENE EDUCATION IN PAKISTAN: PROGRAM EVALUATION.**

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**Background:** To address the oral disease burden and lack of trained dental professionals, a 2-year Associate of Sciences in Dental Hygiene (ASDH) program was implemented at the Aga Khan University (AKU), Karachi, Pakistan in 2015. Program evaluation with multiple components, such as student exit surveys are essential for ensuring quality program delivery. The purpose of this study was to assess the overall student experience upon completion of the ASDH program.

**Study Design and Method:** Retrospective Qualitative

**Results:** Completed surveys were received from 28 of 35 graduates (80%). Sixty-eight percent A/SA the program is excellent and 82% feel prepared to enter a clinical internship. Students are very satisfied (75%) with their community outreach and teaching experiences. More students in year 2 reported high stress (82%) compared to year 1 (43%) and concerns with

faculty turnover, overall program workload, uncertainty of jobs, and desire for the program to offer a Bachelor's degree.

**Conclusion:** Program evaluation is critical to ongoing development and to ensure a quality student experience. Challenges include a reliance on volunteer faculty and addressing stress in YR2 is a priority to support young students. Further program evaluation steps are in process as the program prepares for its first institutionally mandated quality assurance review. Ongoing educational development for scholarly teaching and learning remain vital for program growth and success.

**Keywords:** Dental Hygiene Education, Program Evaluation, Pakistan

### 3.20

#### **RETROSPECTIVE COMPARISON OF HEART AND LUNG DOSES IN PEDIATRIC PATIENTS FOR HODGKINS DISEASE FOLLOWING MEDIASTINAL RADIOTHERAPY USING 3DCRT VERSUS IMRT TECHNIQUE: 10-YEAR RADIOTHERAPY EXPERIENCE AT A TERTIARY CARE UNIVERSITY HOSPITAL IN PAKISTAN**

*Yumna Ahmed, Fatima Shaukat, Agha Muhammad Hammad Khan, Maria Tariq, Nadeem Abbasi, Bilal Mazhar Qureshi  
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**Background:** Radiation therapy (RT) remains one of most effective modality for the treatment of Hodgkin lymphoma (HL) in pediatric patients with relapsed or refractory disease. Pulmonary and cardiac toxicities are associated with mediastinal RT in patients with HL. The aim of our study is to evaluate the dose of radiation received by lungs and heart using 3D conformal RT (3DCRT) or intensity modulated RT (IMRT) in patients who received mediastinal RT at tertiary care university hospital in Pakistan

**Study Design and Method:** All patients from (January, 2009 till October 2020) who were

offered mediastinal RT after discussion in pediatric tumor board meeting were retrospectively reviewed for dose distribution to lungs and heart. RT was planned with 3DCRT or IMRT technique according to pediatric protocol. Average mean dose of heart and lung and tolerance dose criteria  $v_{20}$  and  $v_{30}$  of lung were calculated for each technique. Age of patient and contoured volume of organ at risk were also reviewed

**Results:** Twenty-five patients, treated with mediastinal RT for HL were identified. A total of 23 were included in the analysis as 2 patients were planned with 2D technique. There were 17 males and 5 female patients. Mean age was  $10.33(\pm 4.35)$  with 3DCRT and  $11.61(\pm 3.68)$  years who were treated with IMRT. The heart mean dose was 325cGy with 3DCRT and 1349cGy with IMRT ( $p=0.001$ ).  $V_{20}$  -% of lung was 12(7.5, 15) with 3DCRT and 11(5.4, 22) with IMRT. The mean dose of heart was significantly reduced in 3DCRT. No difference was seen for  $V_{20-30}$  lung doses but larger volume of normal lung received lower doses with IMRT. No association of age of patient and radiation doses was identified

**Conclusion:** The optimal balance between disease control and RT related toxicity is of crucial importance. This study will facilitate future implementation of RT in a way to maximize the benefit while keeping the normal tissue RT doses as low as possible

**Keywords:** Pediatric, Hodgkin's, mediastinal Radiotherapy, 3DCRT, IMRT, lung, heart



### 3.21

#### **ACUTE HEMATOLOGIC TOXICITY & TREATMENT GAPS DURING RADIOTHERAPY IN CHILDREN WITH HODGKINS LYMPHOMA: 10-YEAR EXPERIENCE OF RADIATION THERAPY AT A TERTIARY CARE UNIVERSITY HOSPITAL IN PAKISTAN**

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Department of Oncology, Aga Khan University*

**Background:** Radiation therapy (RT) is important component of curative treatment for pediatric Hodgkin's Lymphoma (HL) for residual disease after initial chemotherapy and those having refractory/relapsed disease. Large volume of radiotherapy may pose a risk for acute hematologic toxicity which could result in radiation treatment gaps. We report our experience of RT for children with HL treated at tertiary care university hospital in Pakistan

**Study Design and Method:** Radiotherapy was offered in multidisciplinary tumor board meeting to patients having less than complete response on early assessment with CT or PET-CT after initial chemotherapy. Dose of 19.8Gy/11 fractions was given for consolidation at the end of chemotherapy with 10Gy/5fractions boost to residual disease on early assessment. Patients with relapsed or residual disease were offered 25-30Gy. Treatment gaps and hematologic toxicity was observed in these patients.

**Results:** From January 2009-October 2020, 55 patients of HL were treated with RT in our hospital out of which 33 are included for analysis. mean age was 11( $\pm$  4.4) years, 26(79%) male and 7(21%) female patients. Neck was irradiated in 23(70%) patients, axilla in 8(24%) and mediastinum in 10(30%) patients. treatment volume included Spleen in 8(24%), abdominal nodes in 11(33%) and inguinal area in only 2 patients. Fourteen of thirty-three patients received supra & infradiaphragmatic radiation

out of whom 9(27%) receive them simultaneously and five(15%) received sequential radiation to these regions. Radiation was planned with 3D conformal technique in 23(70%) and with IMRT in 10(30%) patients. RT field size or dose did not appear to impact hematologic toxicity. There were treatment interruption in 6(18.2%) patients but was not due to need of antibiotic therapy, hospital admission or cytopenia during the course of radiotherapy.

**Conclusion:** Radiotherapy can be given for large burden nodal disease without treatment gaps and acute hematologic toxicity. However, extended follow-up is to be reported for long-term hematologic and other consequences.

**Keywords:** Hodgkin's, hematologic toxicity, treatment gaps, radiotherapy

### 3.22

#### **IMPACT OF MRI CO-REGISTRATION WITH PLANNING CT SCAN ON RADIOTHERAPY PLANNING FOR PEDIATRIC MEDULLOBLASTOMA 10-YEAR RADIOTHERAPY EXPERIENCE AT A TERTIARY CARE UNIVERSITY HOSPITAL IN PAKISTAN**

*Yumna Ahmed, Fatima Shaukat, Agha Muhammad Hammad Khan, Laraib Khan, Maria Tariq, Asim Hafeez, Sehrish Abrar, Bilal Mazhar Qureshi  
Department of Oncology, Aga Khan University*

**Background:** Radiotherapy is an essential component of treatment in the curative management of medulloblastoma. MRI plays dominant role in delineating radiotherapy target contours and organs at risk due to its superior soft-tissue contrast compared with CT in patients with medulloblastoma. The aim of this study is to assess the effectiveness of MRI fusion with planning CT scan in radiotherapy of children with medulloblastoma

**Study Design and Method:** Hospital information management system, cancer registry and radiation oncology record system were searched

to identify children aged up to 18 years of age and received craniospinal irradiation (CSI) followed by boost for medulloblastoma based on pediatric protocol. Treatment volumes were delineated on Planning CT alone or on Planning CT and MRI images consecutively and image fusion was obtained. Data was collected for age, dose, radiation technique, volume of boost and MRI fusion for radiation planning

**Results:** We identified 27 patients treated on pediatric protocol for medulloblastoma from January 2009 till December 2020. Mean age was  $9.3 \pm 4.4$  years. There were 20 (74%) males and 7 (26%) female patients. General anesthesia was given in 8 (30%) children. All radiation treatment plans were peer reviewed for quality assurance. Total dose of radiotherapy was 54-55.8Gy. Radiotherapy technique was 3DCRT in 21 (78%) and IMRT in 6 (22%) patients. CSI was delivered to all patients based on high risk 11 (41%) to a dose of 36Gy and 23.4Gy standard risk 16 (59%) protocol for medulloblastoma patients.

Boost radiotherapy to tumor bed was delivered to most of the patients 9 (75%) planned with MRI/CT fusion as compared with 3 (25%) with CT only planning. Posterior fossa boost radiotherapy was delivered to 10 (67%) patients planned with CT only and 5 (33%) with MRI/CT fusion planning.

**Conclusion:** MRI fusion with planning CT scan helped reduce boost volume from posterior fossa to tumor bed in medulloblastoma patients. Further studies may help see the impact of volume reduction on neurocognitive and other clinical outcomes

**Keywords:** radiotherapy, medulloblastoma, MRI coregistration, planning

### 3.23

#### **EFFECTS OF HYPO FRACTIONATED RADIOTHERAPY ON ACUTE SKIN TOXICITY IN ADULT FEMALE PATIENTS WITH BREAST CANCER.**

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Radiation Oncology, Aga Khan University

**Background:** Radiotherapy (RT) is the mainstay of treatment in breast cancer patients. Radiation treatment paradigm has been shifted towards hypo fractionated RT. This study aims to determine severity of acute dermatitis in patients receiving hypo fractionated RT for breast cancer at tertiary care university hospital in Pakistan

**Study Design and Method:** Patients with biopsy proven IDC or DCIS referred by breast surgeon or medical oncologist for radical radiotherapy, will be enrolled in the study after informed consent. Physical assessment of patients for evaluation of severity of radiation dermatitis will be done at first week, last week and on first follow up after 1 month of completion of RT according to The RTOG/EORTC criteria.

**Results:** We identified 92 patients from Jan 2019 to June 2019. Mean age was 53.1 years. All patients were discussed in breast oncology tumor board before being referred for radiation treatment. Out of 92 patients 44(48%) patients treated for right breast cancer and 48(52%) patients for left breast cancer. Most of the treated patients had clinical stage 3(51) while others were stage 2(36), stage 1(2) and stage 0(3). Surgery performed were mastectomy in 59 patients and breast conserving surgery in 33 patients. Histology was IDC (95%) and DCIS (3%) and LCIS (2%). Most of the patients receive chemotherapy 96%. Radiotherapy dose was 4256cGy in 16 fractions followed by boost of 10Gy. Radiation technique was IMRT (47.8%) and 3DCRT (52.2%). Most of the patients experienced no toxicity i.e. 59% while grade I toxicity was observed in 29% patients and 11%

grade 2 toxicity was observed. Only 1% of patients experienced grade III skin toxicity.

**Conclusion:** Hypo fractionated radiation therapy is beneficial because of the shorter overall treatment time which reduces the socioeconomic burden, not only for patients but also for radio therapeutic institutions. However, extended follow-up is to be reported for long-term toxicity and other consequences

**Keywords:** breast cancer, radiotherapy, skin, dermatitis

### 3.24

#### **PULMONARY HYALINIZING GRANULOMA: A RARE CAUSE OF PULMONARY NODULES**

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**Background:** Pulmonary hyalinizing granuloma (PHG) is a rare lung disease characterized by presence of single or multiple lung nodules. The disease is often asymptomatic and diagnosis requires histopathologic confirmation. PHG generally carries a good prognosis. Significant amelioration of respiratory symptoms is often seen with corticosteroids

**Study Design and Method:** A 40-year-old, housewife, with no known comorbid, presented with complaints of cough and shortness of breath for around 10 months. She also mentioned low-grade fever with fatigue but no weight loss. She had a 10 pack years history of smoking. She denied joint pains, skin rash or ulcers. On physical exam, her respiratory rate was 20 bpm, and SpO<sub>2</sub> of 99% on room air with no digital clubbing. There were normal vesicular breath sounds on chest auscultation. Chest X-Ray showed bilateral multiple rounded opacities. CT chest revealed multiple nodules and masses of variable shapes and sizes. Investigations showed ANA positivity with fine speckled pattern but Anti- dsDNA, RA factor and ENA profile were negative. She then underwent CT-

guided biopsy that showed cores of fibrocollagenous tissue with dense keloid like collagen arranged in whorls with interspersed histiocytes and lymphocytes. Special stains including congo red, AFB, Periodic acid schiff diastase(PASD) were negative. She was diagnosed as Pulmonary hyalinizing granuloma. Marked clinical response was seen with corticosteroids within 3 weeks of initiation of treatment.

**Results:** PHG was first reported in 1964 by Benfield. The occurrence of this disease is linked to an exaggerated immune response to any infectious or autoimmune processes. Lhote et al. performed a detailed analysis of 135 cases of PHG published between 1964 and 2015. The results revealed that median age is usually 44 years with male predominance and the most common presenting symptom was cough (44%). Conditions associated with PHG were wide in number including infections (14.1%), autoimmune diseases (12.1%), tumors (4.4%). CT-guided percutaneous biopsy of lesions is required to confirm the diagnosis. Radiographic improvement in the nodules was more frequent in patients treated with corticosteroids than patients without treatment (42.1% and 4.4 % respectively).

**Conclusion:** PHG remains a unique nodular lung disease. It is a great mimicker of pulmonary metastases and tuberculosis. Hence this case signifies the histopathologic confirmation in all such cases where tuberculosis remains an endemic disease and a high probability of metastatic disease should not distract the clinician from rarities.

**Keywords:** Pulmonary Hyalinizing Granuloma, Nodule, PAS positive, Corticosteroids

### 3.25

#### **VARICELLA PNEUMONIA IN AN IMMUNOCOMPETENT HOST-A DIAGNOSTIC CHALLENGE**

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**Background:** Varicella pneumonia is one of the dreaded complications of varicella zoster virus (VZV) infection with overall mortality of about 10-30%. Mortality approaches approximately 50% in those requiring mechanical ventilation for respiratory failure. An atypical rash, a positive history of contact with chickenpox and bilateral infiltrates accompanied by hypoxemia and/or progressively worsening respiratory failure should raise suspicion of VZV pneumonia.

**Study Design and Method:** A 36-year-old never smoking male with no known co-morbidities presented with a history of severe body aches followed by development of body rash, severe dyspnea and an episode of blood-tinged sputum. On arrival in ED, the patient was in hypoxic respiratory failure. Examination revealed a diffuse rash, most prominent on the forehead with few scattered lesions on trunk and limbs. The rash was pustular with central umbilication. Chest auscultation revealed bilateral coarse crackles. Chest radiography showed bilateral reticulonodular infiltrates. A viral exanthem with associated respiratory failure was suspected. Further history revealed contact with a sick child at home (suffered a febrile illness with a rash that subsided with supportive care). Based on a high clinical suspicion of VZV, IV acyclovir was started. After 48 hours of hospital care, he continued to be hypoxic and was spiking fever, he was then offered mechanical ventilation for respiratory failure and managed as ARDS. Serum titers tested positive for VZV IgM. After a prolonged hospitalization, our patient recovered fully and was discharged home.

**Results:** Severe pneumonia as a complication of VZV infection is more often seen in adults,

particularly immunosuppressed adults, & is associated with significant morbidity and mortality.

VZV is transmitted via an airborne route. Lung involvement in VZV seems to occur via blood stream rather than local extension down the respiratory tree (signified by positive monoclonal antibodies). Pulmonary damage arises as a result of local endothelial damage with focal hemorrhagic necrosis. Treatment comprises of IV Acyclovir. Use of adjunctive corticosteroids in life-threatening varicella pneumonia is controversial.

**Conclusion:** VZV infection in adults can cause severe pneumonia, respiratory failure and even death. A rash in the context of a positive contact history of chickenpox and progressive respiratory failure – should raise clinical suspicion of a possible VZV pneumonia in adults. A high clinical suspicion and a prompt diagnosis is crucial to reducing morbidity and mortality in these patients.

**Keywords:** Varicella pneumonia, Immunocompetent host, Acyclovir

### 3.26

#### **A NEGLECTED CASE OF RECURRENT HEMOPTYSIS**

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**Background:** Chronic Pulmonary Aspergillosis (CPA) is post-tuberculosis sequelae which should be considered as a cause of hemoptysis in post TB patients as it leads to significant morbidity and mortality. There is growing evidence that it is much more common than previously perceived, with an estimated global prevalence of 3 million cases. The diagnosis of CPA is based on the constellation of clinical symptoms for at least 3 months, persistent or progressive radiological features and the

presence of either direct (positive sputum or bronchoalveolar lavage fluid [BALF] culture) or indirect (Aspergillus fumigatus- specific precipitins [or IgG] antibodies in serum) evidence of Aspergillus infection. The serum A. fumigatus- specific IgG is considered the most sensitive test for the diagnosis of CPA. With the recent advent of testing for Aspergillus specific IgG, we hereby present a case of young lady with recurrent hemoptysis.

**Study Design and Method:** Case Report:

A 20-year-old girl presented with history of blood stained sputum for 4-5 months. She has finished her antituberculous therapy several months back but continues to have hemoptysis with copious amount of sputum. She has seen multiple pulmonologists and general practitioners so far and has been treated with multiple courses of antibiotics. On exam, a thin lean girl of average height, hemodynamically stable with no hypoxia. On chest auscultation, there were harsh breath sounds on upper and middle right chest posteriorly. Chest X- ray showed right sided mediastinal shift and volume loss with elevation of right hilum and hemidiaphragm causing volume loss with an inhomogenous opacity involving right upper and mid lung zones. CT Chest showed a thick cavity with air-crescent sign involving right upper lobe with mediastinal shift towards right side. Titers for Aspergillus specific IgG turned out to be very high in her case, > 400 for Aspergillus fumigatus and > 200 for Aspergillus flavus. A diagnosis of Chronic cavitary Pulmonary Aspergillosis (CCPA) was made and she was started on Cap Itraconazole.

**Results:** -

**Conclusion:** Conclusion:

CPA is a post-tuberculosis sequela which is often overlooked and under-diagnosed due to unavailability of testing in developing countries. With the recent advent of Aspergillus specific IgG in our part of the world, which is considered pivotal in making a confident diagnosis of CPA,

we would be able to measure actual disease burden and manage it with appropriate antifungal therapy and surgical interventions where appropriate

**Keywords:** Chronic Pulmonary Aspergillosis (CPA), Hemoptysis, Aspergillus

3.27

**BRONCHIECTASIS & TACROLIMUS IN A LIVER TRANSPLANT- A POSSIBLE RELATIONSHIP**

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**Background:** To date, in literature, there are no case reports where post-liver transplant recipients on tacrolimus developed bronchiectasis. Although there are few case series where patients on mycophenolate mofetil after kidney and liver transplants developed bronchiectasis, and MMF was assumed to be a culprit drug. We also inferred tacrolimus as the possible cause of bronchiectasis in our patient as he had no other apparent causes and negative history for prior pulmonary diseases. There are case reports on pulmonary complications of tacrolimus including Interstitial lung diseases such as acute pneumonitis, organizing pneumonia pattern, acute eosinophilic pneumonia.

**Study Design and Method:** Case Report:

A 71-year-old gentleman, a retired Engineer, known diabetic and hypertensive, presented in ED with 1 week history of hemoptysis. He denies no prior such complaints. No constitutional symptoms were present. He had undergone liver transplantation for HCV chronic liver disease in 2012. His current immunosuppressant regimen for that only comprised of tacrolimus. On presentation in ED, he was hemodynamically stable with no signs of respiratory distress. Chest auscultation revealed bilateral biphasic coarse crackles posteriorly upto midchest. HRCT chest revealed bronchiectasis bilaterally, more marked in lower

lobes. Bronchoscopy with bronchoalveolar lavage were negative for any microorganisms. He was started empirically on amoxicillin/clavulanate to which he responded well. He was then discharged home in a stable shape.

**Results:** Tacrolimus is a potent immunosuppressive agent. It is considered superior in terms of preventing acute rejection, steroid-resistant rejection, graft loss, and postoperative death. The drug is extensively metabolized by cytochrome P450 CYP3A enzymes in the liver. The known side effects profile of tacrolimus includes nephrotoxicity, hypertension, neurotoxicity, increased risk of bacterial, viral infections, sepsis, metabolic derangements.

The importance of cytotoxic T-cells is supported by subjects with one type of “bare lymphocyte syndrome” who lack transporter associated with antigen presentation (TAP) and cannot put major histocompatibility complex (MHC) class I molecules on their surface. In these patients, CD8+ T-cells are lacking, because they cannot be positively selected in the thymus, which lacks MHC class I expression. Without expression of MHC class I and CD8+ T cells, these patients suffer from persistent respiratory viral and bacterial infections. A consequence of these repeated respiratory infections is the development of anatomic damage to the airways that, ultimately, results in bronchiectasis.

**Conclusion:** Tacrolimus by reducing T-cell production can increase the risk of recurrent and chronic pulmonary infections that as a consequence of airway damage and remodeling can lead to development of bronchiectasis.

**Keywords:** Tacrolimus, Bronchiectasis, Liver transplant

### 3.28

#### **A RARE TUMOR OF PLEURA IN A GENTLEMAN FROM AFGHANISTAN**

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**Background:** Pulmonary Sarcomatoid carcinomas (PSC) are rare, poorly differentiated variants of Non-small cell lung cancers (NSCLC) that comprise 0.3-3% of all primary lung neoplasms. Diagnosis of PSC mainly relies on light microscopy while Immunohistochemical (IHC) panel lacks definitive role for diagnostic confirmation

**Study Design and Method:** A 60-year-old Afghan male, construction worker, presented through ED with 4 years history of intermittent chest pain, shortness of breath, cough and low-grade fever. He was a never smoker. On physical exam, his respiratory rate was 28 bpm with oxygen saturation 87% on room air and decreased breath sounds on right side of the chest. His Chest X-ray showed right sided diffuse infiltrates and opacification. CT chest showed circumferential nodular soft tissue encasement of right lung, likely pleural based with volume loss. CT-guided biopsy was performed. Microscopic examination showed a biphasic neoplastic lesion composed predominantly of epithelioid to spindle shaped, moderately pleomorphic, hyperchromatic to vesicular nuclei, prominent nucleoli and eosinophilic to clear cytoplasm and a minor component exhibiting glandular architecture. An IHC panel was performed that showed diffuse positive expression of Cytokeratin (CK) AE1/AE3, CAM 5.2 and TLE-1 in both neoplastic components.

Cytokeratin 7 and 19 positivity was seen only in glandular component. Cytogenetic for translocation t (X; 18) was negative for synovial sarcoma. He was diagnosed as Sarcomatoid carcinoma. He preferentially wanted to be

treated in his country so his outcome remains unknown

**Results:** SC of lung are defined as de-differentiated NSCLC with both sarcoma, and sarcoma-like differentiation. World Health Organization has divided SC into 5 subtypes including Spindle cell carcinoma, Giant cell carcinoma, Pleomorphic carcinoma, Carcinosarcoma and Biphasic pulmonary blastoma. Majority of patients are elderly, smokers, presenting with non-specific symptoms and a peripheral mass with well-defined margins. Prognosis is dismal. Chromosomal translocation t (X; 18) has been seen in >90% synovial sarcomas.

**Conclusion:** In our opinion, the combination of relevant clinical history, radiologic imaging, appropriate immunohistochemical markers and cytogenetics are key in differentiating closely related sarcomatoid carcinomas, true sarcomas and sarcomatoid mesotheliomas

**Keywords:** Pulmonary sarcomatoid carcinoma, Cytogenetics, Immunohistochemical panel

### 3.30

#### **DEVELOPMENT OF A VIRTUAL CLASSROOM FOR PRE-ANALYTICAL PHASE OF LABORATORY MEDICINE FOR UNDERGRADUATE MEDICAL STUDENTS USING THE DELPHI TECHNIQUE WITH CHEMICAL PATHOLOGY EXPERTS DURING THE COVID-19 PANDEMIC**

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**Background:** Pre-analytical phase of laboratory medicine is the most error-prone. Knowledge gaps are identified amongst undergraduate students due to lack of formal teaching regarding the pre-analytical phase. This study was conducted to seek experts' consensus in Clinical Chemistry on learning objectives using the Delphi technique and to develop a virtual

classroom for pre-analytical factors of laboratory testing during the COVID-19 pandemic.

**Study Design and Method:** A mixed-method study was planned at the Section of Clinical Chemistry, Department of Pathology & Laboratory Medicine, Aga Khan University. Based on literature search, a questionnaire was developed on Google-Docs. A four-point Likert-Scale was utilized for learning objectives. An open-ended question was included for experts to suggest items for inclusion. A cut-off of 75% agreement was set for consensus. Seventeen Chemical Pathology faculty from 13 institutions across Pakistan were invited to participate in the Delphi process as 'experts.' Later, the agreed-upon objectives and triggers were used to develop interactive scenarios over Moodle to concurrently test-and-teach medical students in a nonchalant manner.

**Results:** Seventeen responses were received for the Delphi process (response rate = 100%). In round 1, all 16 learning objectives reached consensus (>75%). Out of 75 triggers in round 1, 61 (81.3%) reached the consensus while 39 were additionally suggested. In round 2, 17 out of 39 newly suggested triggers reached consensus. 14 triggers were eliminated due to failure to reach consensus after 2 rounds. The interactive virtual classroom developed consisted of 20 items with a total score of 29 marks. The questions included multiple-choice-questions, drag-and-drop-sequences and comprehensions. Learning-points were included after each item and graphs and pictures were included for vibrancy.

**Conclusion:** We developed an effective and interactive virtual session with expert consensus on the pre-analytical phase of laboratory testing for undergraduate medical students which can be used for medical-technologists, graduate-students and fellows in Chemical Pathology.

**Keywords:** Laboratory; education; delphi

### 3.31

#### **MENTAL HEALTH OF HEALTH CARE PROFESSIONALS WITH LESSONS ON BUILDING RESILIENCE DURING COVID-19: PERSPECTIVE FROM A LOW MIDDLE INCOME COUNTRY**

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**Background:** The coronavirus strain, starting from China in December 2019, quickly spread across the globe, becoming a deadly pandemic. By March 2020 Pakistan was also affected, facing serious medical and socioeconomic challenges, managing the pandemic proved to be an incredibly difficult challenge. As we collect resources, assess our people's needs, and strengthen the healthcare system, healthcare providers suffer under growing demands. The aim of this study was to review the studies on the mental health of health care professionals (HCPs) during COVID in Pakistan and to identify the work done on building resilience among them.

**Study Design and Method:** A literature search was done using PubMed, Google Scholar, and Pakmedinet.com including studies from January 2020 to September 2021. We used a combination of key terms including 'mental health', 'health care professionals', 'COVID-19', 'resilience' and 'Pakistan'. The inclusion criteria included studies of various study designs conducted in Pakistan, covering the mental health of HCPs during COVID-19 and available in the English language.

**Results:** After accounting for duplicates, a total of 48 articles were included in our review. All the studies showed increased scores assessed through a wide array of scales, on mental health illnesses such as anxiety, depression, insomnia, and distress among HCPs. Nurses, female and front-line workers were seen to be at a higher risk of COVID. Most studies have mentioned similar strategies involving the development of

psychological counseling teams for HCPs in need, screening for stressors as a preventative measure, and various suggestions for building on coping mechanisms.

**Conclusion:** More research is required on the mental health of HCPs, with associated regulations to protect and provide them with resources. Targeted interventions for at-risk populations are also strongly recommended. While the burden of mental health illness is huge in HCPs, little is done to mitigate the stress and anxiety associated with the prevailing pandemic.

**Keywords:** COVID, Pakistan, Healthcare professionals, resilience

### 3.32

#### **LEARNING SAMPLING STRATEGIES THROUGH CREATIVE ACTIVITIES - A QUASI-EXPERIMENTAL STUDY WITH EARLY-CAREER RESEARCHERS.**

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**Background:** Sampling is a process by which participants are selected in research to obtain the data for a particular problem or research question. The method by which a researcher selects the sample is called the sampling strategy. Sampling strategies are characterized as probability and non-probability sampling. Understanding sampling techniques is challenging for early career researchers, therefore teaching it through some creative strategies can be helpful in learning. This study aims to determine the effectiveness of teaching sampling through creative activities in Karachi Pakistan.

**Study Design and Method:** A pre-post study design was used. A pre-test was conducted prior teaching the sampling strategies through creative strategies using interactive videos, toys, and objects. After the teaching a post-test was conducted to evaluate learning. Each correct



answer in pre & post-test was given score 1 and 0 for wrong answer. Median (IQR) scores and percentage difference for pre & post-test were calculated for each participant. Paired t-test was used to check the impact of learning from the workshop considering p-value  $\leq 0.05$  significant.

**Results:** The median (IQR) score for pre-test was 6 (3.5-7) and post-test were 8.5 (8-10). The lowest score was 0 and highest was 9 in pre-test while in the post test, the lowest score was 2 and the highest was 10. Question related to convenience sampling was the only question which was attempted 100% correct. The mean difference was 2.75 for pre & post test scores and mean percentage change was 30% with a p-value  $< 0.001$  which was statistically significant. More than 60% of participants strongly agreed that the objectives, content, hands on activities and pre & post test were relevant to the teaching.

**Conclusion:** Teaching sampling strategies through creative activities found to be fruitful and enhanced learning three times higher than baseline. Such activities should be made part of the routine teaching in future.

**Keywords:** sampling strategies, creative, activities probability, non-probability

### 3.33

#### **PREVALENCE AND FACTORS ASSOCIATED WITH ANXIETY & DEPRESSION AMONG UNDERGRADUATE NURSING STUDENTS OF KARACHI AMID COVID-19**

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**Background:** The COVID -19 and its unprecedented measures increased anxiety and depression and the risk of suicide among undergraduate students. The undergraduate students are prone to mental health issues because they are in the transition stage from

pedagogy to andragogy along with it virtual education during pandemic added stressors. Particularly students who were enrolled in health sciences programs such as undergraduate nursing programs. As the nursing curriculum has 60% content that is purely based on hands-on experience it was considered that the online learning system was inefficient for psychomotor skills and hands-on experience

**Study Design and Method:** A concurrent triangulation mixed methodology was employed in this study. The study was conducted from June to September 2021. The sample size was calculated on open epi v.6, i.e. 286, data was collected through web based survey and four FGD's (virtual, physical). The Aga Khan University Anxiety and Depression Scale was used to screen anxiety and depression. The data were analyzed in SPSS version 25.0 for qualitative data, content analysis was done.

**Results:** The current study has 76% female and 24% were male students and reported 51% prevalence of anxiety and depression and 11.6% to have suicidal thoughts. The associated factors for anxiety and depression were, female gender (p 0.004), hostellites (p 0.040), 4th-year students (p 0.048), not satisfied with current studies (p 0.040), COVID-19 academic apprehensions (p 0.042). Furthermore, a theme emerged realities of student life amid COVID-19 that was convergent in a triangulation of the study results.

**Conclusion:** The high prevalence of anxiety and depression has implications for mental health promotion. To overcome the prevalence of anxiety and depression it is necessary to plan, contemplate interventions and strategies in regards to relevant associated factors amid COVID-19.

**Keywords:** Anxiety, Depression, Undergraduate nursing students.

### 3.34

#### **WORK RELATED MUSCULOSKELETAL DISORDERS (WRMSDs) AMONG SURGERY RESIDENT TRAINEES WORKING IN A TERTIARY CARE HOSPITAL IN KARACHI, PAKISTAN: A CROSS SECTIONAL STUDY**

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**Background:** Background: Work-Related Musculoskeletal Disorders (WRMSDs) are a group of disorders that affect muscles, tendons, skeleton, cartilage, ligaments and nerves. Surgery trainees are at high risk for developing WRMSDs because many procedures they perform require ergonomically challenging positions for extended hours. Unfortunately, there is a huge gap in understanding and operationalization of ergonomically friendly environment in operating rooms.

**Objective:** To determine prevalence and identify association between WRMSDs and working hours in operation theater among surgery trainees at a tertiary care hospital in Karachi, Pakistan

**Study Design and Method:** Methods: This is an analytical cross-sectional study that will be conducted at the Aga Khan University Hospital (AKUH), Karachi, Pakistan. We will purposively select 87 residents (out of 113) from different specialties including; cardiothoracic, general surgery, neurosurgery, ophthalmology, orthopedics, otolaryngology, pediatric surgery, plastic surgery, urology, and gynecology. We will exclude those who are pregnant or are on leaves at the time of data collection. We will use the Nordic Musculoskeletal Questionnaire for estimating prevalence of WRMSDs and the Global Physical Activity Questionnaire to determine association of WRMSDs with physical activity. We will include sections in the questionnaire to provide information on

covariates including working hours, number of surgeries, specialty, and duration of work. We will collect data online through Epi-collect, according to the availability of residents, during or after working hours. We will analyze data using STATA version 14 by applying Cox regression models to calculate hazard ratios.

**Results:** We are in the process of data collection, we collected our 50% data, according to our interim analysis around 94% of participants are present with a complain of WRMSD, 45% of participants visited doctor with a complain of WRMSD since 2020, although 15% of participants are on sick leaves due frozen shoulder, numbness in hand and backache.

**Conclusion:** WRMSDs are easily preventable through behavior modifications. Our study will not only identify the prevalence of WRMSDs in Pakistan, but also important associations which may help develop preventive strategies and improve the working conditions for surgery trainee

**Keywords:** Ergonomics, trainee, Musculoskeletal disorders, physical activities

### 3.35

#### **MENTORING HACKS FOR INNOVATION FELLOWS: FOSTERING LEARNING FOR HEALTHCARE SYSTEMS**

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**Background:** The Critical Creative Innovative Thinking (CCIT) is one of the most enriching experiences for innovations fellows to gain an insight into the healthcare ecosystems to experience a diverse interplay of innovation, creative problem-solving and entrepreneurship by closely working with innovation champions. Equally, as subject matter experts it is of great importance to foster their learning taking a human-centered thinking approach about lean processing and leadership exercise and practice

at AKUH. The overall aim of this rotation is to inculcate a diverse and multifaceted design thinking approach to enable them with potential skill-building to achieve result orientation, innovation and creativity when working in the healthcare industry.

**Study Design and Method:** Case Report

**Results:** Through structured rotation the primary outcome achieved was the enhanced understanding of the interdisciplinary healthcare systems, management processes, business administration, business modelling, and business process reengineering. From patient journey to experiences, safety to satisfaction thereby advancing their career scopes through innovation and creativity in healthcare settings. The experience sharing and discussion on case studies and vignettes facilitated fellow's perceptions of healthcare management as not solely management chores but a multifaceted and interdisciplinary ethos, ensuring holistic care of patients, strategic quality improvement in third-world country health systems to ensure universal healthcare access to all. This rotation has given them the opportunity to learn about quality improvement processes and outcomes. Moreover, the learning also encompasses the Human resource management

**Conclusion:** The CCIT innovation fellowships help to create intellectual bridges between innovation champions and fellows. Mentors coaching in the pretext of innovation and creativity as assets of creative functioning of the healthcare industry to maximize universal patient care and healthcare productivity through collaborative partnerships between industry experts and novice individuals to offer a fresh outlook on the healthcare administrative processes.

**Keywords:** Innovation, creativity, healthcare systems

### 3.36

#### ***PREGNANT WOMAN CRITICALLY ILL WITH COVID-19 DISEASE: JOURNEY FROM INTUBATION TO REVERSAL OF TRACHEOSTOMY - A SUCCESS STORY***

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**Background:** Novel corona virus has known to cause extensive disease in pregnant women. We are presenting one unique case in which pregnant woman suffering from COVID -19 acute respiratory disease syndrome accompanied with pulmonary as well as extrapulmonary thromboembolic phenomenon, made full recovery resulting in reversal of tracheostomy after seventy days of prolonged hospital stay.

**Study Design and Method:** This case report is being presented after seeking informed consent from the patient.

**Results:** 24 years- old female with no prior comorbidities was admitted to our isolation intensive care unit at 12 weeks of gestation (G2, P1+0) with Covid -19 acute respiratory distress syndrome after being put on a mechanical ventilator due to hypoxic respiratory failure. Lung protective ventilation along with IV steroids and anticoagulation regimen were initiated. Keeping in view risks v/s benefits attributed with the fetomaternal outcome; the multidisciplinary team, after due consideration, decided to perform a chemical abortion. After which prone-position ventilation was encouraged followed by multiple proning sessions. The early ICU course was complicated by the onset of seizure-like activities for which the patient was started on antiepileptic drugs regimen. Neuro-imaging revealed multi focal acute infarcts with numerous microhemorrhages and beaded appearance of the clinoid segment of bilateral internal carotid arteries. An Electroencephalography (EEG) study was also performed but was unremarkable for any active

epileptic discharges. CSF studies though advised but were deferred on account of high mechanical ventilator settings. The patient was shifted to a non-isolation intensive care unit after two consecutive COVID PCR were reported negative. Here, her weaning off mechanical ventilation was difficult due to critical illness myopathy that was supported by the EMG study. Consequently, procedure of tracheostomy on the 25th day of her hospital stay. ICU stay was prolonged due to the occurrence of tension pneumothoraces and later, patient was also diagnosed with bilateral pulmonary embolism accompanied with left subclavian thrombosis. Chest tubes remained in place until complete resolution of pneumothoraces was noted on chest x-ray. Alongside, therapeutic anticoagulation regimen was also continued. Gradually, throughout three weeks' patient was weaned off mechanical ventilation and was discharged from the hospital in stable condition followed by a reversal of tracheostomy which was performed in the following week

**Conclusion:** Pregnancy, coupled with critical COVID-19 illness, contributes significantly to thromboembolic phenomena, as pregnancy is also considered a hypercoagulable state. Prolonged continuity of care by a multidisciplinary team can lead to complete recovery in such critically ill patients. Moreover, Pregnant female patients with severe COVID-19 illness can benefit from prone-position ventilation

**Keywords:** COVID-19 acute respiratory distress syndrome; pregnant women; thromboembolism

### 3.37

#### **NOT A CLASSIC PRESENTATION: COMPLICATED COVID CASE IN TERMS OF DIAGNOSIS AND MANAGEMENT; OCCURENCE OF EXTRAPULMONARY THROMBOEMBOLIC PHENOMENON ALONG WITH RHINO CEREBRAL MUCORMYCOSIS WITHOUT SIGNIFICANT RESPIRATORY SYMPTOMS**

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Khan University*

**Background:** With time, as we understand and see before ourselves, this disease, COVID- 19, unfolds itself. Not all patients present with classic symptoms. Therefore we must understand and appreciate the unique presentations of this catastrophic illness, so, patients with high suspicion can be managed more aggressively in the early stages to prevent complications

**Study Design and Method:** This case report is being presented after seeking informed consent from the patient's family.

**Results:** We are presenting a unique case in terms of presentation of symptoms of a 70 -years old male, with a past medical history of hypertension, diabetes mellitus type-2, and ischemic heart disease, and surgical history of percutaneous intervention, presented in the emergency room of AKUH with findings suggestive of cerebral vascular accident and mucormycosis infection, but, without significant bacterial infection and respiratory symptoms, on initial presentation. The patient was previously ( treated at a different territory care hospital where Covid pcr was reported negative)

At our hospital, the patient's COVID PCR test was reported positive, and a nasal mucosal biopsy revealed growth of rhizopus species. Unfortunately, preoperatively neuroimaging couldn't be obtained. The patient underwent emergent bilateral nasal sinus debridement and

left orbital exenteration. Postoperative neuroimaging studies revealed multifocal acute infarcts in bilateral cerebral hemispheres, occlusion of the left internal carotid artery, severe stenosis of the supraclinoid portion of the right middle cerebral artery, and narrowing of part posterior cerebral artery, likely secondary to the thromboembolic phenomenon. After the procedure, the patient was shifted to an isolation intensive care unit where he remained on mechanical ventilation due to altered mentation as assessed on the Glasgow coma scale, and was looked after by the multidisciplinary team. The patient was continued on an antifungal regimen but anticoagulation therapy had to be discontinued due to low platelets count. The patient's condition gradually deteriorated and he was put off life-sustaining support.

**Conclusion:** The single negative covid RT-PCR test should not be used as a diagnostic tool to rule out the COVID-19 disease. Mucormycosis should be treated as a complication of COVID disease in patients having high suspicion of COVID - 19 disease. The unique and selective neurovascular involvement in this patient indicates that patients with COVID-19 disease can have varied and diverse forms of symptoms and disease manifestation at the time of initial presentation.

**Keywords:** Covid -19; mucormycosis; thromboembolism; neurovascular

3.38

**A NATIONWIDE VIRTUAL RESEARCH  
EDUCATION PROGRAM FOR 3,800  
MEDICAL STUDENTS:  
METHODOLOGICAL FRAMEWORK,  
FEASIBILITY TESTING AND OUTCOMES**

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Saadia Abbas, Abdullah Saeed , Muhammad  
Daniyal Musharraf, Asma Altaf Hussain  
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**Background:** Equipping young medical trainees with fundamental research skills can be a promising strategy to address the need for professionals who can understand and responsibly communicate evolving scientific evidence during a pandemic. Despite an ardent interest to partake in research, most educational institutions in Pakistan and other low-middle income countries have not yet adopted a comprehensive strategy for research skills education. The authors aimed to design and assess the feasibility of implementing the first nation-wide virtual research workshop for medical students in Pakistan.

**Study Design and Method:** The course 'Beginners Guide to Research', designed as a nation-wide virtual research workshop series, was conducted for medical students across Pakistan in June 2020. Four interactive live workshops took place online on alternate days from June 22<sup>nd</sup>, 2020, to June 27<sup>th</sup>, 2020, each lasting 1-2 hours. Outcomes included: i) reach evaluated by geo-mapping the registrants on a heat-map and, ii) efficacy as indexed by pre-post change in score pertaining to knowledge and application of research and iii) self-rated perceptions about understanding of research on a Likert scale.

**Results:** 3,862 participants enrolled from 41 cities and 123 institutions across Pakistan. Mean (SD) age of enrolled medical students was 21.1 (2.1) years, 2,453 (63.5%) participants were female and 2,394 (62.0%) were from private-sector medical colleges. 2,093 participants filled out all four pre-test and post-test forms. The total median knowledge score improved from 39.7% to 60.3% with the highest improvements in concepts of research bioethics and literature search ( $p < 0.001$ ) with greater change for females compared to males (+20.6% vs +16.2%,

p<0.001) and private institutions compared to public ones (+16.2% vs +22.1%, p<0.001).

**Conclusion:** The overwhelming enrollment and significant improvement in learning outcomes (>50% of baseline) indicate feasibility of a medical student-led research course during a pandemic, highlighting its role in catering to the research needs in the LMICs.

**Keywords:** Research workshop, Medical education, Virtual Learning

### 3.39

#### **RATES OF PUBLICATION OF FCPS DISSERTATIONS IN INTERNATIONAL AND NATIONAL PEER-REVIEW JOURNALS AMONG RESIDENTS AT AKUH; A CROSS SECTIONAL REVIEW OF 15 YEARS**

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**Background:** Submitting a research project in the form of a dissertation is the core academic responsibility of a resident graduating from the College of Physicians and Surgeons Pakistan. The dissertations are ultimately intended to be shaped into a publication worthy of academic interest that would enable the residents to indulge and thrive in a culture of research. Traditionally, residents are geared towards polishing their clinical skills and most have busy clinical responsibilities. No wonder the primary focus remains towards clinical learning and less so towards research related activities. The current landscape needs to be analyzed in order to assess the areas of growth.

**Study Design and Method:** The single center cross-sectional study was done at Aga Khan University hospital. Study included participants from Department of Surgery and Medicine from 2005-2020.

The study included demographics, current institution, current designation, information on dissertation/paper publication, year of completion of dissertation, input from research department, delay in exam due to dissertation and whether the paper got published in national or international journal.

**Results:** A total of 103 study participants were included. The study showed a total of 96 survey participants who opted for dissertation writing as their CPSP requirement. An overall rate of conversion of dissertation to publication of 23.2% was observed. The surgical subset of this population was 70.8% (n=68) out of which a publication rate of 26.5% was observed.

**Conclusion:** The current rates of publication for resident dissertation are low. This identifies an area of potential improvement in scholarly activity of our trainees.

**Keywords:** Dissertation, Post graduate research, Residency Programme, CPSP

### 3.40

#### **DIETARY HABITS AND PHYSICAL ACTIVITY AMONG PGME TRAINEES AKUH KARACHI, AN OBSERVATIONAL STUDY FOR SELF ASSESSMENT**

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**Background:** Postgraduate Training programs are laborious, time intensive, physical, intellectually and emotionally demanding which may lead to the neglect of personal health and well-being of the trainee physician. Despite of heavy workload, it is important for all trainee physicians to find strategies to adapt a healthy lifestyle to ensure long-term well-being. This study mainly focuses on dietary habits and level of physical activity among trainee physician to point out the areas of improvement

**Study Design and Method:** To Assess dietary habits and Physical activities among PGME Trainees AKUH

**Method:** After ERC approval, a cross-sectional study carried out with a sample size of 250 among PGME trainees from 1/1/2019-1/10/2021. Questionnaire is developed based of FDA food pyramid of daily requirement and frequencies are reported for individual food categories. Frequencies for physical activity are reported based on WHO recommendations for weekly physical activity. Consent inquiry is done from the participants about dietary habits, physical activity and their BMI.

**Results:** 250 participants were included in the study of various departments, ages groups, Gender and Year of training. 4.8 % were underweight, 26 % were overweight and 3.2 % were obese. More no. of female trainees (31.8 %) were overweight. Skipping breakfast found significant among the trainees, 28% of the participants were skipping breakfast daily. Participants (42.8%) were not having any dairy product servings throughout the week. Very low Daily Consumptions of Fruits (only 1serving/day in 57.6%) and Vegetables (only 1-2 Servings/day in 59.2%) Physical activity among the trainees were not up to the mark according to WHO recommendations. Most of the participants (51%) were doing only low level of activity throughout the week.

**Conclusion:** Study indicate that the dietary habits and level of physical activity needs improvement among the trainee physicians in order to attain healthy life style.

**Keywords:** Dietary habits, Physical activity, Practices, Trainee, AKUH, Karachi

### 3.41

#### **ESTABLISHING THE VALIDITY AND RELIABILITY OF PAIN CLINICAL EVALUATION EXERCISE (P-CEX) TOOL FOR POSTGRADUATE TRAINEE IN A TEACHING HOSPITAL**

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**Background:** Assessment methods in anaesthesia training programs are evolving from exclusively knowledge-based examinations to continuous performance-based assessment at trainee workplace. These assessments determine the progression through training and ultimately to specialist practice.

In order to improve workplace-based assessment and adding to objectivity in continuous assessment of anaesthesia and pain trainee rotating in pain management clinic, P-CEX tool was developed and introduced in the Department of Anaesthesiology. As this is newly developed assessment tool so this study is designed to estimate its validity and reliability of this tool.

**Study Design and Method:** PG trainee of anaesthesiology and pain fellow rotating in the out-patient pain management clinic at Aga Khan University were included in this study. Sample size was 40 P-CEX assessment forms were completed in this study.

This study was conducted in two steps;

Step # 01: The content validity of the instrument (P-CEX) was calculated from the viewpoints of a panel of experts using a special assessment response form.

Step # 02: We use 7-points Likert scale for eight items of the tool. The reliability of the P-CEX tool was calculated by Kappa statistics

All statistical analyses was performed using SPSS 19.0. The content validity ratio (CVR) and content validity index was calculated and modified kappa statistics was computed for the probability of chance agreement for each item. Agreement and Inter-rater reliability was measured by Kappa statistics.

**Results:** Content validity index (CVI) of the P-CEX tool came out to be 0.83. Inter-rater reliability is given in table 2. Participant feedback was very good regarding P-CEX tool.

**Conclusion:** This study showed that the newly developed P-CEX tool has good content validity

but relatively low over all inter-rater reliability as mentioned by kappa statistics value

**Keywords:** Validity, reliability, Pain Clinical Evaluation Exercise tool, Trainee Assessment

### 3.42

#### **CONDUCTING FORMATIVE ONLINE OPEN-BOOK EXAM FOR FIRST YEAR MEDICAL STUDENTS - A PILOT STUDY**

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**Introduction and objective:** The spread of COVID-19 pandemic in 2020 compelled medical education to be shifted from face-to-face interaction to virtual platform. This shift provided the opportunities of exploring online assessment modalities. One such assessment method is an online open book exam which is relatively a new concept in medical education of Pakistan. Limited information is available in literature regarding open book exam for the basic science subjects. Hence, the objective of the study was to determine the quality of the open book exam administered as a pilot project to the first year medical students.

**Method:** It was a cross-sectional analytical study that included 99 students of first year MBBS. The students were administered an online unrestricted type of open book exam as a formative assessment in Renal module. All the questions were reviewed by the team of content specialist and medical educationists. The exam consisted of 30 open-ended, short answer type questions and was of 70 minutes duration. All questions selected were assessing Blooms cognitive levels of understanding and application. The scores of the exam were analyzed for quality of assessment.

**Results:** The students' scores for 30 questions were analyzed. The mean score was 47.24 ±15.30 SD %. The reliability of exam was 0.79.07 (23.3%) questions were identified as very difficult while 03 (10%) questions were very easy. 20 (66.6%) questions were found to be moderately difficult with their difficulty index ranging from 31-80%. 26 (86.6 %) questions were in the range of moderate to high discrimination index. There were none with negative discrimination.

**Conclusion:** The exam was found to be reliable and can be implemented with training of faculty and students. Online open book exam provides a good format for remote and formative assessment of students with minimum proctoring during times of constraints such as COVID 19 pandemic.

**Keywords:** open-book exam, medical students, quality of assessment, COVID-19

### 3.43

#### **MEDICAL EDUCATION & E-LEARNING DURING COVID-19 PANDEMIC: ATTITUDE, PREFERENCE AND BARRIERS AMONG UNDERGRADUATE MEDICAL STUDENTS IN PAKISTAN**

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**Background:** A shift to online medical education became the need of the hour when educational institutes closed nationally to curb the spread of COVID-19. We discuss the students' preference and perceived challenges to online medical education.

**Study Design and Method:** This cross-sectional study was carried out electronically viz Google



forms to medical students enrolled in all medical colleges and universities across Punjab.

The dependent variables included the student's perceptions on the effectiveness of online learning and the barriers to e-learning. These individual markers were assessed on a likert scale of 1 to 5, where 1 denoted "least effective" and 5 connoted "most effective"

**Results:** A total of 302 participants, mean-aged  $21.40 \pm 1.564$ , predominately female (63.9%) and in clinical years (CY) of learning (66.2%), responded to the questionnaire. The effectiveness of online learning yielded lower satisfaction, especially in terms of engaging with faculty (BS:  $2.24 \pm 1.23$ ; CY:  $2.17 \pm 1.11$ ) and delivering prior hands-on concept (BS:  $1.83 \pm 0.92$ ; CY:  $1.84 \pm 0.97$ ). While assessing barriers to online education, the most significant was the home environment non-conducive to studying ( $p < 0.05$ ). Even though the value of regression for preference for online education vs traditional learning is low (25.8%), and the predictors (barriers to online education) explain low variance (6.7%), these predictors show a significant estimation of preference for online learning over traditional learning ( $p < 0.05$ ).

**Conclusion:** We must work on the challenges faced by the students to modernize medical education and to prepare ourselves for any such unforeseen circumstances in the future.

**Keywords:** COVID-19, Medical Education, Pakistan

# Nursing

#### 4.1

### **ONCOLOGICAL NURSING CHALLENGES IN TIMES OF COVID-19: AN INSTITUTIONAL EXPERIENCE AND NURSES PERSPECTIVE FROM PAKISTAN**

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**Background:** On 30th January 2020, COVID-19 was declared as Public health Emergency and now it's a Pandemic. It is highly important to acknowledge the challenges and issues possessed by this contagious disease to the health services and healthcare professionals. This crisis cause a remarkable strain and affect directly or indirectly to course and treatment of various diseases. The multiple roles and functions played by nurses are particularly important during this COVID-19 pandemic. Nurses and other health care professionals on the front lines pose significant risks to their overall health and well-being. Risk of exposure to infectious diseases is not new within health care industry.

**Study Design and Method:** This study is a cross sectional study aimed is to evaluate all the nursing staff who underwent the nasopharyngeal swab -PCR testing at our institute. All nursing staff are characterized as positive for COVID or low medium or high risk according to COVID 19 screening tool of institute. The inclusion criteria for the study are all the nurses of oncology department at the private hospital who underwent the COVID 19 testing.

**Results:** A total of 104 nurses are working in a private hospital of Oncology department in Karachi, Pakistan amongst which 32.6% are positive ,20.1% are high risk 11.5% are medium and 35.5% are low risk. According to the institute policy (Department of Infection Prevention and Hospital Epidemiology DIPHE) all staff should be screened, who are exposed to COVID patients from hospital or community. After stringently followed all the

recommendation from WHO ,none of staff exposures were identified and nurses were able to provide safe care to all oncology patients and able to work with other health care workers and none of the significance have been identified .That is the biggest achievement.

**Conclusion:** Despite of this challenge we have continued our services and adopted diverse strategies and evidence-based practices so that the care of oncology patient does not compromise in the context of pandemic.

**Keywords:** oncology, nurses, Covid

#### 4.2

### **REDUCING ERRORS IN PATIENT CARE VIA COMPLIANCE TO INSTITUTIONAL GUIDELINES OF VERBAL ORDERS.**

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**Background:** Verbal orders are consider one of the easiest way of communication between healthcare providers. Most of verbal orders include the orders of medications, intravenous fluids starting or holding or daily living activity orders of patients. There are various advantages of verbal orders whereas on the other hand it can lead to serious errors and incidents if are not taken through with proper mechanism. This requires proper documentations and countersigning of verbal orders by healthcare providers to ensure patient safety and preventing the errors.

**Study Design and Method:** The project was carried out with all nurses and technicians working in pulmonary and cardiovascular unit. There are 31 nurses and 06 nurse technicians working in this specialty. Retrospective data was obtained of year 2020 including incidences, audit results and rounds observations. Juran's Problem Solving Methodology was used to improve the practices among staff and ensure the

compliances. Focus interventions were targeted to improve staff knowledge via education and empowering them to say NO to verbal orders, workload management and necessary changes made in pharmacy ordering system with IT collaboration to fill in the gaps.

**Results:** Since the actualization of focus interventions, there was improvement in audit results from 50 % to 100% in year 2021. Further there were marked decrease in observations related to medications verbal orders and incomplete medication orders on pharmacy system.

**Conclusion:** Staff education and their empowerment along with system changes helped to improve the compliance of institutional guidelines related to verbal orders. Further; proper communication related to verbal orders and their documentation lead to decrease in non-compliances related to medication orders and improve in patient safety via preventing from errors.

**Keywords:** verbal orders, patient safety, medication errors

### 4.3

#### **PREDILUTED-PREFILLED COLOR-LABELED MEDICATION SYRINGES DECREASE TIME TO ADMINISTRATION AND DOSING ERROR IN PEDIATRIC AND NEONATAL CRITICAL CARE UNITS**

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**Background:** The incidence of errors associated with injectable medications is higher than other formulations. Studies suggest that half of all harmful medication errors(MEs) originate during drug administration, of those errors, about two-thirds involve injectables, and may result in potentially life-threatening outcomes, particularly for pediatric patients when dosing requires weight-based calculations. Novel

medication delivery systems of ready-to-administer may reduce dosing errors significantly. Our goal was to evaluate novel, prediluted and prefilled color-labeled medication syringes ready-for-infusion, compared with conventional medication administration, in pediatric and neonatal critical care units.

**Study Design and Method:** An inotropic agent, Dopamine was selected by pharmacy and nursing team to be dispensed in ready-to-administer prefilled-labeled-syringes prepared by pharmacy instead of nurses in patient care units. We performed a prospective crossover study in which neonatal and pediatric nurse teams was observed for the Dopamine administration to 40 patients, using either prefilled, color-coded syringes(intervention) or conventional drug-administration methods (control). Data were extracted by blinded-independent reviewers.

**Results:** Median time to delivery of all doses for the conventional and color-coded delivery groups was 6minutes(95% CI:3, 7) and 3minutes(95% CI:1,4), respectively (difference=3minutes; 95%CI:2,6). With the conventional method, 45 doses were administered, with 5 critical dosing errors (11%); with the color-coded method, 50 doses were administered, with 0 critical dosing errors(difference=11%; 95% CI:5%,33%).

**Conclusion:** A novel color-coded, prefilled syringe decreased time to medication administration and significantly reduced critical dosing errors by pediatric and neonatal nurses. The results suggest expanding the project to other medications which are diluted by nurses on critical care pediatric and neonatal units

**Keywords:** dopamine, safe practices, medication errors

#### 4.4

### **ACADEMIC ACHIEVEMENT OF NURSING STUDENTS IN AN ONLINE LEADERSHIP AND MANAGEMENT IN HEALTHCARE COURSE AT AGA KHAN UNIVERSITY SCHOOL OF NURSING AND MIDWIFERY (AKUSONAM)**

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**Background:** With the emergence of the humanitarian crisis of the COVID-19 pandemic, the education and healthcare sectors were widely disrupted due to complete country lockdowns and the closure of universities to mitigate the spread of the coronavirus. This transition led to the adaptation of online classes to resiliently and innovatively sustained students' learning and research in the fields of healthcare education.

**Objectives:** To investigate the influence of online classes on students' academic achievement in their competencies to learn, adapt and effectively translate healthcare leadership and management theories into practical healthcare systems

**Study Design and Method:** Case reports and series including lectures, case studies, interdisciplinary examples, storytelling, experience sharing, online discussion forums, assignments followed by mentorship for publication by international Nursing Scholars, and a Likert-scale course feedback

**Results:** Students were able to integrate the science and arts of leadership and management with a competency-based framework for nurse and midwife leaders. They had an opportunity to analyze and utilize major organizational theories to understand the integral concepts of safe health for individuals and society and its impact on a positive professional practice environment. The distinct feature was that the students got to explore the importance of working within the

interdisciplinary health care teams that foster human partnerships. Further, this course prepared them to build a culture for patients and their family engagement to influence optimal outcomes. Quantitative analysis indicated that 4 students achieved an A grade, 15 students achieved an A- grade and 4 students attained a B+ grade out of 23 total students.

**Conclusion:** Despite the first-ever online classes in a healthcare education system in this domain, students achieved significant scores and sustained learning amidst a pandemic, thereby accomplishing a milestone. These virtual classes strategically advanced students' healthcare leadership and management ethos in the COVID-19 pandemic.

**Keywords:** Academic achievement, healthcare leadership and management, and online classes

#### 4.5

### **IPSG 1 IDENTIFY PATIENT CORRECTLY: A MULTIDISCIPLINARY APPROACH FOR PATIENT SAFETY**

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University*

**Background:** Provision of safe and quality care is the prime mandate of every health care facility. JCI has defined important issues which are concerning to patient safety. International Patients Safety goals (IPSG) are designed to prevent errors in practices and their consequences which could be harmful for the patients. IPSG 1 helps in confirming correct patient identification. Use of two identifiers such as Patient name and Medical Record Number (MR#) is important to identify correct patient for any procedure, medication, registration, file record etc.

ED being in overwhelming position due to nature of its services is prone to adverse event. In the year 2020 a total of Forty-Nine incidences were reported related to IPSG 1 in 24/7

Emergency Acute Care Service line (ED) that is on an average 4.03 incidences per month.

In order to provide quality care and error free environment for the patients, ED made its mission to work on strategies that can minimize IPSTG incidences. Short term and long-term goals were developed

#### Short Term Goal

- To reduce the number of incidences related to IPSTG 1 by 50% by the end of 3rd Qtr. 2021

#### Long Term Goal

- To achieve excellence that is reduction of incidence related to IPSTG 1 by 100% by 1st Qtr. 2022

**Study Design and Method:** To achieve these goals, PDSA Method (Plan-Do-Study-Act) was followed from Jan to June 2021. In Planning phase incident data was analyzed, Gaps were categorized according to the Processes, solutions were brainstormed, Recommendations from the groups were outlined and Action plan was formulized.

Processes in which Issues were Identified were 1) Phlebotomy 2) Patient registration 3) ABGs sampling Preprinted stickers on medical record documentation 4) Wrong patient Medication Prescription 5) Wrong patient Medication administration.

Several action items were developed for each gap in identified process and controls were set with on ground coaching and reinforcement

**Results:** Number of IPSTG incidences reduced from 4.03 to 3.33 per in Jan to Jun 2021 during intervention phase and further declined to 1 per month in July and August during post intervention phase.

**Conclusion:** Correct identification of patient is one of the integral component of quality care and patient safety specially in chaotic ED

environment. Effective measures and control mechanisms can improve compliance to IPSTG1 as well as prevent errors.

**Keywords:** IPSTG1, ED, PDSA

#### 4.6

### **ORGANIZATIONAL RESILIENCE AND INTELLIGENT REFRAMING OF HEALTH CARE ORGANIZATIONS IN TIMES OF COVID-19 PANDEMIC: A NURSING PERSPECTIVE**

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**Background:** Due to the prevalence of the COVID-19 pandemic, the healthcare industry experienced profound global disruptions and called for a speedy technological revolution by adapting and enhancing digital solutions for patient care. This transition has allowed healthcare organizations to resiliently reframe the entire service delivery to effectively manage the vulnerable population of the society during COVID-19

**Objectives:** To restructure the optimization of skillsets to better adapt to the COVID-19 pandemic and automate processes, standardize workflows by reducing barriers, and manage waste to attain a holistic health delivery model to improve patient access.

**Study Design and Method:** Case Reports and Series. Health Care Organizations have used Lean Methodology, Application of High-reliability organizations principles, patient safety, and systems reengineering.

**Results:** Resilient reframing of healthcare operations from the nursing perspective led to the development and achievement of contingency plans, crisis management in terms of understanding of the disease, creating increased awareness about COVID -19 to ensure patient screening, overcoming families fear and

stigma, strengthening management of information, and enhanced collaboration for effective resource mobilization. Further establishment and implementation of treatment zones and workflows were achieved equally operationalizing workforce engagement and mental health concerns to maintain the integrated approach of duty of care during the global healthcare crisis. The resilient health systems framework by World Health Organization has beautifully lined up and describes the building blocks of resilient health systems that are centered on patients and community engagement as core to all elements.

**Conclusion:** Increased emphasis on nurses' duty of care in the universal crises of COVID -19 was put forward, revisiting the values for excellence in nursing, establishing a code of conduct, and reinventing the scope of practice of patient care and hospital operations under the pretext of pandemic surge capacity and management of population's healthcare proficiently.

**Keywords:** Patient access, hospital operations, and resilience

#### 4.7

### **TEACHING ASSESSMENT SKILLS USING MULTIMODAL SIMULATION STRATEGY AMID PANDEMIC**

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*School of Nursing & Midwifery and Centre for Innovation in Medical Education, Aga Khan University*

**Background:** The unpredictable COVID – 19 variants continued to challenge educators on how to teach hands-on skills to a large group of students in limited learning spaces. The social distancing protocol permitted only fewer students to be on campus at any given time. Faculty at the Aga Khan University School of Nursing and Midwifery (SONAM) were challenged to think of ways to teach

interviewing and assessment techniques, a skill that is best practiced individually, to 141-Year 2 undergraduate nursing students enrolled in the Health Assessment course.

**Study Design and Method:** A team of resilient faculty from SONAM and educationists from the Centre for Innovation in Medical Education (CIME), inspired by the Plan-Do-Check-Act Cycle, drew a “Multimodal strategy” to teach assessment skills to students in a hybrid manner. They began planning before the start of a new semester, considering the restrictions posed by COVID-19, they devised strategies to teach these skills in a systematic, cost-effective, and timely manner, to small groups of students. A hybrid approach was implemented, which included virtual sessions where students watched skill demonstration videos on the course virtual learning environment, gathered in virtual lab groups to discuss queries, and performed the health assessment skill on their family members and received feedback from the faculty through video-recorded tapes. Whereas, onsite in CIME, the students got a chance to practice health assessment skills using various simulation modalities. Procedural training was done through low and medium-fidelity task trainers using abdominal examination trainer, nursing mannequins, Harvey, K-version, and Phantom Heads for Fundoscopy & Otoscopy. This was followed by a high-fidelity approach using simulated patients to integrate the learning occurred through procedural training. The simulated patients wore moulage during these interactions to improve realism. These multiple modalities helped in dividing the class of 141 students into multiple small groups, who rotated through these skills stations of varying fidelity and experienced the entire range of simulation modalities at different days or times based on their rotation plan.

**Results:** No results

**Conclusion:** Feedback from faculty and students revealed that through deliberate practice, students were able to hone their health

assessment skills, despite restrictions with a face-to-face learning opportunity. Therefore, the multimodal hybrid simulation strategy proved to be effective for health assessment skills training to prepare students for the real-life situation even in the face of a Pandemic.

**Keywords:** Multimodal simulation, Nursing assessment, Undergraduate program



# Public Health & Social Science

## 6.5

### **A QUALITATIVE STUDY ON ADEQUATE SLEEP IN PRESCHOOL CHILDREN – CAN WE SLEEP ON IT?**

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*Human Development Programme , Medical College, Aga Khan University and Department of Psychology Bahria University*

**Background:** Sleep is a significant marker of physical and psychological health. The present research was undertaken to explore perceptions of parents, teachers and pediatricians about preschool children's sleep patterns, habits, and problems from urban Karachi, Pakistan.

**Study Design and Method:** A qualitative research approach was employed; data collection methods were Focus Group Discussion (FGDs) and Key Informant Interviews (KIIs).

**Results:** The themes identified were children's sleep patterns, sleep environment, sleep rituals, distractions, sleep problems, the impact of inadequate sleep, and recommendations to improve. Emergent themes were inconsistency of rules from parents, lack of opportunities for outdoor physical activity, different kinds of stresses, social and cultural events happening late at night, having TV/technology in the bedroom, and effects of inadequate sleep on parents' lives.

**Conclusion:** The findings provided compelling indications to educate parents on the importance of sleep and its effects on health, development, school performance, behavior, and similar needs. Participants recommended that this could be effectively done with support from schools and healthcare facilities. Screen time was found to have a huge negative impact on children's sleep. An important finding was that socialization is important, but it should not forsake children's bedtime. It is crucial for parents as well as every member of the society to be cognizant of children's bedtime schedules while planning and organizing gatherings and events.

**Keywords:** Early Childhood, Sleep problems, Sleep habits

## 6.6

### **PEACE BUILDING THROUGH TEACHER LEADERSHIP**

*Jill Bradley-Levine, Seema Zainulabdin Lasi Teachers College - Ball State University and Human Development Programme, Aga Khan University*

**Background:** This case study examines the motivations of, and processes used by teacher leaders to establish a peace program at their middle school. These teacher leaders creatively engaged students in transforming school culture using empowering strategies to build positive peace among students, administrators, and teachers.

**Study Design and Method:** Theories of peace education are used as a framework to facilitate analysis of the data, which was collected through qualitative methods including observations and in-depth interviews. This study contributes to understandings of how teacher leaders promote positive peace in K-12 schools and their communities.

**Results:** Several themes emerged in the course of data analysis: teacher leader characteristics, administrator support, program design, and positive peace.

**Conclusion:** An important goal that has developed as a result of this study is to provide a model for how teacher leaders in other communities might develop peace programs similar to the Brothers program. The findings of this study help to identify some key elements for carrying this work. Administrators can tap into the individual characteristics of teacher leaders, and/or create an environment where teachers are encouraged to take risks and pursue passions when those may result in positive outcomes for students. Developing programmatic goals that are both responsive and constructive will also allow teachers to react to current needs in the

school, but also create something visionary and new.

**Keywords:** Teacher leadership, Positive peace, Middle school, School culture, School leadership

## 6.8

### **PEACE-BUILDING IN THE MINDS OF EARLY CHILDHOOD EDUCATION TEACHERS: VOICES FROM PAKISTAN**

*Seema Lasi, Jennifer Jag Jiwan, Zahida Batool, Salima Dhanani, Kishore Shrestha*  
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**Background:** Peace-building initiatives from early years of life result in preventing violence in homes, schools and communities and plays a vital role in ensuring social cohesion, creating peaceful societies and promoting sustainable economic and social development. Against this background, Asia Pacific Regional Network for Early Childhood (ARNEC) conducted a research study to explore what is in the minds of teachers regarding peace and peace-building.

**Study Design and Method:** The study followed a qualitative research design, respondents were selected conveniently to conduct in-depth interviews.

**Results:** Teachers specified a wide range of description on meaning of peace including positive and negative peace. The findings put more emphasis on homes, schools and communities – all three in sync to create an impact on peace-building. Teachers also shared concerns about the negative impact of media, and the level of violence and intolerance among grownups. Teachers felt a need for having a broader understanding of what and how to enhance peace-building among children. Teachers were more concerned and interested in developing their capacities in knowing what can

be done in schools and how the existing curriculum can be modified to introduce peace-building concepts. They also demanded capacity development of parents and teachers on peace education and conflict resolution, as it is the most neglected area in present situation.

**Conclusion:** The research findings provided some great insights on peace and peace-building from ECE teachers of Pakistan. Their shared perceptions on peace and peace-building is having a major contribution towards future research agenda on peace-building, as well as designing ECD projects and programs in schools and communities. The following model very briefly and concisely summarizes teachers' findings at various level of social environment present around children. According to teachers, intervention at all these levels would help bring change in making peace.

**Keywords:** Early Childhood, Peace education, Social cohesion

## 6.9

### **SOCIAL-EMOTIONAL DEVELOPMENT IN PRESCHOOL CHILDREN – TEACHERS' PERSPECTIVES FROM URBAN AND RURAL CONTEXTS IN PAKISTAN**

*Seema Lasi, Khushal Khan, Noreen Afzal*  
Human Development Programme and Medical College, Aga Khan University

**Background:** Social-emotional development is an integral part of holistic child development. Early years of life are the best window of opportunity when children acquire self-regulation and executive functioning which stays with them throughout their lives. Home and school have an inevitable role for the development of knowledge, attitude and skills required for optimal development of social-emotional skills. During recent years there is a substantial rise in behavioral, emotional, and mental health problems among school children, therefore it is important to understand teachers' perspectives to intervene appropriately.

**Study Design and Method:** This qualitative research study was being part of a randomized controlled trial which was done to assess the effectiveness of teachers' professional development on social-emotional learning (SEL). The findings presented here were planned to explore teachers' perspectives on social-emotional development during early years (3 to 6 years) employing focus group discussions (FGDs) from Karachi urban and rural, and Northern Areas, Gilgit (Urban) of Pakistan. A total of 5 FGDs were organized each with 8 to 10 teachers.

**Results:** Some great insights were highlighted by teachers from urban and rural contexts. Urban schoolteachers showed a better understanding of social-emotional development as compared to rural schoolteachers. The main themes identified during analysis were teachers' perspectives on; importance of social-emotional skills for school readiness, adjustment problems faced by newly enrolled children due to lack of social-emotional skills, existing school practices for promotion of social-emotional learning and how teachers can contribute to build social-emotional learning among preschool children.

**Conclusion:** The study provided some great insights for fostering social-emotional skills among preschool children. Teachers underscored the importance of parents, curriculum, and teacher training for promotion of social-emotional skills among preschool children. Compared to rural teachers, urban teachers were found to be more aware of social-emotional needs and management required in this regard.

**Keywords:** Early childhood, Social and emotional development, Qualitative research

## 6.10

### **PRESCHOOL TEACHERS' TRAINING FOR SOCIAL-EMOTIONAL LEARNING AND PEACEBUILDING IN PAKISTAN: A QUASI-EXPERIMENTAL STUDY**

*Seema Lasi, Michael T. Ndemanu, Jill Bradley-Levine, Eva Zygmunt, Karen Ford, Khushal Khan*

*Human Development Programme, Aga Khan University and Teachers College, Ball State University*

**Background:** This study evaluated the effectiveness of professional development of Pre-K teachers for social-emotional learning (SEL) against routine practices, and to assess the association between classroom environment and behavioral problems in public Pre-K classrooms of rural Pakistan.

**Study Design and Method:** A quasi experimental design was employed. Sample size included 12 schools, 24 teachers, and 410 Pre-K students. The SEL teacher training program was based on a homegrown contextualized curriculum. The intervention period was 4 months, during this time along with training teachers were also mentored for implementation of SEL curriculum. Each participating school was assessed before and after the intervention with Classroom Assessment and Scoring System (CLASS) and Strengths and Difficulties

Questionnaire (SDQ) to capture teacher-student interaction and behavioral problems. After-intervention findings showed statistically significant improvement in CLASS and SDQ mean scores for treatment schools.

**Results:** After-intervention findings showed statistically significant improvement in CLASS and SDQ mean scores for treatment schools. Linear regression analysis indicated that CLASS domains instructional support and emotional support have an inverse and significant association with behavioral problems in Pre-K students.

**Conclusion:** Recommendations are to incorporate SEL component in pre-service and in-service teacher education programs to improve the classroom learning environment and teacher-student interaction, resulting in better social-emotional functioning among preschoolers.

**Keywords:** Early Childhood, Social and emotional learning, Teachers' Professional Development

## 6.12

### **PREGNANT MOTHER'S PERCEIVED BARRIERS IN UTILIZATION OF PRIMARY HEALTH CARE FACILITY IN PAKISTAN – DESCRIPTIVE QUALITATIVE STUDY**

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*National University of Medical Sciences, Rawalpindi, Public Health Department National University of Medical Sciences, Rawalpindi and Aga Khan University*

**Background:** Introduction: Poor satisfaction with quality of care in the health facilities reported to be major hurdles in utilization of these services in Pakistan. Thus determining these barriers and addressing them can improve the utilization of these services. Thus this study aims to understand the perception of pregnant women regarding barriers behind underutilization of ANC services at primary health care in the Tehsil Hazro Punjab, Pakistan.

**Study Design and Method:** Descriptive Qualitative Study

**Results:** ERC: RE208-AAA-ERC-AFPGMI.

The first theme was decision in seeking care and the delays related to it. Most of the women stated that with the help of spouse, mother in marriage, family and lady health worker (LHW) they confidently attended the ANC clinics with their own decisions being valued. Despite the financial constraints the women still availed the health care services. The second theme

highlighted the delay in reaching healthcare facility due to long distance, significant travelling time and hence the increased cost and expenditure. On the other hand women were also not able to understand danger signs and had poor understanding of seeking medical help timely. The third theme identified delay in receiving adequate quality care such as unavailability of healthcare personnel, behavior and attitude of the staff, inadequate medicines and medical equipment and lack of ambulatory services to refer patients for special care.

**Conclusion:** In conclusion of this qualitative research mother needs affordable, accessible and responsive care. By using three delays pregnancy risk module; stakeholders such as policy makers, ministry of health, public health specialist and MNCH providers need to prioritize MNCH initiatives and reforms to translate MNCH policy into communities.

**Keywords:** MNCH and Pakistan, Maternal health, Health system

## 6.13

### **CARDIAC AND NEURODEVELOPMENTAL ASSESSMENT OF SMALL FOR GESTATION AGE CHILDREN: A COMMUNITY-BASED STUDY**

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**Background:** Small for Gestational Age (SGA) children as young as 3 years have shown changes in cardiovascular structure and function and altered low neurodevelopment scores on domains such as communication and problem solving compared to healthy children. In low/middle-income countries (LMICs), where epigenetic factors are far from conducive to child growth, it would be important to evaluate the cardiovascular and neurodevelopmental manifestations in SGA children. Therefore, this

study aims to assess cardiovascular function and neurodevelopment growth of small for gestation age children compared to healthy children.

**Study Design and Method:** This is a prospective observational study on children of pregnant women enrolled in the pilot project, Fetal Doppler Collaborative (FeDoC), funded by the Bill and Melinda Gates Foundation, at Ibrahim Hyderi, a peri-urban fishing site in Karachi, Pakistan, in 2018. This project led to creating a community-based cohort of approximately 650 children and has reported a frequency of 17% SGA newborns (n=119) according to the INTERGROWTH chart. SGA children and an equal number of healthy controls were traced through the existing surveillance at the field site. For consenting participants, the child's current health information and anthropometry are being performed. Cardiovascular assessment includes cardiac morphometry and function, while vascular measurements include blood pressure, carotid intima-media thickness, and carotid-femoral pulse wave velocity. The neurodevelopmental assessment is being performed using Malawi Development Assessment Tool (MDAT), which assesses four domains: fine motor, Gross motor, Language, and Social.

**Results:** To date, the study team has completed the neurodevelopment assessment on 180 children (90 SGA and 90 healthy children). Cardiovascular assessments are ongoing, and we have performed these on 70 SGA and 49 healthy children. We are currently analyzing data for neurodevelopment assessments, and the cardiovascular assessments are expected to be completed in the next three months.

**Conclusion:** If the cardiovascular and neurodevelopmental assessment changes are proven, these children can be candidates for targeted secondary prevention strategies, thus helping them thrive and reach maximum potential.

**Keywords:** SGA, neurodevelopment assessments, cardiovascular assessments,

## 6.14

### **FETAL DOPPLER FOR ANTENATAL RISK STRATIFICATION**

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**Background:** Stillbirths and newborn mortality have had a very slow decline and contribute to a significant proportion of the < 5 deaths worldwide. Almost three-quarters of these deaths are preventable if adequate antenatal, intrapartum, and postnatal care is ensured for the mother and newborn. Pakistan has recently been spotted as the “riskiest place” by UNICEF for the birth of a child. There is a pressing need for affordable early identification of high-risk pregnancies by minimally trained care providers to improve perinatal outcomes. The possibilities of contemporary machine learning (ML) in healthcare service and delivery hold tremendous potential to provide automated information interpretation that could improve outcomes in low-resource settings. This study aims to validate the ML-based decision support system created through the pilot Doppler project to identify pregnant women at risk of stillbirth and early neonatal mortality.

**Study Design and Method:** The current Doppler project, which is built on the pilot project, Fetal Doppler Collaborative (FeDoC), funded by the Bill and Melinda Gates Foundation, will be embedded on the Pakistan site for the ARC Maternal and Newborn Health (MNH) study, a multi-country, prospective, open cohort study. The field sites for Doppler Study are Rehri Goth and Ibrahim Hyderi, which are peri-urban coastal fishing villages in Karachi, Pakistan. This study aims to enroll approximately 6000 pregnant women in 4 years. Written informed consent will be obtained from all eligible women to be enrolled in the Doppler study. The community health worker will approach eligible

women at the primary health care center. To acquire the Doppler waveforms, enrolled women will have 2 scans at different GA (22-26 weeks and 30-34 weeks GA). Enrolled women will be tracked for delivery outcomes.

**Results:** The Ethical Review Committee of Aga Khan University has approved the proposed work, and the recruitment will be started by early December 2021.

**Conclusion:** Using ML-based DSS will help better understand the reasons and subsequently analyze diagnosis or clinical outcomes and provide insights into multiple factors that may contribute to the outcomes.

**Keywords:** Fetal doppler, machine learning, artificial intelligence, still births, early neonatal mortality

## 6.15

### **TRUST DEFICIT IN GOVERNANCE RELATED TO COVID19 RISK COMMUNICATION IN PAKISTAN**

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**Background:** Effective risk communication is vital to prevent the emergence of more COVID-19 cases and for the government to ensure that the people trust it and follow the set guidelines. Therefore, the objective of this study is to explore the reasons for the trust deficit in risk communication mediums designed by the government of Pakistan.

**Study Design and Method:** This is an exploratory study conducted using primary and secondary methods of research. Primary data was collected using an online group discussion on Facebook. A group was specially created to discuss matters related to COVID-19 risk communication in Pakistan, and participants were recruited using purposeful and snowball sampling methods. Moreover, as part of secondary research, documents and content

including the National Action Plan designed by the government of Pakistan and Risk Communication and Community Engagement (RCCE) material was reviewed. Risk communication mediums such as the government's official online portal (covid.gov.pk), WhatsApp ChatBot, and the COVID-19 helpline were tested for usage to triangulate the research results.

**Results:** The data collected through the online group discussions were analyzed using discourse analysis. These findings were presented through a hierarchical codes-subcodes model using MAXQDA 2020. The National Action Plan for COVID19 by the Ministry of National Health Services was analyzed using document analysis. The findings were tabulated according to the usefulness and accessibility in terms of the definition of risk communication.

**Conclusion:** The study concludes that the reasons for the trust deficit are an overabundance of information, the government's weak policy implementation structure, lack of health education, and stigmatization of the disease. Effective modes of risk communication will ultimately help contain the spread of the virus, decreasing the burden on healthcare facilities. To prevent the disease from spreading, it is integral for the government to gain public trust and get people to follow the issued guidelines.

**Keywords:** Governance, Pakistan, Risk Communication, Trust Deficit, Covid-19

## 6.16

### **PERIOPERATIVE REGISTRIES IN RESOURCE-LIMITED SETTINGS: THE WAY FORWARD FOR PAKISTAN**

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**Background:** Perioperative registries can improve quality of surgical care. Despite this, such registries remain limited in lower-middle-income countries (LMICs). We aimed to explore benefits of implementing perioperative registries in LMICs such as Pakistan, highlight challenges that can hinder this process, and suggest potential solutions which can be incorporated in resource-constrained settings.

**Study Design and Method:** This narrative review was conducted on PubMed using different combinations of the following search terms: (“perioperative registr\*”) OR (“registr\*”), (“lower-middle-income countr\*”) OR (“LMICs”) OR (“Pakistan”), and (“challenge\*”). English articles published till 30th September 2021 that assessed challenges in establishing perioperative registries in LMICs were reviewed.

**Results:** Development and implementation of perioperative registries in LMICs was found to improve quality of surgical care delivery, facilitate robust surgical research and collaboration, and allow benchmarking of hospital and regional performance. Several challenges were identified in developing such registries in LMICs. First, ensuring comprehensive data entry forums to power registries is difficult because of limited electronic medical records, requiring sustained efforts to develop and integrate such forums into practice. Second, lack of adequate expertise and resources to develop and maintain registry software necessitates involvement of software

developers and information technology personnel. Third, case ascertainment and item completion are challenging secondary to poor-quality medical records and high loss to follow-up rates, requiring telemedicine initiatives as an adjunct to existing care for assessment of post-discharge outcomes. Lastly, standardized coding of clinical terminology is warranted for ensuring interoperability of registries. For this, adaptation of existing disease and procedural codes can be a sustainable and cost-effective alternative to development of new codes.

**Conclusion:** Sustained contributions from the surgical community in Pakistan are needed to overcome the highlighted barriers and develop a data network capable of interpreting risk-adjusted surgical outcomes across the country.

**Keywords:** perioperative registry, low-middle income, LMIC

## 6.18

### **MEASUREMENT OF SOUND LEVEL IN A NEONATAL INTENSIVE CARE UNIT OF A TERTIARY CARE HOSPITAL, KARACHI, PAKISTAN.**

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**Background:** High sound levels in the neonatal intensive care unit (NICU) can alter preterm newborn hemodynamics, cause long-term neurodevelopmental delays and hearing loss. The study aims to collate data on sound levels in a level IV NICU of a tertiary care hospital, identify the factors associated with them and compare them with the international standards set by the World Health Organization (WHO), Environmental Protection Agency (EPA), and American Academy of Pediatrics (AAP).

**Study Design and Method:** We carried out a cross-sectional study in NICU from 8th April 2019 to 30th June 2019. Sound levels were recorded for 480 hours, using a portable sound



meter, the Larson Davis 824. We captured sound levels on alternate days, during different shifts and shift changes and in open pods and single isolation rooms within the NICU. Additionally, we documented the total census, acuity of care, number of staff, number of procedures, and number of equipment being used. The Data was analyzed using t-test, ANOVA, and logistic regression.

**Results:** The average sound level(L<sub>eq</sub>) and the maximum level(L<sub>max</sub>) recorded were 60.66+2.99dBA and 80.19+2.63dBA, respectively, which exceeds international recommendations. The sound level gradually decreased from morning to night hours. The major increase in sound was observed during nursing shift change. Similarly, a significant increase in sound was observed in open bays compared to isolation rooms. However, there was no difference in sound levels recorded during weekdays and weekends. The number of healthcare professionals and the number of procedures performed were strongly associated with an increased noise level.

**Conclusion:** Sound levels in NICU were beyond the safety range, hence, it is recommended to educate healthcare professionals about noise and its impact on newborns' health, develop a protocol for periodic monitoring of sound levels and introduce low-cost strategies to protect the newborn from future behavioral disorders.

**Keywords:** Sound level, Neonates, Neonatal intensive care unit

## 6.19

### **EFFECT OF COMMUNITY-BASED KANGAROO MOTHER CARE (CKMC) PACKAGE ON NEONATAL MORTALITY AMONG PRETERM AND LOW BIRTHWEIGHT INFANTS IN RURAL PAKISTAN. A CLUSTER RANDOMIZED CONTROLLED TRIAL**

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**Background:** Kangaroo Mother Care (KMC) is a unique, low-cost intervention that has showed significant reduction in neonatal morbidity and mortality rates. KMC also results in weight gain and improves exclusive breastfeeding rates. Despite this, its practice in Pakistan is negligible. We aim to implement a community based KMC package developed following a formative research for preterm /LBW babies to reduce neonatal morbidity and mortality. The primary outcome is neonatal mortality. The secondary outcomes are weight gain, incidence of possible serious bacterial infection (PSBI), and exclusive breastfeeding rates.

**Study Design and Method:** A cRCT is conducted in two sub districts (Johi and Khairpur Nathan Shah) of Dadu. Clusters were randomized using a restricted randomization scheme. Pregnant women are identified through a pregnancy surveillance system instituted in study areas. The outcome of each pregnancy; miscarriage, stillbirths, and live births is recorded. Following birth notification, intervention team visits household and screen for eligibility. Neonates weighing  $\geq 1200$ - $< 2500$ grams, who are stable and without danger signs are recruited within 48 hours of birth. Neonates in intervention cluster receive KMC whereas those in control receive essential neonatal care as per the national guidelines. A simple color coded KMC calendar in local language is provided to record the number of hours' mother practiced KMC. Community mobilization is conducted through Information Education and Counseling(IEC) material that are flip cards, wall mounts, a self-explanatory video, one-to-one and group sessions to maximize use of KMC in intervention cluster. Potential mothers, fathers and other volunteers are identified from local community to serve as KMC champions. A KMC kit is also provided by the pregnancy surveillance team to the enrolled mothers that include diapers, cap, socks, towels, soap and sanitary pads. An

independent study team collects data during 1st, 14th, 28th, 59th, 120th, 180th and 365th day of life.

**Results:** The study is ongoing and to date we have recruited 4545 neonates; 2285 in intervention cluster and 2260 in control.

**Conclusion:** CKMC is a simple and acceptable intervention to improve outcomes in LBW infants. Further researches are required to strengthen and scale up this intervention in rural areas of Pakistan.

**Keywords:** Kangaroo Mother Care, Community Randomized Control Trial, Neonates, Low Birth Weight

## 6.20

### ***A SCOPING REVIEW PROTOCOL TO EXAMINE THE IMPACT OF PAY-FOR-PERFORMANCE SCHEMES ON THE QUALITY OF HEALTHCARE***

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**Background:** The Sustainable Development Goals of the United Nations aim for Universal Health Coverage (UHC) around the globe by 2030, and the World Health Organization (WHO) maintains that incentivizing care with a focus on financing can help achieve this target. Pay-for-performance (P4P) schemes provide financial incentives to providers based on goal-directed achievements and have been widely implemented across various settings. The impact of this model on the quality of health care has been uncertain. Variation in the success of P4P could be explained by differences in design features of P4P research studies and programmes. Although researchers have examined design features and its effectiveness but have not used a theoretically informed and standardized reporting framework to categorize these schemes in a common typology. We are using a theoretically informed reporting

framework and typology that has been developed to understand the influence design features have on the impact of P4P incentive schemes across the globe. The findings of our scoping review would be helpful for well-planned P4P programs in development for the future to achieve higher quality of care.

**Study Design and Method:** A scoping review methodological framework proposed by Arksey and O'Malley and further refined by the Joanna Briggs Institute was used. This review will be reported in accordance with the PRISMA Extension for Scoping Reviews (PRISMA-ScR) statement published in 2018. The search strategy will be applied on four different databases to include both academic and grey literature. A two-step screening process consisting of title and abstract scan, and a full text review of articles will be used to determine eligibility for inclusion. All articles will be independently assessed for eligibility by two reviewers. The extracted data will undergo a narrative review of contextual data and simple quantitative analysis using descriptive analysis.

**Results:** In process

**Conclusion:** The findings of our scoping review would be helpful for well-planned P4P programs in development for the future to achieve higher quality of care. Authors will propose a P4P model based on the findings of this review that can be very useful for the ongoing Universal health coverage in Pakistan.

**Keywords:** Pay for performance, provider incentives, Impact

## 6.21

### **MY EXPECTATIONS AND ACTUAL EXPERIENCE ARE DIFFERENT: ASSESSING GAPS IN QUALITY OF OBSTETRIC SERVICES USING SERVQUAL : A STUDY IN TWO HOSPITALS OF KARACHI**

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**Background:** Providing high quality service is one of the major functions of health systems. Quality is a multidimensional concept with patient satisfaction being a key element that mirrors the quality of services in a hospital. This study was conducted to assess patient satisfaction related to quality of obstetric services. Expectations were assessed and subsequently compared with patient perceptions of the services received. using the SERVQUAL approach.

**Study Design and Method:** A cross sectional study was conducted at Obstetrics and Gynecology clinic in two separate secondary care hospitals in Karachi. Data was collected from 114 patients ( 57 patients at each hospital) using SERVQUAL five dimension model by Parasuraman et al. followed by in-depth interviews from the first ten women from each hospital who gave consent to participate in this study. Quantitative data was analyzed using SPSS 21. Qualitative data was analyzed manually.

**Results:** This study showed that patient's expectations and perceptions were different at the two hospitals working under the same network. Expectations were higher than perception indicating a negative gap score in four service quality dimensions; Tangibility, Reliability, Empathy and Assurance at hospital A and three service quality dimensions; Tangibility, Reliability and Responsiveness at

hospital B. On the contrary, patients perceived or experienced better than they expected with a positive gap score in one dimension namely Responsiveness in hospital A and Empathy and Assurance in hospital B.

**Conclusion:** This study found SERVQUAL as a useful quality assessment tool to measure health care service quality, based on patients' expectations and perceptions in context of Pakistan. The findings provide valuable insight into the process of evaluating health care delivery system in hospital setting.

**Keywords:** Service Quality, SERVQUAL, responsiveness, patient satisfaction

## 6.22

### **MENTAL STATUS OF HOSPITAL EMPLOYEES AMIDST CO-VID 19 PANDEMIC**

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**Background:** COVID-19 (Corona Virus Disease 2019) is a pandemic that started from China since December 2019 and this viral infection has not only affected physical but also mental health of population at large. The World Health Organization (WHO) named corona virus as 'severe acute respiratory tract coronavirus-2' (SARS-CoV-2; also referred to as 2019-nCoV), and the disease it causes as 'COVID-19.' The medical health-care workers are vulnerable to both high risk infection and mental health problems; they are struck with worry, fear and sense of bereavement.

At Aga Khan University the increasing number of cases that are diagnosed each day and the fast spread of this virus among hospital personnel could be one of the reasons for the development of stress, anxiety and depression. In this scenario while the household members of the employees tested positive are also struck by it, leaves them and their colleagues bound to be embarked by a sense of anxiety, fear and stress among them.

**Study Design and Method:** The study is to be conducted at Aga Khan University Hospital. It is a prospective cross sectional study with a sample size of 315 by random selection. All employees irrespective of cadre will be included in the study via universal sampling; such as doctors, nurses, technicians, pharmacists, security guards, etc. Staff with pre-existing mental illness or psychological stress would be excluded after asking them if they are suffering from depression, anxiety or any other psychological distress. A questionnaire is designed that will evaluate demographics, area of work and mental status by DASS-21 scale. Data will be analyzed by version 20 of SPSS.

**Results:** the results are to be compiled with in a week

**Conclusion:** Anxiety, stress and depression in hospital staff not only affect their own personal and family lives, but also may have serious consequences in the sound management of the hospital. There should be a vigilant surveillance to identify the consequences of pandemic on mental health of hospital employees so that intervention can be carried out to safeguard staff from chronic psychological trauma.

**Keywords:** covid-19, hospital personnel, stress, anxiety, depression

## 6.23

### **MUSCULOSKELETAL SYMPTOMS AND DISORDERS, AND RELATED KNOWLEDGE, ATTITUDE AND PRACTICES AMONG FEMALE TEXTILE WORKERS IN KARACHI, PAKISTAN - A CROSS-SECTIONAL STUDY**

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**Research,** Aga Khan University

**Background:** The aim of this study was to determine the prevalence of Musculoskeletal symptoms and disorders (MSD) and to assess Knowledge, Attitude and Practices regarding Musculoskeletal symptoms and disorders among female textile workers in Karachi, Pakistan.

**Study Design and Method:** To assess the prevalence of MSD, we used the adopted version of Nordic Musculoskeletal Questionnaire (NMQ). For assessing individual and work-related factors, a structured questionnaire was developed and used. Data was captured on EpiData and analyzed using SPSS 19. Percentages and frequencies were calculated for musculoskeletal symptoms and disorders, socio-demographic and work-related factors. Standard deviation (SD) and mean were calculated for age, duration of work and monthly income. For KAP variables, responses were coded as “positive” or “negative”. Those scoring “positive” were considered as having good knowledge, attitude, and practices

**Results:** 311 female textile workers participated in this study. 253 (81.4%) of the female textile workers reported musculoskeletal symptoms. The Lower back was the most frequently affected region (71.7%), followed by shoulders (70.7%), neck (43.4%), forearm and elbow (24.4%), hands and wrist (20.6%), upper arms (15.1%) and upper back (5.1%). Self-reported average difficulty of pain was moderate, and most individuals (29.6–53.1%) reported duration of pain to be between 3-5 days. Nearly 69.5% female workers were very dissatisfied with their working space. Frequency of musculoskeletal complaints were popular among 26-35 years of age bracket. Higher monthly income, up to 5 years spent working in the textile industry, marital status and lower educational attainment all correlated positively with complaints. Those with MSD complaints were more likely to have better knowledge and safer practices score.

**Conclusion:** To conclude, there is a high prevalence of musculoskeletal symptoms and disorders among female textile workers in economically developing countries. Preventive measures and worksite interventions are needed to reduce work-related musculoskeletal disorders in this population. Health insurance, treatment and reimbursement schemes should be launched.

**Keywords:** Musculoskeletal symptoms, Female Textile Workers, Occupational Health, Textile Industry, Women Health

## 6.24

### ***BIRTHWEIGHT IN OFFSPRING AND CARDIOVASCULAR MORTALITY IN THEIR PARENTS, AUNTS AND UNCLES: A FAMILY-BASED COHORT STUDY OF 1.35 MILLION BIRTHS***

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**Background:** A link between suboptimal fetal growth and higher risk of cardiovascular disease (CVD) is well documented. It has been difficult to assess the contribution of environmental versus genetic factors to the association, as these factors are closely connected in nuclear families. We investigated the association between offspring birthweight and CVD mortality in parents, aunts and uncles, and examined whether these associations are explained by CVD risk factors.

**Study Design and Method:** We linked Norwegian data from the Medical Birth Registry, the Cause of Death Registry and cardiovascular surveys. A total of 1 353 956 births (1967–2012) were linked to parents and one maternal and one paternal aunt/uncle. Offspring birthweight and CVD mortality association among all relationships was assessed by hazard ratios (HR) from Cox regressions. The influence of CVD risk factors on the associations was examined in a subgroup.

**Results:** Offspring birthweight was inversely associated with CVD mortality among parents and aunts/uncles. HR of CVD mortality for one standard deviation (SD) increase in offspring birthweight was 0.72 (0.69–0.75) in mothers and

0.89 (0.86–0.92) in fathers. In aunts/uncles, the HRs were between 0.90 (0.86–0.95) and 0.93 (0.91–0.95). Adjustment for CVD risk factors in a subgroup attenuated all the associations.

**Conclusion:** Birthweight was associated with increased risk of CVD in parents and in aunts/uncles. These associations were largely explained by CVD risk factors. Our findings suggest that associations between offspring birthweight and CVD in adult relatives involve both behavioural variables (especially smoking) and shared genetics relating to established CVD risk factors.

**Keywords:** Birthweight, parents, aunts/uncles, CVD mortality

## 6.25

### ***THE EFFECTS OF COVID-19 ON YOUTH MENTAL HEALTH: FOCUSING ON UNIVERSITY STUDENTS IN KARACHI***

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**Background:** The purpose of this study was to understand the effect of the Covid-19 pandemic on the mental health of the youth of Karachi, focusing on university students. Stressful life events, extended time confined at home, changing family dynamics, uncertainty and other factors may impact the mental health of the youth during this time period.

**Study Design and Method:** An exploratory study was conducted where four participants volunteered to discuss their experience of the outbreak of the pandemic, quarantine, and the various ways it affected their lives. The coping mechanisms employed by these participants were also discussed.

**Results:** The results showed that there was an increase in stress levels and anxiety caused by the uncertainty surrounding the situation. It was also found that staying confined in their homes

was not beneficial for the mental health of the youth, who often felt isolated and trapped. The results, therefore, suggest that the Covid-19 pandemic negatively affected the mental health of the youth of Karachi

**Conclusion:** Previous literature on the mental health of the youth during stressful situations shows that lifestyle disruptions and hopelessness were the major contributors to the distress they faced during the pandemic. This research study also found that factors such as familial environment, changing relationships, financial concerns and the effects of quarantine negatively impacted the mental health of the youth in Karachi. The university enrolled youth were greatly affected by the sudden closures of campus and everything else that followed as the pandemic worsened.

**Keywords:** Covid-19, Mental Health, Youth, Isolation, Family, Anxiety.

6.27

### **VACCINATION HESITANCY ON INTRODUCTION OF COVID 19 VACCINE IN PAKISTAN: A WEB-BASED CROSS SECTIONAL STUDY APRIL 2021**

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**Background:** Vaccination against COVID-19 is one of the control measures for an ongoing COVID-19 pandemic. Vaccine acceptance is known to be low in Pakistani population, we identified the factors associated with vaccine hesitancy (VH) for COVID-19 at the time of first introduction of this vaccine for elderly and health care workers.

**Study Design and Method:** An online survey was launched using a google form during March to April 2021 to assess VH in adult (> 18 years) Pakistani population. The survey form

ascertained vaccine hesitancy by direct responses to questions on getting vaccinated and attitude towards COVID-19 vaccine. In addition to sociodemographic characteristics, observation of standard precautions, and sources of information on COVID-19 vaccine were inquired.

**Results:** Of the 278 responses 80% of the population was less than 45 years of age, 68% were males, 91% had 16 or more years of education, 39% were in health care profession, 81% reported to use face masks in public places, 68% sanitized hand every time, avoided social gatherings, 24% had received vaccination, 20% had suffered from COVID-19, and 45.7% were vaccine hesitant. At multivariable level being health care worker, mean precautionary score, not being already vaccinated against COVID-19 and concern about COVID-19 vaccine being safe were the contributing factors for vaccine hesitancy. Participants who thought COVID-19 vaccine was safe were 90% less hesitant to COVID-19 vaccine as compared to those who thought vaccine was not safe/ unsure (APR: 0.1; 95% CI 0.09, 0.29) when controlling for variables in the final model.

**Conclusion:** Reliable safety information on COVID-19 vaccine and trust building of health services may influence VH, to mass vaccinate Pakistani population to control the pandemic.

**Keywords:** Vaccine Hesitancy, COVID-19, Vaccine Safety, Health Care Worker, Survey

## 6.28

### **OBSTACLES TO EFFECTIVE SURVEILLANCE OF COMMUNICABLE DISEASES: PERCEPTIONS AND EXPERIENCES OF DISTRICT HEALTH STAKEHOLDERS REGARDING INTEGRATED DISEASE SURVEILLANCE AND RESPONSE SYSTEM FROM A RURAL DISTRICT OF PAKISTAN**

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**Background:** A communicable disease surveillance system serves two key functions: early warning of potential threats to public health and program monitoring functions of disease specific programs. The early warning function of surveillance is fundamental for national, regional, and global health security. However, frequent occurrence of outbreaks of communicable diseases globally and in Pakistan have raised questions on the effective role of disease surveillance system in detecting disease outbreaks.

**Objectives:** To explore perceptions and experiences of district health system stakeholders regarding barriers to an effective disease surveillance and response system for communicable diseases in the rural district of Thatta Sindh, Pakistan.

**Study Design and Method:** Using descriptive exploratory design, 20 in-depth interviews were conducted with district health stakeholders from January – March 2021 in eight public sector primary and secondary healthcare facilities of the district.

**Results:** An inductive approach was used to analyze the data resulting in emergence of eight themes including 1) fragmentation of health services in public sector leading to poor disease reporting; 2) lack of adequate human resource to

cater to needs of disease surveillance in a district; 3) inadequate technical capacity of available human resource with regards to surveillance of communicable diseases; 4) paper based reporting of communicable diseases under surveillance leading delayed reporting; 5) non-utilization of surveillance data for evidence based decision making; 6) inadequate infrastructure at district level hindering effective disease surveillance; 7) inadequate network of laboratories including inadequate capacity for conducting diagnostic tests; and 8) lack of integration of private health sector in disease surveillance.

**Conclusion:** Barriers identified in this study indicate that disease surveillance system is facing several challenges including structural barriers, poor technical capacity, and lack of proper and timely reporting. The findings of the study highlight important barriers that if addressed can lead to an improved surveillance system for communicable diseases at district level.

**Keywords:** communicable diseases, surveillance, rural, district health system, Pakistan

## 6.29

### **MONITORING TRENDS AND PREDICTING FUTURE WAVES OF INFECTION THROUGH SEWAGE SURVEILLANCE OF SARS-COV-2 IN KARACHI, PAKISTAN.**

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**Background:** Environmental surveillance of COVID-19 serves as an early warning system since the virus is shed in feces 3-7 days earlier than appearance of clinical symptoms. In Pakistan, the highest number of cases have been

reported from Karachi where untreated wastewater flows through a system of sewers and drains into the Lyari and Malir Rivers. We aim to quantify SARS-CoV-2 RNA from wastewater samples collected from four sites in District East and correlate this information with reported number of cases and hospitalizations in the district. The overarching goal is to demonstrate the feasibility of a surveillance system for monitoring temporal trend of the epidemic and predicting future waves.

**Study Design and Method:** This study is being done in close collaboration with the National Institutes of Health (NIH), Islamabad, the WHO and DHO East, Karachi. Data collection started on June 10, 2021 and is on-going. We use Bag Mediated Filtration System (BMFS) to collect early morning raw sewage samples. Filtration is done on-site. The filtrate is transferred under controlled conditions to the IDRL at AKU for RT-PCR testing and RNA quantification. The samples are processed in the BSL-2 facility within class II-Type A2 biosafety cabinet.

**Results:** We will use Bayesian Machine Learning for demonstrating relationship between quantity of SARS-CoV-2 RNA in sewage and the number of cases and hospitalizations. Using a distributed lag framework, we will identify the association of lag in number of days (n) between surge of COVID RNA particles in sewage samples and that of cases, hospitalizations and deaths. A hierarchical modeling approach will be used to model the trend by pooling information from multiple locations.

**Conclusion:** The results from this environmental study will be used to model changes in COVID-19 prevalence over time, potentially identifying a resurgence of the disease within the catchment area ahead of time to strategically combat further waves of infection.

**Keywords:** COVID-19, sewage surveillance, environmental surveillance, wastewater surveillance, BMFS, SARS-CoV-2, District East Karachi,

### 6.30

#### **COVID-19 VACCINE EFFECTIVENESS AMONG ADULTS IN KARACHI, PAKISTAN: A TEST NEGATIVE CASE CONTROL STUDY**

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**Background:** The COVID-19 pandemic has caused approximately 4.9 million deaths globally. With the introduction of vaccines against COVID-19 in Pakistan in early 2021, it is essential to provide real-world evidence of the extent of protection by different vaccines against the virus. Therefore, this study aimed to determine the effectiveness of vaccines authorized for use against COVID-19 in Pakistan and to identify barriers to COVID-19 vaccine uptake amongst Pakistanis.

**Study Design and Method:** This is a test-negative case-control study being conducted at the Aga Khan University (AKU). Adult residents of Karachi with at least three symptoms of COVID-19 like illness, who got their RT-PCR test at AKU Karachi after June 01, 2021 are eligible for the study. Participants are identified through line lists shared by the AKU Clinical Laboratory. A total of 1586 cases and controls each will be enrolled. Participants are recruited through telephone calls after taking their verbal informed consent. Post-hoc matching of cases and controls will be done on age, healthcare worker category, and time of test.

The main exposure of interest is self-reported vaccination status; participants will be considered fully vaccinated two weeks after receiving the complete dose.. Data collection is in process and will be completed by December 2021.



**Results:** Data analysis will be performed on STATA version 16. Logistic regression models will be used to compare the odds ratios (OR) of vaccination in cases to controls. The proportion of unvaccinated individuals reporting vaccine hesitancy among cases and controls across different demographic groups will also be computed. In the subgroup analysis, we will separately calculate the vaccine effectiveness amongst healthcare workers, the general adult population, and people with concurrent medical conditions

**Conclusion:** This research may help inform healthcare departments in planning future immunization campaigns. It will also create awareness about factors leading to vaccine hesitancy, benefitting policymakers and public health specialists.

**Keywords:** COVID-19, Vaccine Effectiveness, test-negative design, Karachi, Healthcare workers

### 6.31

#### **RESPECTFUL MATERNITY CARE AT PUBLIC HEALTH FACILITIES: UNDERSTANDING DRIVERS OF SERVICE PROVIDER'S BEHAVIOUR**

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**Background:** Respectful care during childbirth is an integral component of quality of care and a fundamental right of every woman. However, women's experiences of disrespectful care are prevalent in low- and middle-income countries. This complex phenomenon is not well explored through behavioral science perspective in Pakistan. The objective of present research is to understand the behavioral drivers of service providers regarding supportive and respectful

maternity care services at public health facilities in Sindh, Pakistan.

**Study Design and Method:** An interpretative study based on capability, opportunity and motivation behavioural (COM-B) framework was conducted in Thatta and Sujawal, Sindh, Pakistan. Maternity care staff included midwives, nurses, lady health visitors, women medical officers, and gynecologist and non-clinical staff included Aaya, maid, security guard, cleaner and janitorial staff participated in the study. They were purposively selected for semi-structured in-depth interview from public health facilities. Data were analysed using thematic deductive analysis and findings were synthesized by using behavioral COM-B system' framework.

**Results:** The drivers of respectful maternity care (RMC) are categorized according to COM-B framework. Awareness about the psycho-social support of patients, training opportunities on RMC, realization of patient's rights and patient's differential needs were the capability behaviour drivers. Infrastructural support (e.g., curtains and separators for privacy in delivery room and labour ward), availability of drugs, job aids for RMC, value clarifications for male birth companions/policies for companion engagement, and team respect were the opportunity behaviour drivers. Moreover, personality traits of providers, normalized manifestations of mistreatment, a mind-set that patients are difficult, uncooperative, intolerant and aggressive and mechanism of accountability are the behavioural drivers of motivation.

**Conclusion:** The nature of the factors which influence service provider's attitudes and behaviours suggests designing and implementing a comprehensive intervention that focus on multidimensional aspects of COM-B framework to promote RMC at public health facilities.

**Keywords:** Respectful maternity care, care providers, companion engagement

### 6.32

#### **IMPACT OF COVID-19 ON DAYCARE ONCOLOGY NURSING STAFFING AT AGA KHAN UNIVERSITY HOSPITAL, KARACHI AND DEVISING A NEW GUIDELINE FOR MAKING ZERO EXPOSURE**

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**Background:** Covid-19 has become a pandemic which has affected the overall population. The hospital staffs have become more affected with this pandemic while dealing with patients to whom they don't know that are COVID-19 positive. We dealt with such conditions in Daycare Oncology Unit at AKUH in which unit have suffered a lot with staffing crunch due to exposure with positive patients. In the beginning, health care personals were instructed to wear face mask and gowns and educated to ask few questions which makes a linked with COVID-19 symptoms.

**Study Design and Method:** From the month of April till June 2020, daycare oncology unit underwent in severe staff deficiency. Out of 27 staffs, total of 6 (22%) staffs were found COVID-19 positive and 17 (63%) staffs were quarantined intermittently due to exposure with positive patients. In such crisis, Oncology management has planned to reviewed the guidelines with infection control to make the exposure zero for which few interventions and recommendations have been applied like one day prior confirmation calls to patients and asking for the symptoms, putting a screening desk on entrance of Ibn-e Zohar building, screening at assessment room, making a mandate to patient and attendant for wearing mask, upgrading of PPE (gowns, gloves, mask, face shields), usage of N95 mask for any aerosol generating procedures, N95 mask fit testing by Oncology Nursing Staffs and fixing of Nurse Patient assignments for a week.

**Results:** After applying all the safety checks, it has been observed that no exposure has been

taken place after the month of June in daycare oncology unit. Our 100% of the staffs have been involved in patient care which increases staff satisfaction and reduces their burden.

**Conclusion:** There was a strong need identified to make some guidelines for oncology staff and patients because oncology staffs are working on immunocompromised patients and infection control follows different guidelines for them for resumption of work (two consecutive negative results). Therefore, to make exposure nil for which many interventions have been incorporated and implemented. Initially we have found many challenges in terms of staffing crunch and staff fixed assignments. But as soon situation was found under controlled, we have regained our staffs and their satisfaction.

**Keywords:** Covid, Daycare Oncology

### 6.33

#### **SPATIOTEMPORAL VARIATION AND SOCIOECONOMIC FACTORS OF FINANCIAL HARDSHIPS OF OUT-OF-POCKET HEALTH EXPENDITURE IN PAKISTAN**

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**Background:** Financial hardships of out-of-pocket health expenditure (OPHE) is a growing concern for health policy makers in many low and middle-income countries. Spatiotemporal variation between Pakistan's four provinces over 2001-2015 is discussed, which would help comparing existing health services delivery and financial risk protection plans.

**Study Design and Method:** We use the data sets of the household integrated economic surveys 2001-02, 2005-06, 2010-11 and 2015-16. We estimate OPHE share in household total and non-subsistence expenditure, catastrophic headcount at the threshold of  $OPHE \geq 10\%$  of total expenditure or  $OPHE \geq 25\%$  of non-subsistence expenditure. We estimate

impoverishment of OPHE using national poverty lines. Finally, we explore socioeconomic factors of financial hardships of OPHE.

**Results:** Over the years, catastrophic headcount and impoverishment of OPHE had decreased at national level (-1.3% points) and in the provinces of Sindh (-7.8% points) and Khyber Pukhtoonkhawa (KPK), (-2.8% points). The province of KPK and the year 2005-06 witnessed the highest incidence of financial catastrophe (26.89% points) and impoverishment (4.8% points) of OPHE. Households in rural areas, in the middle and rich quintiles and those headed by a male were more likely to encounter financial catastrophe and impoverishment due to OPHE.

**Conclusion:** Inter-provincial variation in financial hardships of OPHE provide aide to provincial level priority setting. The high impact of OPHE in the non-poor, in rural areas, and in KPK calls for enhanced targeting of financial risk protection plans.

**Keywords:** Out-of-pocket health expenditure, interrupted time series analysis, spatial analysis, financial catastrophe

### 6.34

#### **FIELD ASSESSMENT TO REVIEW AND DOCUMENT KEY FEATURES OF SOCIAL HEALTH PROTECTION MICRO-HEALTH INSURANCE INITIATIVE - GILGIT-BALTISTAN**

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**Background:** The Government of Gilgit Baltistan (GB) is implementing the Micro Health Insurance (MHI) initiative benefiting 21% population living below the poverty line in Gilgit district. The objective of this study is to investigate the reasons and factors influencing enrolment and utilization of benefits of the Micro-Health Insurance Initiatives in Gilgit

Baltistan and their preferences for hospitals for health care.

**Study Design and Method:** This study utilized mixed methods validating enrollment and utilization patterns (quantitative) of the scheme with archival analysis and stakeholders' consultation (qualitative). a rapid assessment framework is used to review the Social Health Protection scheme of Gilgit-Baltistan (SHPI-GB).

**Results:** Quantitative analysis revealed a low utilization of the scheme benefit (<10% claim to enrolment ratio) and high proportion of women benefiting from the scheme. Digestive diseases and childbirth-related diseases are the most common reasons for admissions. Nearly half of all deliveries were conducted by C-section. Qualitative data analysis revealed lack of awareness, religious impediments, preference of private health facility, lack of Out-Door Patient (OPD) coverage, low premium cap, tertiary hospitals from big cities are not included in panel hospitals, and complicated procedure for reimbursement cases were the major barriers to get benefit from this scheme.

**Conclusion:** The findings of this study call for extending the benefits package by including day-care surgical procedures, a public health campaign on personal hygiene, water supply, and sanitation, and including a co-payments system at least for the obstetric deliveries.

**Keywords:** Health Insurance, Financial Risk Protection, Mixed Methods

### 6.35

#### ***INEQUALITIES IN THE PROVISION OF ESSENTIAL MATERNAL AND REPRODUCTIVE HEALTH SERVICES TO WOMEN WITH DISABILITIES – SECONDARY ANALYSIS OF PAKISTAN DEMOGRAPHIC HEALTH SURVEY (PDHS 2017-18)***

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**Background:** More than one billion people on earth are living with some form of disability, with nearly 80% of them disproportionately located in LMICs. Apart from fewer educational and vocational opportunities, people with disabilities also deal with widespread exclusion from healthcare services, including sexual and reproductive health (SRH) rights. The prevalence of disability in Pakistani women of reproductive age group stands at a striking figure of 15%. Very few authors have attempted to study the healthcare delivery patterns specifically related to SRH services. This study aims to determine inequalities in the provision of essential maternal and reproductive health services between women with and without disabilities in Pakistan.

**Study Design and Method:** This was a secondary analysis of the recent round of PDHS 2017-18. The analysis was performed on a weighted sample of 6,711 women aged 15-49 years who had a live birth in the 5 years preceding the survey. Disability status was the primary exposure variable. Provision to essential maternal and reproductive health services assessed through a set of four key outcome variables: (i) modern contraceptive use; (ii) skilled antenatal care (ANC); (iii) skilled birth attendance (SBA); and (iv) skilled postnatal care (PNC). Multivariate Cox regression analysis was performed to determine the association between dependent and independent variables. The model was adjusted for important confounders. Sub-

group analysis was also conducted to assess the role of wealth status and type of residence as effect modifiers. Data were analyzed using Stata MP Version 16.0.

**Results:** Results: A total of 6,711 women were included out of which 14.1% (n=947) were disabled in at least one domain. Mean age was 29.4 + 0.13 years. In crude model, females with any form of disability were 1.25 times more likely to use modern contraceptives (PR = 1.25; CI 1.08-1.45; p value <0.01). Women with difficulty in communication were 35 times less likely to receive skilled ANC (PR = 0.65; CI 0.45-0.95; p value <0.05). The disabled women had 16% lesser odds of receiving PNC from a skilled provider as compared to their counterparts (PR=0.84; CI 0.72-0.981 p value <0.05). However, the findings were insignificant in the adjusted model.

**Conclusion:** Overall, no significant difference was seen in the provision of essential reproductive health services (modern contraceptive use, skilled ANC, SBA, and skilled PNC) between women with and without disabilities when adjusted for important covariates.

**Keywords:** disability, inequalities, quality of care, effective coverage

### 6.36

#### ***INFLUENCE OF GENDER PREFERENCE AND SEX COMPOSITION OF LIVING CHILDREN ON CHILDBEARING INTENTION OF CURRENTLY MARRIED MALES – SECONDARY ANALYSIS OF PAKISTAN DEMOGRAPHIC HEALTH SURVEY (PDHS 2017-18)***

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**Background:** Pakistan is the fifth most populous country with a population above 220 million. Despite of this increasing trend in population growth, the total fertility rate in Pakistan has

only slightly reduced from 4.9 in 1990-91 to 3.6 in 2017-18. According to the recent PDHS 2017-18, men were considerably more like to desire for another child in future as compared to the females (57% vs. 42%), irrespective of their current number of living children. Most of the literature in developing world has focused on the reproductive behaviors of women. However, in a country like Pakistan, men are considered to be the primary decision maker and head of families. Keeping in view, it is imperative to understand the factors that influence the childbearing intention of currently married males in Pakistan. Therefore, we conducted this study with an objective to determine the influence of gender preference and sex composition of living children on the fertility intention of currently married men aged 15-49 years in Pakistan.

**Study Design and Method:** This study analyzed nationally representative data from PDHS 2017-18. Analysis was performed on a weighted sample of 1,463 men aged 15-49 years. The key outcome variable in this study was the childbearing intention of currently married males who had at least three or more living children. Two key independent variable used in this study were gender preference of men and sex composition of their living children. Crude and adjusted OR along with 95% CIs were calculated using multivariate logistic regression. Three models including crude (simple model), adjusted (all insertion model) and final (backward selection of variables) were constructed to determine the effect of exposure variables on childbearing intention of currently married men while controlling for other potential confounders. Data was analyzed using Stata MP Version 16.0

**Results:** Mean age of the participants was 38.9 + 0.22 years. Overall, 65.20% males having three or more living children did not want to bear any more child, whereas, more than one third of the study sample (34.7%) still wanted to have more children in future. Female preference was less common (5.8%) among Pakistani married males, while 37% had preference for a male child. Men

having male preference and children of same sex were 1.46 (CI=1.08-1.97;  $p<0.05$ ) and 2.46 (CI=1.67-3.96;  $p<0.001$ ) times more likely to desire for more children as compared to those who had no gender preference and different sex composition, respectively. Other factors identified to be associated significantly with fertility intention in the final model included age, wealth index and marital duration

**Conclusion:** We found male gender preference and same sex composition of living children as two important predictors of men's desire for more children despite of having three alive children. In addition, it was observed that childbearing intention was more common in young males belonging to lower socioeconomic status who were married for less than 10 years.

**Keywords:** Fertility intention, Gender preference, Children sex composition, High fertility married men

### 6.37

#### **FACTORS ASSOCIATED WITH PARENTAL ACCEPTANCE OF MINIMALLY INVASIVE TISSUE SAMPLING FOR IDENTIFICATION OF THE CAUSES OF STILLBIRTH AND NEONATAL DEATH**

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**Background:** Background: Minimally invasive tissue sampling (MITS) is a non-invasive technique used to determine the cause of deaths.

Very little is known about the factors that affect MITS acceptance or refusal.

**Study Design and Method:** We present findings from a prospective study conducted in Southeast Asia on the reasons for accepting or refusing MITS. This sub-study was conducted in India and Pakistan to determine the acceptability of MITS in women who had a stillbirth or preterm live birth and later died. A formal questionnaire was used to gather observations during the consent for MITS, such as reasons for acceptance or refusal of MITS, as well as which family members were involved in the decision-making process.

**Results:** In Pakistan, the MITS acceptability forms were completed on 470 of 477 (98.5%) women with an eligible stillbirth for this sub-study, and 334 of 337 (99.1%) women with an eligible preterm neonatal death. In India, MITS acceptability forms were completed on 219 of 305 (71.8%) women with an eligible stillbirth and 260 of 264 (98.4%) women with an eligible preterm neonatal death. In India, the most common reason for MITS refusal for both stillbirths and preterm neonatal deaths were cultural issues, while in Pakistan, the most common reason for MITS refusal was a potential delay in the funeral. The primary reason for accepting MITS was that the parents wanted to understand the cause of death. In both sites, fathers, mothers, and relatives often in consultation, choose whether or not to accept MITS in stillbirths and preterm neonatal deaths to determine the cause of death.

**Conclusion:** MITS was more commonly accepted in India than in Pakistan. Cultural concerns in India and funeral delays in Pakistan were common reasons for refusal. Parents from both sites were curious to know the cause of stillbirths and preterm neonatal deaths. The father, mother, and relatives were key decision makers to consent for MITS or not.

**Keywords:** Minimally invasive tissue sampling, stillbirth, preterm, neonatal death

6.38

### **COMPARISON OF OPERATIONAL FEASIBILITY & LIMITS OF AGREEMENT BETWEEN NEW METHODS & STANDARD METHOD FOR HOME BLOOD PRESSURE MONITORING**

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**Background:** Background: Hypertension is a leading risk factor for worldwide mortality and has become an important public health concern. Currently one billion people are suffering from hypertension globally and this rate suggests that it may reach up to 1.56 billion by 2025. The reported prevalence from a large-scale survey of adult sample is 50% and only 6% of these have BP in control. Ambulatory blood pressure monitoring (ABPM) is a standard choice for the diagnosis of hypertension but not a viable approach for mass screening and diagnosis due to its limited availability and cost in Pakistan. The National Institute for Clinical Excellence and Pakistan Hypertension League guidelines recommend home blood pressure monitoring (HBPM) which is the most feasible approach considering the economic situation of Pakistan. Moreover, we still need simpler, cost-effective and robust alternatives for HBPM for early diagnosis at household level.

**Objective:** To compare the operational feasibility and limits of agreement between two new methods and standard method for HBPM in patients with or without hypertension.

**Study Design and Method:** A cross-sectional study will be planned in a large tertiary care hospital (The Aga Khan University Hospital) with estimated sample size of 500. After receiving due ethical approvals, participants'  $\geq 18$  years of age will be recruited in two groups; with hypertension and normotensive. Each participant will be provided with a BP monitor device (OMRON M7 Intelli IT HEM-7361T-

EBK) and a smartphone enabled software called 'Retina-scan' to be installed in participant's smartphone. Both hypertensive and normotensive groups will receive a BP monitoring diary to record the BP readings in three ways; Arm-1. Standard HBPM through Omron device (record three consecutive readings of BP in morning before breakfast and in evening before dinner), Arm-2. Random HBPM through Omron device (record four random readings of BP anytime during the week), and Arm-3. AI Based Vital Monitoring Tool (record BP readings with AI monitoring tool right after observing the readings from OMRON device). After a week time, each participant will return to recruiting site and share diary for data recording and follow-up questions. SPSS software will be used for data management and analyses. Pearson correlation coefficients, Bland-Altman plots and ROC curve will be used to determine the correlation, limits of agreement and level of accuracy in predicting hypertension for all three arms.

**Results:** N-A

**Conclusion:** N-A

**Keywords:** Hypertension, Home Blood Pressure Monitoring, Operational Feasibility, Pakistan

### 6.39

#### **PERCEPTIONS AND EXPERIENCES OF HEALTHCARE PROVIDERS AND WOMEN RELATED TO GESTATIONAL AGE ASSESSMENT AND SEEKING CARE FOR PRETERM OR LOW BIRTH WEIGHT BABIES WHEN REFERRED TO HOSPITAL: A PROTOCOL OF A QUALITATIVE EXPLORATORY STUDY**

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**Background:** Babies who are born prematurely or with a low birth weight are at risk of dying. A good antenatal care, particularly gestational age assessment, assists health care providers in identifying and referring preterm and/or low birth weight babies at an early stage. We are investigating the perceptions and experiences of health care providers, women, and parents regarding antenatal care and the referral of sick babies.

**Study Design and Method:** This will be an exploratory qualitative study. In-depth interviews with health care providers will be conducted, as will focus group discussions with parents of term/preterm/low birth weight babies. Purposive sampling will be used to select participants. The interviews will be transcribed and entered into the NVIVO software. Themes will be identified, and the results will be triangulated.

**Results:** Not applicable

**Conclusion:** In conclusion, this qualitative study will provide an opportunity to gain insight into the experiences of health care providers and women/parents regarding ANC, gestational age, and referral of women, as well as preterm/LBW babies.

**Keywords:** Qualitative study, experiences, perceptions, referral

#### 6.40

### **COMMUNITY PERCEPTIONS FOR MENTAL HEALTH IN NORTHERN AREAS OF PAKISTAN**

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**Background:** Mental health in Pakistan has remained a subject of debate for quite some time. The incidence and prevalence have both increased tremendously in the background of growing insecurity, terrorism, economic problems, political uncertainty, unemployment, and disruption of social fabric. With the advent of Covid 19, the lockdown and other public measures, may have consequences for worsening the existing mental health crises. The main goal of this research study was to investigate the knowledge, attitude and practices regarding causes, manifestations, and treatment of mental health problems among community members in general and women of reproductive age in particular.

**Study Design and Method:** The qualitative descriptive study was conducted in two remote union councils of 2 districts in Northern areas. Focus group discussions (15) and In-depth interviews (15) were conducted with youth, teachers, healthcare providers, mothers of children (0-6 years), and community leaders. During this process 135 individuals (67% female and 33% male) participated in FGDs and 7 males and 8 females participated in IDIs.

**Results:** Content analysis of the data revealed four major themes; awareness related to mental health, underlying causes and management of mental illness, mental health of women especially mothers of children under 5 and its effects on children was particularly underscored by community women. The stakeholders also discussed ways and recommendations to reduce and manage mental illness among community members.

**Conclusion:** The present study was designed to precede an intervention for community-based maternal mental health; therefore, it was helpful to understand the ground realities. The study found grave concerns related to causes, manifestations, and treatment of mental health problems among community members in general and women of reproductive age in particular. We also found issues related to accessibility, acceptability and utilization and existing beliefs and barriers that impede healthcare seeking for mental health problems.

**Keywords:** Mental illness, Women of Reproductive age, qualitative research

#### 6.41

### **PERSPECTIVES OF HEALTH CARE PROVIDERS IN CARING FOR ADULT DO NOT RESUSCITATE (DNR) PATIENTS AT A TERTIARY CARE HOSPITAL, KARACHI, PAKISTAN**

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**Background:** A Do-not resuscitate (DNR) order implies that the decision is made not to perform an advanced coronary pulmonary rescue in case of cardiac or pulmonary arrest yet not to forgo any other aspect of clinical care where cardiopulmonary resuscitation (CPR) might jeopardize the quality of life. Health care providers play a vital role in caring for all the patients including DNR patients, together they make a multidisciplinary team that works together to treat a patient, and doctors and nurses are important members of this team. Perspectives of nurses and physicians about the quality of care strongly influence their attitudes and practices towards the care. Therefore, it is important to explore the perspectives of physicians and nurses working in an inpatient setting about their aspects of care delivery to DNR patients



**Study Design and Method:** This study was conducted as a descriptive exploratory design. It was conducted in the general patient care areas of a private tertiary care hospital in Karachi, Pakistan. Participants were the attending physicians/consultants, registered nurses, residents, and nursing technicians working in non-critical medical units. The study sample consisted of 15 participants. Analysis was performed manually by using the content analysis approach to generate the themes and categories

**Results:** Three major themes were emerged from the data analysis: (i) Describing DNR order (ii) Challenges of dealing DNR patients (iii) Strategies to improve care. Categories and sub-categories were also extracted through analysis.

**Conclusion:** The study explored health care providers' perceptions about the care of DNR patients in the general inpatient areas. The findings of the study generated an understanding of care towards DNR patients by health care providers and also proposed various strategies to improve the standard of care to DNR patients.

**Keywords:** Do not resuscitate, patients, cardiopulmonary resuscitation, Health care providers

## 6.42

### **COVID-19 ASSOCIATED ANXIETY AND PERCEIVED RISK AMONG THE PREGNANT WOMEN**

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**Background:** COVID-19 is as an infectious disease which is categorized as a global pandemic. Pregnant women are known to be more susceptible to the complications and adverse outcomes of coronavirus infection due to the gestation related physiological and immunity changes. It is thought that it may

significantly increase the maternal and fetal risks such as preterm labor, premature rupture of the membranes, fetal tachycardia, distress in the third trimester of pregnancy and greater risks of perinatal anxiety, depression, and domestic violence. It is currently unknown how pregnant women cope with the present coronavirus outbreak and its daily implications.

The objective is to assess the Knowledge, Attitude, and Practices (KAP) of pregnant females regarding COVID-19, risk perception of pregnant females towards COVID-19, and Anxiety and concerns related to COVID 19 (GAD-7).

**Study Design and Method:** Its is a hospital based cross-sectional study; being conducted at a tertiary care hospital's Outpatient facility from the Obstetric department in Karachi, Sindh, Pakistan. The participants of the study were pregnant women visiting the facility for antenatal care.

The participants of the study were pregnant women visiting the facility for antenatal care. The calculated sample size for the study is 384 pregnant women rounded off to 400. A self-reported questionnaire was administered taking into account all standard health protocols for COVID-19. Their knowledge, attitude, practices (KAP) were assessed. A validated Generalized Anxiety Disorder (GAD-7) scale will be was used to measure their anxiety and concerns about COVID-19. Women who will scored <7 on GAD scale will be is considered as having less anxiety while those with GAD score  $\geq 7$  will be are considered more anxious about their pregnancy outcomes and family care. The Perception of Pregnancy Risk Questionnaire (PPRQ) consisting of 9 visual analogue scales was used to measure a pregnant woman's perception of her pregnancy risk. Descriptive statistics were calculated for continuous variables and were reported as mean  $\pm$  standard deviation (SD) Pearson correlation 'r' was calculated to explore linear associations among the perception of pregnancy risk, age, BMI, and

gestational weeks. The frequencies and percentages were computed for categorical variables and the means and standard deviations were calculated for numerical variables. All descriptive and inferential statistics were conducted using STATA 16.0 version.

**Results:** A total of 575 pregnant women were enrolled with an average age of 26.07 years and a mean gestational age of 27.22±8.99 weeks. Knowledge regarding COVID-19 showed that 92.2% females knew that COVID-19 is caused by coronavirus while 72.30% had knowledge about wearing mask. Regarding their attitudes towards this pandemic, 96.3% felt safe to breastfeed their new-borns, 80.20% considered changing their birth method whereas 54.6% were not concerned about the outbreak. Yet, 72% trusted and valued healthcare and frontline staff with their struggle towards coronavirus outbreak. 89.9% cancelled friends and family gatherings, 89.6%, 76.3%, 67.1% and 56% avoided dining out, parlors, public transport and shopping. 43.82% women were more anxious and 56.17% were less anxious scoring  $\geq 7$  and  $< 7$  respectively. The mean score of the perception of perceived risk for the baby was 22.95±13.72 and for the mothers was 19.40±0.57.

**Conclusion:** Considering the burden of COVID-19, a pregnant women's perception counts as a major contributor to her and her baby's health and well being. With existing unsatisfactory healthcare outcomes, the unprecedented burden of this pandemic could have a detrimental impact on them. Well-planned strategies by media, healthcare providers and government would significantly support such pregnant women during COVID-19.

**Keywords:** COVID-19, PPRQ, Pregnancy, GAD-7, Risk perception

## 6.43

### **SLEEP DURATION, SLEEP ENVIRONMENT, AND SLEEP PROBLEMS IN URBAN PRESCHOOLERS IN PAKISTAN**

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**Background:** Sleep is a significant marker of physical and psychological health, a state of altered consciousness during which body restores itself. Optimal sleep during early years has positive effects on executive functioning, memory consolidation, peer acceptance, and social skills. Poor sleep on the other hand, in terms of both quality and quantity adversely affects academic performance. The study was undertaken to explore patterns, habits, and problems for sleep in preschool children of urban Karachi, Pakistan.

**Study Design and Method:** A cross-sectional study design was implemented. Three private schools in Karachi in diverse geographical areas catering to the needs of population from different socioeconomic strata were involved in data collection. Sample size was 297 preschool children. A structured survey questionnaire was designed to capture various aspects of sleep patterns, behaviors, and associated factors. Respondents were parents and primary caregivers of preschool children.

**Results:** The average daily sleep duration (nocturnal + daytime nap) was 9.51 ± 1.21 hours (maximum 14 hrs. and minimum 5 hrs.), of which the mean nighttime duration was 8.15 ± 1.14 and mean daytime nap was 1.35 ± 1.04 hours. A good proportion of children were found taking afternoon naps (73%). Regarding sleep environment, 68% shared bedrooms and 73% shared beds with parents. A greater number of children had television (49%) and technology (43%) in bedrooms. A good number of children (73%) had at least one sleep problem. Among others the most frequently found sleep problems

were, bedtime and wakeup resistance, sleepy or tired during the day (46%), complains of growing pains in the legs (25%), nocturnal enuresis (19%) and nighttime fears (18%).

According to the study findings, at least 43.4% children had a sleep duration of less than 10 hrs. (Recommended hrs. of sleep) The study findings also concluded that Sleep hours in preschool children was negatively associated with somatic symptoms, child clinging and bedtime, and positively associated to 'parents' knowledge of sleep required by preschool children, child's wake up time, child's sleep pattern during the weekend and if the child taking naps.

**Conclusion:** The findings confirmed low level of parental awareness for sleep related information and an immediate need to develop better sleep habits among preschool children. Children in urban contexts are more sensitive to environments resulting in inadequate sleep. In addition, parents lack of awareness to develop proper sleep habits, routines and physical and socio-emotional environment, further influenced children's sleep. Interventions involving educationists and healthcare practitioners to create awareness among parents could be an effective option to improve the situation. Parental awareness on optimal sleep duration, sleep problems and sleep environment is crucial as preschool children are completely reliant on parents to recognize and seek appropriate healthcare as and when needed.

**Keywords:** Sleep habits, Sleep problems, Quantitative research, Sleep duration

#### 6.46

### **WHY WOMEN IN MEDICINE OFTEN DISCONTINUE PRACTICE IN PAKISTAN: PERSPECTIVES FROM WOMEN MEDICAL STUDENTS**

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**Background:** Despite the pivotal role of women in medicine, there is an emerging concern in Pakistan that women doctors often discontinue medical practice following graduation. According to a study in 2018, 80-85% of all medical students were women. However, the proportion of women doctors in the medical workforce in Pakistan remains under 50%. This study explores the future plans of women medical students to practice medicine as well as their perceptions regarding the factors that can lead to discontinuation of practice by some women doctors and the interventions that can alleviate this attrition rate.

**Study Design and Method:** A nationwide cross-sectional survey targeting women medical students in Pakistan was conducted between December 2019 to December 2020 in collaboration with the Association of Women Surgeons of Pakistan. An anonymous electronic questionnaire was dispatched via several social media forums. Chi-square tests or Fisher's Exact tests were used to compare demographic characteristics among women medical students who intended to practice and those who were undecided or did not intend to practice medicine. All tests were two-sided with  $p < 0.05$  considered threshold for statistical significance.

**Results:** Out of 1,245 women, 93.8% intended to practice medicine after graduating while the remaining were either undecided or did not intend to practice. Most women in the later group were from public medical colleges ( $p=0.013$ ). The main concerns were inability to simultaneously manage motherhood/childcare, discouragement by in-laws, inability to simultaneously manage household responsibilities, and discouragement by partner/spouse, respectively. An overwhelming majority of respondents (45.6%) believed that flexible working hours were needed to alleviate

this attrition, while other proposed interventions included weekly work hour limits (8.9%), daycare facilities (7.8%), and harassment/mistreatment reporting systems (7.1%).

**Conclusion:** Discontinuation of medical practice by female students can have damaging consequences on an already under-resourced health system. This is a clarion call for all stakeholders to address all the highlighted needs which can potentially mitigate the attrition rate among women medical students following their graduation.

**Keywords:** Women, Medical practice, Undergraduate, Workforce, Discontinuation

#### 6.47

### **PAKISTANI GIRLS' EXPERIENCES OF GROWING UP WITH BETA-THALASSEMIA MAJOR- A QUALITATIVE DESCRIPTIVE STUDY"**

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**Background:** Beta-thalassemia is a genetic disorder prevalent in our country and is responsible for serious physical and emotional wellness comorbidities. Beta-thalassemia ( $\beta$ -thalassemia) often times is a leading cause of financial burden on families and the country's health care systems. It is therefore observed and anticipated that the social support can play a vital role in improving the quality of life for such patients, especially with regards to their mental wellbeing. Thus, this study aims to understand universality of psycho-social burdens and its causative among grown-up girls suffering from beta-thalassemia major. Another objective would be explore their perception and their contribution as a member of the society

**Study Design and Method:** The Qualitative descriptive design was selected to address the research question. Purposive sampling technique was used. In-depth interviews were conducted with six girls diagnosed with beta thalassemia major between the ages of 16 -40 years. Their level of education varied from high school graduates to doctorate. Data was analyzed using NVIVO-12 by making codes, codes into categories, then merging categories into themes and finally setting all on diagrams or mind maps.

**Results:** Inductive approached was used to analyze content, two major themes were identified which impacted their wellbeing. Theme I: Positive factors which empower them were subcategorized as education, family support, good quality of life and contributing in home as a normal individual. However, theme II was negative outcomes, and further subcategorized as depression, social segregation/isolation and no insurance services were reported as challenges, life becoming a misery and anxiety among thalassemia patients prevails as they face difficulties in getting into schools, finding jobs, getting married or in even adjusting with friends or family

**Conclusion:** This study has highlighted the psycho-social facilitators and barriers for the well-being of female thalassemia patients in Pakistan and has revealed new avenues for further research to understand their needs and the required support from the society.

**Keywords:** Beta-thalassemia, women empowerment, society isolation

#### 6.48

### **PREGNANT MOTHER'S PERCEIVED BARRIERS IN UTILIZATION OF PRIMARY HEALTH CARE FACILITY IN PAKISTAN – DESCRIPTIVE QUALITATIVE STUDY**

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**Background:** Maternal and newborn mortality are the focused global public health concerns. Improvement of maternal and newborn mortality is one of the top priority of sustainable development goal 3.8 (SDGs). Pakistan is lagging much behind in achieving the SDG target of maternal and neonatal mortality which is reported to be 178 per 100,000 live births and 42 per 10,000 live births respectively. Poor satisfaction with quality of care in the health facilities re reported to be major hurdles in utilization of these services in Pakistan Thus determining these barriers and addressing them can improve the utilization of these services

**Objective:** To understand the perception of pregnant women regarding barriers behind underutilization of ANC services at primary health care in the Tehsil Hazro Punjab, Pakistan

**Study Design and Method:** Qualitative Descriptive study design used. At the point of saturation two FGDs were conducted with 18 participants. The eligibility criteria of selecting pregnant woman is who avail antenatal services (at least 3 antenatal visits) at study site. All other pregnant were barred (all women who did not give consent were not included in the study. Data were gathered by obtaining informed consent from eligible individuals by using a purposive sample technique after Ethical approval. Nvivo 12 used for analysis of data. Rigor maintained by using Guba and Lincoln principal transferability and conformability.

ERC: RE208-AAA-ERC-AFPGMI

**Results:** The first theme was decision in seeking care and the delays related to it. Most of the women stated that with the help of spouse, mother in marriage, family and lady health worker (LHW) they confidently attended the ANC clinics with their own decisions being valued. Despite the financial constraints the

women still availed the health care services. The second theme highlighted the delay in reaching healthcare facility due to long distance, significant travelling time and hence the increased cost and expenditure. On the other hand women were also not able to understand danger signs and had poor understanding of seeking medical help timely. The third theme identified delay in receiving adequate quality care such as unavailability of healthcare personnel, behavior and attitude of the staff, inadequate medicines and medical equipment and lack of ambulatory services to refer patients for special care. They contributed to the failure of healthcare system at primary healthcare level.

**Conclusion:** In conclusion of this qualitative research mother need affordable, accessible and responsive care. By using three delays pregnancy risk module; stakeholders such as policy makers, ministry of health, public health specialist and MNCH providers need to prioritize MNCH initiatives and reforms to translate MNCH policy into communities.

**Keywords:** barriers in utilization PHC , MNCH policy, Maternal and newborn

## 6.50

### **PERCEIVED BARRIERS TO PRENATAL ULTRASOUND UTILIZATION IN HAZRO TEHSIL, KPK**

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**Background:** Ultrasound provides support for accurate and precise assessment of fetal gestational age and helps to the time-sensitive decision during pregnancy and its overall management along with complications. This study aims to understand the perception and

experience of women regarding barriers to availing ultrasound scans at Basic health units.

**Study Design and Method:** The qualitative descriptive study design was used. Focus Group Discussions were conducted at BHUs of Hazro tehsil, KPK. Pregnant women who use prenatal care (at least three antenatal visits) at the study BHUs were invited. Two FGDs with 18 participants were conducted till the saturation point. Using a purposive sample approach, data were collected after taking informed consent from eligible mothers. About 40-90 minutes discussions were created with the help of a semi-structured Focus group discussion guide. By using the Nvivo 12 Software, all responses were reviewed and analyzed using the thematic coding approach.

**Results:** A total of 18 pregnant women participated, all were from the rural side. Only 3(17%) females had a nuclear family. In our study 8(44%) females were working. Five major themes were identified behind the non-utilization of Ultrasound scans at the BHU level. Theme I: Inadequate knowledge of ultrasound further coded into X-ray of a child, to know heartbeat, size and position of child and LHW as a source of knowledge; Theme II: fear about ultrasound procedure coded as the perceived risk of early miscarriage and X-rays can harm the fetus; Theme III: delays in decision making by in-laws and spouse; Theme IV: Issues at facility level coded as lack of HR and maintenance of equipment; Theme V: financial implications

**Conclusion:** Women have misconceptions about ultrasound during pregnancy which calls for proper educations and counselling by health care workers in the communities and facilities. Husbands should be encouraged to visit antenatal clinics along with their wives to make shared and early decision. Policy makers should ensure availability of equipment and personnel for providing ultrasound scanning services and provide financial support to increase utilization.

**Keywords:** maternal health and ultrasound, health system. MNCH

## 6.51

### **RABIES FREE PAKISTAN**

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**Background:** Rabies, a vaccine preventable disease, continues to be a critical public health issue as it kills around 2000-5000 people annually in Pakistan. Along with the disease spread among animals, the dog population remains a victim of brutal culling practices by the local authorities, which adversely affects ecosystem (sinking of poison in the soil – affecting vegetation & contaminating water) and the disease spread. The dog population has been exponentially rising primarily because a lack of a consolidated nationwide Animal Birth Control program and awareness among the local communities in general, and children in particular. This is reflected in Pakistan's low SARE score - 1.5, which makes the country trails behind other developing countries like Bangladesh (2.5) and Philippines (3.5). According to an estimate, the province of Sindh alone is home to almost 2.5 million dogs. The clustering of dogs in Peri-Urban areas and inner cities localities leads to an increase of reported dog bite cases in these areas specifically.

**Study Design and Method:** Objective: Rabies Free Pakistan (RFP), which is a joint venture of Getz Pharma Private Limited and Indus Hospital & Health Network (IHHN); it was established in 2018 to eliminate Rabies from Pakistan by 2030 using the One Health Approach.

**Methodology:** The RFP team is actively working on advocacy and policy front with both the Federal & Provincial government to ensure that all stakeholders currently involved in dog culling in Pakistan have a paradigm shift towards humane methods of vaccination and ABC. Along with the federal government, RFP aims to declare Rabies as a notifiable disease. Whereas, RFP closely works with the provincial

government of Sindh to initiate a province wide Rabies Control Program. RFP program follows international standards and WHO approved protocols for this program in Pakistan. RFP team has achieved various milestones in the fight against Rabies after successfully scaling up project operations and has vaccinated more than 30,000 dogs and neutered around 7,000 dogs since 2018.

**Results:** Not applicable

**Conclusion:** Recommendations: Effective implementation of Rabies program (MDV and ABC) requires a concentrated effort to address variety of structural and policy challenges. This essentially demands a massive shift in the attitude of individuals towards rabies. The two most significant challenges in implementing a standard policy at the structural level are lack of institutional capacity, shortage of vaccine, and absence of inter-departmental coordination among major stakeholders: federal government, provincial ministry of health, livestock and local bodies (including local councils). The lack of capacity in health care workers to treat dog bite cases emerges as a critical challenge at the clinical level.

**Conclusion:** Pakistan can learn from the successful international models of Sri Lanka and Mexico as they adopted the One Health Approach to eliminate rabies like RFP. The WHO advised One Health approach provides the policymakers with an interactive and cross-sectoral guide, which involves all the essential elements of the eco system (including animals, humans, and other components).

**Keywords:** dog population; mass dog vaccination; One Health; Rabies elimination, Animal Birth Control

## 6.52

### **USING ARTIFICIAL INTELLIGENCE ON PULSE OXIMETER WAVEFORMS TO REDUCE NEONATAL MORTALITY.**

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**Background:** In the year 2017, global rates of neonatal mortality were 18 deaths per 1000 live births amounting to 2.5 million child deaths within the first month of life. Pakistan contributes to 7% of the global neonatal deaths with sepsis and congenital anomalies especially congenital heart disease (CHD) among the leading causes of these. We aim to develop an (AI) based algorithm on pulse oximeter waveforms along with clinical and socio-demographic data to assist in early detection of newborns that are at-risk for conditions such as possible serious bacterial infection, and critical congenital heart disease in low resource settings.

**Study Design and Method:** Funded by the Islamic Development Bank, this is a prospective cohort study which is currently being conducted at Ibrahim Hyderi which is a peri-urban community in Karachi. The estimated sample size for the study is 1000. The CHWs visit the households of the pregnant women and obtain informed written consent. These women are then followed up until delivery and all live births are captured within 24-72 hours. Data on anthropometry, newborn danger signs and pulse oximetry screening as per American Academy of Pediatrics guidelines is performed. A 4-week follow-up is also conducted to check the vital status of the enrolled child.

**Results:** The study is still in its data collection process. 965 (96.5%) newborns have been recruited. To date, 35 (3.6%) participants have been diagnosed with neonatal sepsis 5 neonates (0.6%) have been diagnosed with CHD. So far,

20 participants (2%) refused care, and were not examined at the PHC.

**Conclusion:** Once developed and validated, pulse oximeter supported by an AI algorithm can be incorporated in newborn screening protocols at a community level to be performed by frontline health workers with minimal training, thus helping them identify and manage sick neonates.

**Keywords:** Neonatal mortality rate, Sepsis, Congenital heart defects.

### 6.53

#### **TRUST DEFICIT IN GOVERNANCE RELATED TO COVID-19 RISK COMMUNICATION IN PAKISTAN**

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**Background:** Effective risk communication is vital to prevent the emergence of more COVID-19 cases and for the government to ensure that the people trust it and follow the set guidelines. Therefore, the objective of this study is to explore the reasons for the trust deficit in risk communication mediums designed by the government of Pakistan.

**Study Design and Method:** This is an exploratory study conducted using primary and secondary methods of research. Primary data was collected using an online group discussion on Facebook. A group was specially created to discuss matters related to COVID-19 risk communication in Pakistan, and participants were recruited using purposeful and snowball sampling methods. Moreover, as part of secondary research, documents and content including the National Action Plan designed by the government of Pakistan and Risk Communication and Community Engagement (RCCE) material was reviewed. Risk communication mediums such as the government's official online portal (covid.gov.pk), WhatsApp ChatBot, and the

COVID-19 helpline were tested for usage to triangulate the research results.

**Results:** The data collected through the online group discussions were analyzed using discourse analysis. These findings were presented through a hierarchical codes-subcodes model using MAXQDA 2020. The National Action Plan for COVID19 by the Ministry of National Health Services was analyzed using document analysis. The findings were tabulated according to the usefulness and accessibility in terms of the definition of risk communication.

**Conclusion:** The study concludes that the reasons for the trust deficit are an overabundance of information, the government's weak policy implementation structure, lack of health education, and stigmatization of the disease. Effective modes of risk communication will ultimately help contain the spread of the virus, decreasing the burden on healthcare facilities. To prevent the disease from spreading, it is integral for the government to gain public trust and get people to follow the issued guidelines.

**Keywords:** Governance, Pakistan, Risk Communication, Trust Deficit, Covid-19

### 6.54

#### **THE MYSTERY OF COVID-19 REINFECTIONS: A GLOBAL SYSTEMATIC REVIEW AND META-ANALYSIS OF 577 CASES**

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**Background:** With disparities in vaccination, emergence of reinfection/reactivation cases coupled with newer waves and variants of COVID-19, we conducted a systematic review to assess the determinants and disease spectrum of COVID-19 reinfection.

**Study Design and Method:** A comprehensive search covering relevant databases was conducted for observational studies reporting Polymerase Chain Reaction (PCR) confirmed infection and reinfection cases. Meta-analyses were performed using RevMan 5.3 for pooled proportions of findings in first infection and reinfection with 95% confidence interval (CI).

**Results:** Eighty-one studies reporting 577 cases were included from 22 countries. The mean age of study population was 46.2±18.9 years with males accounting for 45.8% while 179 (31.0%) cases of comorbidities were reported. The average time duration between first infection and reinfection was 63.6±48.9 days. During first infection and reinfection, fever was the most common symptom (41.4% and 36.4%, respectively) whilst anti-viral therapy was the most common treatment regimen administered (44.5% and 43.0%, respectively). Overall, comparable odds of symptomatic presentation and management were reported in the two infections. However, a higher Intensive Care Unit (ICU) admission rate was observed in reinfection compared to first infection (10 vs 3). Ten deaths were reported with 565 patients fully recovering. Respiratory failure was the most common cause of death (7/10 deaths).

**Conclusion:** As the first global-scale systematic review of its kind, our findings support immunization practices given increased ICU admissions and mortality in reinfections. Our cohort serves as a guide for clinicians and authorities for devising an optimal strategy for controlling the pandemic.

**Keywords:** Reinfections, COVID-19, Global, Meta-analysis

6.55

**RESIDUAL SYMPTOMS AND THE QUALITY OF LIFE IN INDIVIDUALS RECOVERED FROM COVID-19 INFECTION: A SURVEY FROM PAKISTAN**

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**Background:** A scarcity of literature remains regarding the patient's health post COVID-19 infection. This study aims to fill this gap by assessing the prevalence of residual symptoms and quality of life (QoL) after COVID-19.

**Study Design and Method:** An anonymous online survey was administrated all over Pakistan from November 2020 to April 2021, COVID-19 survivors. The questionnaire used the 12-Item Short Form Health Survey (SF-12) to assess mental and physical quality of life (QoL). Multivariate linear regression was used to explore factors associated with mental and physical QoL scores.

**Results:** A total of 331 COVID-19 survivors were included. The commonest residual symptoms were body aches (39.9%), low mood (32.6%), and cough (30.2%). Better physical QoL was associated with being male (adjusted beta: 3.328) and having no residual symptoms (6.955). However, suffering from nausea/vomiting during initial COVID-19 infection (-4.026), being admitted to the ICU during COVID-19 infection (-9.164), and suffering from residual body aches (-5.209), low mood (-2.959), and chest discomfort (-4.842), was associated with poorer quality of life. Better

mental QoL was associated with being asymptomatic during initial COVID-19 infection (6.149) and post-COVID (6.685), while experiencing low mood post-COVID was associated with poorer mental quality of life (-8.253 [-10.914, -5.592]).

**Conclusion:** Despite supposed “recovery” from COVID-19, patients still face a wide range of residual symptoms months after initial infection, which contributes towards poorer QoL. Healthcare professionals must remain alert to the long-lasting effects of COVID-19 infection and aim to address them appropriately to improve patients’ QoL.

**Keywords:** COVID-19, Residual symptoms, Quality of Life, Pakistan

6.56

#### **ASSOCIATION BETWEEN QUALITY OF CARE DURING ANTENATAL CARE VISITS AND LOW BIRTH WEIGHT IN PAKISTAN**

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University

**Background:** Low birthweight is a key feature in child mortality and morbidity and affects around 20 percent of infants globally, typically in low- and middle-income countries. Pakistan has one of the highest rates of LBW in the world, varying from 19% in urban regions to 32% in rural areas.

**Aim:** To determine the association between the quality care during antenatal visit and low birth weight neonates.

**Study Design and Method:** Data for this study were derived from Pakistan demographic and health survey 2017-18 including 1207 mothers with low birth weight. The main study outcome was birth weight less than 2500 grams and number of antenatal visits, were the exposure variables. However examination, counselling and treatment during antenatal visits were also considered as independent variables. Data were

analyzed using descriptives and logistic regression on STATA 16.0. P-value less than 0.05 were taken as significant.

**Results:** About sixty percent of women belong from age category 25-35 years and around half of the respondent lives in rural areas. Nearly half of the women received all components of antenatal services. 27% of women had low birth weight babies. Poor women were more likely to have low birth weight neonates. Women who received all essential services of antenatal care were 17% less likely to have low birth weight babies

**Conclusion:** Our findings highlight the importance of encouraging pregnant women to attend antenatal care and appropriate antenatal care is useful to prevent the low birth weight.

**Keywords:** antenatal care, demographic health survey, low birth weight, Pakistan

6.57

#### **QUALITY OF LIFE AND ITS ASSOCIATED FACTORS AMONG PATIENTS WITH BRAIN TUMORS AT A TERTIARY CARE HOSPITAL IN PAKISTAN: AN ANALYTICAL CROSS-SECTIONAL STUDY**

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**Background:** Despite quality of life (QoL) being recognized as an important outcome in neuro-oncology, there is a lack of research from Pakistan where sociocultural differences may influence QoL. This study aimed to measure the QoL in patients with primary brain tumors (PBTs), and assess its association with mental health outcomes, resilience, and social support.

**Study Design and Method:** It was a cross-sectional survey among primary brain tumor patients. Quality of life, resilience, mental health outcomes and social support was assessed. Data was analyzed by Stata software version 15.

**Results:** Our study included a total of 250 patients, with median age of 42 years (range 33-54 years). The mean global QoL of the sample was  $75.73 \pm 14.9$ . On multivariable linear regression, global QoL was inversely associated with no or low income, having hypertension (-5.77), currently using a urine catheter (-15.33), having low social support (-28.16) suffering from mild (-9.88) or symptomatic (-17.59) depression, or mild anxiety (-7.11), while resilience (0.28) demonstrated a significant positive association.

**Conclusion:** The quality of life of patients with primary brain tumors in Pakistan is a function of clinical factors such as comorbid disease and use of a urinary catheter, social factors such a family income and social support, and psychological factors such as mental illness and resilience. Our findings may be of use in the development of QoL-improving interventions within the sociocultural setting of Pakistan.

**Keywords:** Quality of Life, Resilience; Anxiety; Depression; Social Support; Developing Country; Brain Tumor

6.58

### **INJURY HAZARD ASSESSMENT IN SCHOOLS: FINDINGS FROM A PILOT STUDY IN KARACHI, PAKISTAN.**

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**Background:** Injuries are a major public health concern and one of the leading causes of death and disability worldwide. Childhood injuries contribute to a major proportion of this burden. The purpose of this study was to pilot an injury

hazard assessment tool to assess the risk of injuries within school premises and playgrounds.

**Study Design and Method:** This observational cross-sectional study took place in 107 public and private schools of Karachi, Pakistan using a self-structured standard injury risk assessment tool. Data related to school demographics, administrative data and injury hazards within the school boundaries were collected by trained research assistants in the registered schools offering education services from nursery to secondary grades (through 10th grade, matriculation).

**Results:** Out of 107 schools, only 12 were recording school-related injuries. A quarter (25%) of schools had some sort of disaster drill exercises and built-in fire exits. Fire alarms were placed in 10 schools (9%), all of which were private. In 16 schools (15%), students had access to roof-top doors. There were multiple injury hazards in the school playgrounds. More than half of the schools had hazardous playground surfaces such as slippery, concrete and uneven ground. Over 80% of schools were not supervising the children during playtime and did not have a separate play area for children less 6 years old. In 38 schools (22%), there were multiple injury hazards in the play rides, such as broken equipment, rusted parts, and sharp edges. Moreover, nine schools (7%) had loose nuts, bolts, edges, belts, steps, or rails in their play rides. Inside, almost a quarter (24%, n= 76) of schools did not have proper insulation of electric wires. Protruded metal nails, which could be high risk for prick and cut injuries, were observed in 20% of the observed furniture.

**Conclusion:** In conclusion, there are multiple injury hazards in the schools of Karachi, Pakistan. These hazards have multifactorial causes, such as poor building infrastructure, lack of maintenance and risk minimization strategies.

**Keywords:** school injury, childhood injury, school hazards, playground injury, Karachi, Pakistan.

## 6.59

### **INJURY HAZARD ASSESSMENT FOR SCHOOL CHILDREN DURING SCHOOL TRAVEL: FINDINGS FROM A PILOT STUDY IN KARACHI, PAKISTAN.**

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**Background:** Road traffic injuries are the leading cause of mortality and morbidity among children. Travelling to and from school is a major risk exposure for children around the globe. The purpose of this study was to assess road traffic injury hazards in the school transport and child pedestrians using a customized tool for low-income setting.

**Study Design and Method:** This was an observational cross-sectional study in 94 public and private schools of Karachi, Pakistan. A self-structured standard observational tool was used to collect data of school demographic, road traffic environment, infrastructure, injury hazards in the vehicles used by school children and child pedestrian injury risk and road use behaviors. The tool primarily aimed to identify road injury hazards in school transport and risky behaviors among children walking to schools.

**Results:** A total of 860 observations of school children were recorded. Most of the schools (n=83, 88%) did not have designated parking spaces around the school. While only one public school had a parking area. Only one private school had Zebra crossing and all the other schools (n=93, 99%) did not have Zebra crossing around the school premises. Very few (n=13, 14%) schools had pedestrian sidewalks, of this n= 12 (19%) were private schools and only one public school had built-in sidewalks. Out of a total of 199 motorcycles observed, 18% (n=35) were wearing a helmet, while the majority (81%, n=161) were not using a helmet. Only 6% (n=8) car passengers were wearing

seatbelts, while the majority, 94% (n=137) were not using seatbelts. CNG gas cylinders were poorly installed in 35% (n=83) of the observed vehicles, while, the rest of 65% (n=152) did not have CNG inside or were not visible to our data collectors. Almost a quarter of the bus passengers (23%, n=55) stepped out of the bus in the middle of the road. The majority of the pedestrians (99.5%, n=266) did not use Zebra crossing. More than a quarter (28%, n=74) of the pedestrians looked left and right before crossing the road, while 72% (n=193) of them did not watch both sides of the road for traffic.

**Conclusion:** There are many road traffic injury hazards for school-going children walking or taking vehicular trips to schools in Karachi. Although pedestrians and passengers exhibited risky behaviors while using roads, further initiatives are advised from a public health viewpoint aiming at minimizing transport-related hazards.

**Keywords:** school injury, childhood injury, road-traffic injury, Karachi, Pakistan.

## 6.60

### **TIP-OVER INJURIES AMONG CHILDREN: DATA FROM AN URBAN EMERGENCY DEPARTMENT OF KARACHI, PAKISTAN**

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**Background:** Most unintentional injuries among children occur in the home environment. Tip-overs, defined as incidents where heavy objects fall on children are one of the reasons for injuries inside the home. This study aims to determine injury patterns and outcomes for child injuries resulting from tip-overs in the home environment as reported in the emergency department.

**Study Design and Method:** We performed a retrospective chart review at the Aga Khan University Hospital of pediatric (<16 years)

injuries caused by tip-overs from January 2010 to December 2014. Furthermore, parents of injured children participated in phone interviews to provide information about the injury scene.

**Results:** A total of 75 children visited the emergency department with tip-over injuries, out of which 55 (73%) were boys. Tip-over injuries were common among 3-year-old children with decreasing frequency as children grow older. The most common cause of tip-over were TV (25%), furniture (25%), wall & roof (20%), followed by TV trolley (16%). The most common sites of injuries were head (n=33 (44%) and extremities (n=33, 44%). In 25% of cases bruises/contusions, lacerations, and brain trauma were all reported. Cut/wound, fracture, and other nature of injuries occurred in 13 cases each (17%). A majority of the cases (n=66, 88%) were admitted to the hospital from the emergency department, under care of both general (68%) and critical care units (20%). More than a quarter (n=27, 36%) required at least one surgical procedure during their hospital stay. The mean length of hospital stay was 4 days (SD 7.4). There were 2 cases of mortality (3%).

**Conclusion:** Most tip-over injuries among children were caused by TV, furniture and TV trolleys. These injuries can be prevented with public education around home safety measures such as mounting them on the wall.

**Keywords:** tip-over injuries, child injury, home hazard, Pakistan, LMICs

## 6.62

### **RESILIENCE AND ITS ASSOCIATED FACTORS IN BRAIN TUMOR PATIENTS IN KARACHI, PAKISTAN: AN ANALYTICAL CROSS-SECTIONAL STUDY**

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**Background:** This study assessed resilience in brain tumor patients at a tertiary care hospital in Pakistan (a lower middle-income country; LMIC) and explored its relationship with patients' socio-demographic factors, clinical characteristics, social support, and mental health.

**Study Design and Method:** A cross-sectional survey was conducted amongst adult ( $\geq 18$  years) patients with brain tumor at the Aga Khan University Hospital, Pakistan. Resilience was assessed by Wagnild and Young's Resilience Scale, and patients' psychosocial characteristics by the Hospital Anxiety and Depression Scale and the Enriched Social Support Instrument.

**Results:** A total of 250 patients were included (mean age: 44 years; 68% males), with majority (97.6%) having high social support and only 4.4% and 2% having symptomatic depression and anxiety, respectively. On multivariable linear regression adjusted for covariates, lower resilience was associated with not being involved in household decision-making (Adjusted Beta Coefficient: 4.58 [95% Confidence Interval: -7.59, -1.56]), not currently working (-2.80 [-4.61, -0.99]), undergoing multiple neurosurgical interventions such as tumor biopsies or resections (-8.64 [-13.11, -4.16]), receiving chemotherapy (-5.17 [-9.51, -0.83]) or combination adjuvant therapy (-2.91 [-5.14, -0.67]), low social support (-7.77 [-13.73, 1.81]), mild depression (-13.00 [-17.00, -8.99]) or symptomatic depression (-19.79 [-24.69, -14.89]), and mild anxiety (-4.24 [-7.98, -0.50]).

**Conclusion:** Our study highlights the function of familial/household role and working status in mediating resilience, and demonstrates the well-known protective effect of resilience for mental health in brain tumor patients in Pakistan, a

South- Asian LMIC. These findings are of clinical relevance with regards to the development of culture-specific evidence-based resilience-building interventions that may help patients with brain tumors to cope with the psychological distress of cancer.

**Keywords:** Anxiety, brain tumor, cancer, developing countries, depression, mental health, oncology, psycho-oncology, resilience, social support

### 6.63

#### ***UPS AND DOWN OF COVID-19: CAN WE PREDICT THE FUTURE? UTILITY OF GOOGLE TRENDS TO FORECAST THE BURDEN OF COVID-19 IN PAKISTAN***

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**Background:** The ability to forecast changing trends of COVID-19 can help drive efforts to sustain the increasing burden on healthcare system. We aim to study the utility of Google trends search history data and demonstrate if a correlation exists between search data and actual COVID-19 cases and if the data can be used to forecast patterns of testing and disease spikes.

**Study Design and Method:** Weekly data of COVID-19 tests performed and positive cases for Pakistan was retrieved from online COVID-19 data banks for a period of 60 weeks. Search history related to COVID-19, corona virus and the most common symptoms of the disease was acquired from Google trends for the same period. Statistical analysis was performed to analyze the cross-correlation between the two data sets. Search terms were adjusted for time lag in weeks to find the highest cross-correlation for each search term.

**Results:** A total of 10,066,255 SARS-CoV-2 diagnostic tests were analyzed. Search terms of

‘fever’ and ‘cough’ were the most commonly searched online, followed by coronavirus and covid. The highest peak cross-correlations with the weekly case series, at a lag of 1 week was noted for loss of smell and loss of taste. The combined model also yielded a modest performance for forecasting positive cases. The linear regression model revealed loss of smell (adjusted R<sup>2</sup> of 0.7) with the significant 1 week, 2-week and 3 week– lagged time series, as the best predictor of weekly positive case counts. Search terms of fever, headache and shortness of breath displayed statistically significant correlation with total number of tests performed with a 1-week time lag.

**Conclusion:** Google trends can serve as a vital tool for predicting pandemic pattern and pre hand preparedness in such unprecedented crisis. The information can be used to for careful planning and arrangements to meet increased diagnostic and healthcare demands.

**Keywords:** COVID-19; Google; trends; forecast; predict;

### 6.64

#### ***HEALTH OUTCOMES OF THE EXPOSURE TO HAZARDOUS MATERIAL (HAZMAT): SOYA BEAN DUST ALLERGIC OUTBREAK, FINDINGS FROM AN INCIDENT AT THE KEMARI AREA OF KARACHI, PAKISTAN.***

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**Background:** Outbreak of hazardous chemicals in a community such as soya bean dust can overstretch the emergency services as it may cause deathly anaphylactic allergic symptoms. A recent outbreak of soybean dust was reported at the Kemari area of Karachi, Pakistan affected

over 500 individuals. The objective of this paper was to determine the clinical characteristics of the patients exposed to hazardous material outbreak in Kemari area of Karachi and categorize them into possible toxidrome.

**Study Design and Method:** The study design was a cross-sectional survey. We called the affected patients who visited two major hospitals after the incident to collect data on basic demographics, event details and major sign and symptoms of the affected individuals.

**Results:** A total of 574 patients were brought to the two hospitals in Karachi with history of exposure to hazardous material from Kemari area. The mean age of the victims was 32 years old with standard deviation of 13.5 years. The most common reported co-morbidity was history of asthma (56%), followed by diabetes mellitus (22%). The onset of symptoms happened at home in 41% of the cases, at workplace in 39% and the remaining 20% around the roadside. Most of the patients (n=549, 96%) were discharged from the emergency department after initial management. A total of 16 cases (3%) were admitted in the in-hospital setting for a day. A total of 9 deaths (1%) were recorded. The most common clinical manifestation was shortness of breath (94%), followed by neurological symptoms such as drowsiness, unconsciousness, or seizures (10%). Another 10% of the patients also reported gastrointestinal symptoms like nausea, vomiting and abdominal pain. Only 1% of the patients reported irritation to skin or eye.

**Conclusion:** Karachi's population living in an industrial city with major seaports are at high risk of exposure to hazardous materials such as unloading imported soya beans causing allergic outbreak because the dust emissions in air. The public and health authorities should be well-prepared to prevent such incidents.

**Keywords:** HAZMAT, soya bean dust, community outbreak, allergic reaction, gas leak, Karachi, LMICs

6.65

**BURDEN OF CULTURE CONFIRMED ENTERIC FEVER CASES IN KARACHI, PAKISTAN: SURVEILLANCE FOR ENTERIC FEVER IN ASIA PROJECT (SEAP), 2016–2019**

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**Background:** The Surveillance for Enteric Fever in Asia Project (SEAP) is a multicenter, multi-country study conducted in Pakistan, Nepal, and Bangladesh. The objective of the study were to characterize disease incidence among patients with enteric fever. We report the burden of enteric fever at selected sites of Karachi, Pakistan.

**Study Design and Method:** Prospective Surveillance Study,

**Results:** Overall, 22% (2230/10 094) of patients enrolled were culture-positive for enteric fever. 94% (2093/2230) of isolates were Salmonella Typhi and 6% (137/2230) were S. Paratyphi. 15% of isolates multi-drug resistant (MDR) to first-line antibiotics and 60% were extensively drug-resistant (XDR), resistant to first-line antibiotics, fluoroquinolones and third generation cephalosporin.

**Conclusion:** Enteric fever cases have increased during the last 3 years with large proportion of drug resistant S. Typhi cases. However, the burden of paratyphoid is still relatively low. Strengthening the existing surveillance system for enteric fever and antimicrobial resistance at the national level is recommended in Pakistan to inform prevention measures. While typhoid vaccination can significantly decrease the burden of typhoid and may also impact antimicrobial resistance, water, sanitation, and hygiene improvement is highly recommended to prevent the spread of enteric fever.

**Keywords:** Enteric fever; burden; Salmonella Typhi; typhoid fever; Pakistan

### 6.66

#### **DETECTION OF SALMONELLA ENTERICA SPECIES IN DRINKING WATER SOURCES TO ESTIMATE ENTERIC DISEASE BURDEN: SURVEILLANCE OF ENTERIC FEVER IN ASIA PROJECT (SEAP) STUDY, 2019 - 2020**

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**Background:** Consumption of contaminated drinking water has been attributed as a major source of *S. Typhi* in low middle income countries. As most of the surveillance studies analyze typhoid incidence based upon detection of salmonella specie in blood culture, there is a need for a low-cost tool with considerable efficacy. Here we report the results of our door-to-door survey conducted to collect drinking water samples, tested for the presence of *S. Typhi*, *S. Paratyphi* as part of our SEAP study in Pakistan.

**Study Design and Method:** Prospective Surveillance Study, SEAP Healthcare Utilization Survey (HCUS) conducted in 2017-2018. A random list of participants  $\leq 25$  years from was generated to locate households within SEAP catchment areas. Structured mapping of clusters with Geographical Information System (GIS) technology was installed in password-protected tablets. Trained staff approached households by following maps, considered the given age strata from the list. Upon baseline visit, drinking water sample was collected from households followed by dried blood spot (DBS) from the index person and household members  $\leq 25$  years. A brief questionnaire designed on Redcap software was implemented to ask household related questions. water collected from the primary source includes tap, water tanker, municipal pipelines, or water treatment plants. Study

participants were informed about their follow ups at 3 and 6 months of enrollment where only DBS collection would be performed.

**Results:** More than 1500 households were approached, out of which 500 participants were enrolled in the study between August 2019 - November 2020. Participants among the age strata of 0-5 years were 127, 131 for 5-10 years, 114 for 10-15 years and 122 for 15-25 years. 382 drinking water samples were collected from the households and 25 from other sources within the community including water tanker, RO plant, ice factory, public tap, shops and vendor cart. 71% consumed municipal supply. 18% treated drinking water at home. 93% used boiling as the method of treatment and 7% used chemicals like chlorine. Water samples were transported to the IDRL and tested through qPCR to detect *S. Typhi* and *Paratyphi*. Out of 382, 4% (15/382) samples were positive for *S. Typhi/S. Paratyphi A*. 9 from Lyari, 5 from Gulshan and 1 from Jamshed town. Households where samples were reported positive for enteric bacteria were revisited and advised to boil water and take common safety measures to prevent typhoid.

**Conclusion:** Predominantly, municipal water supply is the common source of drinking water among communities. Provision of this water lack practice of boiling before consumption which increases risk of infection.

**Keywords:** Enteric Fever; disease burden, water sources, Dried Blood Spot, Pakistan

### 6.67

#### **ENTERIC FEVER RELATED MORTALITY IN KARACHI, PAKISTAN, 2016 – 2020**

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**Background:** Enteric fever is a global public health problem especially in low middle income countries including Pakistan. Surveillance of Enteric Fever in Asia Project (SEAP) is a multi-



country, prospective study aimed to determine the incidence of enteric fever, disease associated deaths, and to characterize the case fatality rate among enteric fever cases. Herein we report the mortality results from the SEAP study.

**Study Design and Method:** Prospective Surveillance Study, The study was conducted at selected sites in Karachi from October 2016 to March 2020. These includes Aga Khan University Hospital (AKUH), Kharadar General Hospital (KGH), Jinnah Postgraduate Medical College (JPMC) and National Institute of Child Health (NICH). Participants of all age groups, presented with a self-reported history of fever for  $\geq 3$  consecutive days within the last 7 days from outpatient, patients hospitalized with a suspected diagnosis of enteric fever from inpatient, surgical patients with non-traumatic ileal perforations, even in the absence of laboratory confirmation and culture confirmed cases for S. Typhi/ S. Paratyphi from laboratory networks were enrolled. Data was collected through a pre-designed questionnaire installed in password-protected tablets, information included about signs and symptoms, contact information, duration of illness, treatment before visiting the study site as well as during hospital stay and outcome. A 6-weeks follow-up call was conducted to participants enrolled from the surgical wards at inpatient and with blood culture reported positive for S. Typhi and S. Paratyphi A. Deaths of the enrolled participants were reported during their hospital stay or identified upon follow up calls.

**Results:** A total of 12,656 participants were enrolled in the study and blood culture was performed on 97.8% (12,388/12,656). 26.2% (3,244/12,388) cases were positive for S. Typhi out of which 0.12% (4/3244) died. 1.6% (200/12,388) cases were positive for S. Paratyphi A. Amongst all deaths, 62% (31/50) belonged to AKUH and KGH, 24% (12/50) and 14% (7/50) from NICH and JPMC respectively. 62% (31/50) of the total participants who died were males. 28% (7/25) showed intestinal perforation on abdominal ultrasound. 10% (4/50)

of the total death cases were positive for S. Typhi. 68% participants who died had Pulmonary complications associated with the illness.

**Conclusion:** Our findings indicate that mortality attributed to S. Typhi is higher among those with complications as most of these deaths were reported during hospitalization. However, the ratio of clinical complications and deaths related to enteric fever is low, yet alarming within areas of high disease burden.

**Keywords:** Enteric fever; Mortality; typhoid fever; complications, Pakistan

## 6.68

### **SCHOOL-BASED RAPID ASSESSMENT OF ENTERIC FEVER IN LYARI TOWN, KARACHI: SURVEILLANCE OF ENTERIC FEVER IN ASIA PROJECT**

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**Background:** Surveillance of Enteric Fever in Asia Project (SEAP) is a prospective study aiming to generate data to inform policy recommendations on enteric fever prevention and control, as well as facilitate typhoid vaccine implementation. Novel antibodies such as anti-Hemolysin E (HlyE), Lipopolysaccharide (LPS), Membrane Preparation (MP) and Immunoglobulin (IgA) against Salmonella Typhi & Paratyphi have demonstrated better correlation with exposure in low and high endemic settings in Pakistan, Nepal and Bangladesh. Herein we provide the details of a school based cross sectional survey in Lyari town Karachi where dried blood spots were collected to test for the presence of anti-HlyE, LPS, MP and IgA to characterize the burden of enteric fever among school children.

**Study Design and Method:** Prospective Surveillance Study, School-based Rapid Assessment survey was conducted in 3 union

councils (UCs) of Lyari town, Karachi in the month of April 2021. These UCs were Agra Taj, Behar Colony and Chakiwara. Among these UCs, 11 schools were visited with students enrolled in primary and secondary classes. Trained staff offered consent to those who fall in the age group among 5 to 15 years.

**Results:** Overall, 1507 students were approached, and 400 participants were enrolled in the study. Their Dried Blood Spot (DBS), demographic information (age, sex) and typhoid vaccination history were collected. Out of 400, 50% were males. 41.5% (166/400) participants belonged to the age group of 5 - 10 years and 58.5% (234/400) were among 11 - 15 years. Grade-wise distribution of participants included 5% (20/400), 61.5% (246/400) and 33.5% (134/400) participants enrolled from preschool, primary level, and secondary level, respectively.

**Conclusion:** The study is expected to assess antibody profile from DBS of school going children and validate a low-cost tool to analyze enteric fever disease burden in high-endemicity areas of the country.

**Keywords:** School based Survey, Enteric Fever, low-cost tool, Dried Blood Spot

### 6.69

#### **IMPACT OF STIGMATIZATION AMONG HIV POSITIVE PATIENTS RECEIVING PSYCHOSOCIAL SUPPORT IN KARACHI: AN EXPLORATORY STUDY**

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**Background:** The effect of stigmatization on the lives of HIV patients remains underexplored in the context of low and middle-income countries. This study aimed to understand the extent of stigmatization and its impact on the lives of HIV patients.

**Study Design and Method:** We conducted secondary data analysis from 16 qualitative interviews carried out as part of a larger study exploring trauma care utilization among HIV patients in Karachi, Pakistan. Study participants belonged to a low socioeconomic stratum of society and included adult males, females, and transgender individuals. Thematic analysis was carried out from fresh transcripts of the interviews.

**Results:** Analysis of qualitative interviews identified three key themes: examples of stigmatization, the positive effect of stigmatization, and the negative effect of stigmatization. Negative effects comprised non-disclosure of disease status, suicidal ideation, and avoiding healthcare. Positive effects included development of resilience, spirituality, and altruism. Some HIV patients also extended support to other patients, which can be viewed as encouraging in the context of a low-to-middle-income country.

**Conclusion:** Stigmatization among HIV patients is common and results in an array of negative effects; however, its positive impact can build resilience, coping mechanisms, and support systems among the HIV community.

**Keywords:** HIV, stigmatization, mental health, qualitative analysis, Karachi, Pakistan.

### 6.70

#### **ARE HEALTH FACILITIES PROVIDING QUALITY CARE FOR SMALL AND SICK NEWBORN AND YOUNG INFANTS IN PAKISTAN?: FINDINGS FROM A CROSS-SECTIONAL STUDY**

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**Background:** Pakistan is considered to be the riskiest place for newborns due to its highest neonatal mortality rate. We undertook a study to assess the availability and quality of newborn care services provided at the inpatient care facilities in Pakistan.

**Study Design and Method:** We employed cross-sectional design across Pakistan from February to June 2019, through a purposive sample of 61% (23) of the 38 sick newborn care units at public sector health care facilities providing inpatient care for small and sick NYIs. We interviewed facility managers and health care providers by using structured questionnaires and also observed facility infrastructure and relevant metrics related to the quality of care related to small and sick NYI.

**Results:** Of the 23 facilities assessed, 83% had newborn intensive care units, 74% reported Special Care Units, and only 44% had Kangaroo Mother Care Units. Almost 100% of the facilities had paediatricians, 13% had neonatologists and neonatal surgeons each. Around 61% and 13% of the facilities had staff trained in neonatal resuscitation and parental counseling, respectively. About 35% of the facilities monitored nosocomial infection rates, 39% were baby-friendly hospitals, and 26% were accredited. Essential services to diagnose congenital birth defects were offered in only 4% of facilities. Only 39% of facilities had received external supervision for NYI care and 17% reported organizing management team meetings preceding the survey.

**Conclusion:** The study has demonstrated important gaps in the quality of small and sick NYI inpatient care in the country. This includes a dearth of KMCs, inadequate human resources, untrained staff, insufficient facility management practices, lack of inter-disciplinary meetings, and poor maintenance of records for critical newborn outcome indicators leading to

compromised quality of care. To avert neonatal mortality in the country, provincial and district governments have to take action in improving inpatient care.

**Keywords:** Service readiness, Quality of care, Small and Sick Newborn and Young Infants, Facility assessment, Pakistan, neonatal mortality, and Inpatient care units.

## 6.71

### **KNOWLEDGE, ATTITUDE AND PRACTICES ABOUT POLY-CYSTIC OVARY SYNDROME (PCOS) IN PAKISTAN**

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**Background:** Poly-Cystic Ovary Syndrome (PCOS) is the most common endocrine disorder among women. Not only is the exact prevalence of PCOS in Pakistan unknown, but there is also limited literature about the awareness of PCOS among people in Pakistan. This study aims to facilitate in bridging the gaps in current literature, which shall ultimately lead to a promotion of female reproductive health in a country where the subject continues to be a taboo even today.

**Study Design and Method:** This survey was conducted by the Aga Khan University, from March 2021 to July 2021, via a Google form circulated on multiple social media platforms. All respondents over the age of 18 years, currently residing in Pakistan were included.

**Results:** While 304 out of 380 respondents (80.0 %) claimed to be aware of PCOS before the survey, 98 of them (25.8 %) knew that despite the definition, not all patients of PCOS have multiple cysts in their ovaries. 154 respondents (40.5 %) knew that PCOS is a life-long medical condition. Moreover, 59 of them (15.5 %) were able to correctly identify all the symptoms of PCOS and 24 of them (6.3 %) were able to

correctly identify all health complications of PCOS.

**Conclusion:** The findings of our study demonstrate the lack of awareness of PCOS in Pakistan, and therefore show the dire need for educational interventions and changes in health policies that will be able to tackle any stigmas about the issue, which are much needed to ensure that women struggling with PCOS are able to get the accommodations they need.

**Keywords:** Poly Cystic Ovary Syndrome, Endocrinology, Reproductive Health

6.72

#### **IMPACT OF COVID-19 PANDEMIC ON ED VISITS FROM TERTIARY CARE CENTERS OF PAKISTAN**

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**Background:** Demands on Emergency departments change over time. During the current Covid-19 pandemic, there is readily available data on patients presenting to EDs with symptoms traditionally associated with Covid-19. However, data on any changes in the proportion of non-Covid 19 patients is lacking. This cross-sectional study from Pakistan seeks to assess this number and compare it with data from the last 2 years at the same time of the year.

**Study Design and Method:** This was a retrospective cross sectional study conducted at AKUH's emergency department for the periods; March 2018 – June 2018, March 2019 – June 2019 and March 2020 to June 2020. Visit data for the first 2 years was compared with the pandemic period, including patient demographics, dispositions and presenting complaints.

**Results:** There was a significant decrease in patient volume during the pandemic. Interesting

findings included an increase in the proportion of patients presenting with fever, respiratory complaints and gynecological related issues. There was also a significant increase in the number of patients arriving dead to the ED

**Conclusion:** Our study shows behaviour patterns in relation to ED visits do change, with possible delay in care leading to an increase in dead on arrival patients. More studies need to look into reasons for this change in behaviour

**Keywords:** Emergency Department, Covid-19, throughput

6.74

#### **COST-EFFECTIVE PHARMACEUTICALLY COMPOUNDED ORAL CAFFEINE: NEONATAL CLINICAL PHARMACIST LED PATIENT-CENTRIC QUALITY IMPROVEMENT INITIATIVE FROM A TERTIARY CARE NICU IN PAKISTAN**

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**Background:** Commercially available caffeine ampoule is used intravenously and orally till corrected gestational age  $\geq 35$ -40 weeks. Having higher risk of medication non-adherence due to higher cost and inappropriate dosage form. We started pharmaceutically compounded oral caffeine (PCC) for reducing cost of therapy and improve medication adherence.

**Study Design and Method:** This was a quality improvement (QI) project. Data was collected in pre-post-implementation phases. Followed SQUIRE2.0 guidelines for designing, implementing, and reporting this QI initiative.

**Setting:** A tertiary care level-III NICU at the Aga Khan University Hospital (AKUH), Karachi, Pakistan

**Patients:** All neonates admitted to AKUH-NICU from April-December 2017 and 2018, received caffeine therapy and survived at discharge.

**Interventions:** PCC initiative was an evidence-based intervention focusing on cost reduction and appropriate dosage form to improve medication adherence.

**Main outcome measures:** Cost of therapy, hospital readmission with apneic spells, medication refill-rates, and parents' complaints were evaluated in pre-post-intervention phases. Risk factors of higher likelihood of non-adherence to therapy were secondary outcomes.

**Results:** Significantly ( $p < 0.001$ ) reduced cost of caffeine therapy [Rs.77,000 (70,000-154,000) to 21,000 (21,150-42,350)], likelihood of caffeine non-adherence [43.9% to 2.5%] and readmission [25% to 6.5%] ( $p < 0.05$ ). A multivariate analysis shows 94% reduced likelihood of caffeine non-adherence with the implementation PCC intervention (RR=0.39, CI=0.19-0.73,  $p = 0.006$ ). Caffeine non-adherence risk was highest among the neonates with >36 days of therapy after discharge (RR=3.00, CI=1.03-4.0,  $p = 0.005$ ).

**Conclusion:** PCC dispensation in appropriate dosage-form at discharge, was effective in reducing cost and risk of non-adherence to therapy. This neonatal clinical and compounding pharmacist-led model can be replicated in other resource limiting setting.

**Keywords:** Pharmacy, Caffeine, cost effectiveness

6.75

#### **TRAUMA CARE SERVICES ASSESSMENT: A CROSS-SECTIONAL STUDY OF PUBLIC AND PRIVATE HOSPITALS IN KABUL, AFGHANISTAN**

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**Background:** Conflict- and terror-related injuries and road traffic injuries are the second and third leading causes of mortality in Afghanistan. The lack of a trauma care system based on reliable guidelines further adds to the burden of injuries. This study aimed to assess the compliance of public and private hospitals with the World Health Organization guidelines for essential trauma care in Kabul, Afghanistan.

**Study Design and Method:** A cross-sectional descriptive survey was done in five public and four private hospitals between July-August 2019 in Kabul, Afghanistan. A checklist for the inspection of physical equipment and a questionnaire for the assessment of human resource capabilities were developed using the World Health Organization guidelines for essential trauma care.

**Results:** The mean number of injury cases received yearly by public and private hospitals was 3,423 and 605 respectively. Seven out of nine hospitals were partially compliant with the WHO guidelines for essential trauma care. Usability of airway equipment to manage airway resuscitation was partially adequate in four (80%) public hospitals and in three (75%) private hospitals. Most of the public ( $n = 4$ , 80%) and all private ( $n = 4$ , 100%) hospitals were partially compliant with the WHO guidelines for usability of the circulation equipment in managing trauma patients. The trauma workforce did not have specific training in trauma management but had received some basic training.

**Conclusion:** The delivery of trauma care services in public and private health facilities across Kabul, Afghanistan is inadequate. Significant investment in the trauma care workforce and supply chain needs to be prioritized to improve the overall care provided to trauma victims in Afghanistan.

**Keywords:** Trauma, Injury, Assessment, Trauma Care Services, Afghanistan

6.77

**SEROLOGICAL EVIDENCE AND PREDICTORS OF COVID-19 INFECTION AMONG WOMEN AND YOUNG CHILDREN FROM THE AMANHI COHORT IN A SUB-URBAN AREA OF KARACHI**

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**Background:** As of October 31, 2021, 247 million cases of COVID-19 have been reported globally. However, the disease goes unreported among children and young adults as they tend to have mild or asymptomatic illness. Serological surveys estimate the burden of infection in a population through antibody assays. The AMANHI-COVID-19 study aimed to estimate the age specific seroprevalence of COVID-19 and identify predictors of infection among women of reproductive age and young children in a sub-urban area of Karachi.

**Study Design and Method:** Blood samples and epidemiological information was collected from 1771 women and 1097 children during March-June 2021. Roche Elecsys® Anti-SARS-CoV-2 immunoassay was used for qualitative detection of antibodies against SARS-CoV-2 in the blood.

Sero-prevalence was estimated using Bayesian estimation method and adjusted for test kit accuracy. Binomial logistic regression at univariate and multivariate level was used to determine the association of seropositivity with maternal and child factors.

**Results:** The adjusted seroprevalence of COVID among women was 45.3% [95% CI: 42.6, 47.9]. Seropositivity was highest among women 40 years or older (48.36%). Being overweight or obese increased the risk of getting COVID-19

(RR = 1.01; 95% CI: 0.88,1.16) while being poor lowered the risk (RR = 0.78; 95% CI: 0.63, 0.95).

Among children, 203 were seropositive (adjusted seroprevalence:18.4%; 95% CI:16.1, 20.7). Seroprevalence was highest among 3-4 year olds ( $\approx$ 20%) and among girls compared to boys (20.0% and 17.2%, respectively), while it was lowest among stunted and severely stunted children (RR 0.98; 95% CI: 0.69-1.22 and 0.68; 95% CI: 0.43-1.09, respectively).

**Conclusion:** Community-based prevalence of COVID-19 is high in sub-urban areas of Karachi. Older women with high body mass are at a greater risk of the disease. In comparison, only one-fifth of the children have antibodies against the virus with girls more likely to be infected possibly due to secondary household transmission. These results identify the high risk group for targeted interventions, including vaccination.

**Keywords:** COVID-19, Seroprevalence, Karachi, Women and child health

6.78

**IMPACT OF COVID-19 INFECTION ON PREGNANCY AND NEONATAL OUTCOMES\_EVIDENCE FROM A SUB-COHORT OF PREGNANT WOMEN FROM THE AMANHI-COVID-19 STUDY**

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**Background:** The COVID-19 pandemic has affected millions of people around the world. While the virus spares children and young adults of severe illness, the effects of the infection on pregnancy and newborns are still being studied. Recent evidence suggests that infection with COVID-19 during pregnancy is associated with adverse outcomes.

The aim of the AMANHI-COVID-19 study is to ascertain the incidence of peri-partum complications and adverse pregnancy outcomes and determine the associated factors among pregnant women infected with COVID-19, in a sub-urban area of Karachi.

**Study Design and Method:** Data collection is ongoing. Since March 2021, newly identified pregnant women are being enrolled in the pregnancy sub-cohort of AMANHI-COVID-19 study. At enrollment, detailed information is taken about prior pregnancies and concurrent illnesses. Additionally, an ultrasound and ANC examination is performed and a blood sample for anti-SARS-CoV-2 antibody testing is collected. The participants are visited monthly till the end of pregnancy for information regarding COVID-19 symptoms, pregnancy complications and any hospital records. Women are visited within 10 days of pregnancy termination for ascertainment of outcome, peri-partum details and collection of blood sample. Laboratory information is retrieved from hospital records or discharge summary, when available. Roche Elecsys immunoassay is used for qualitative detection of anti-SARS-CoV-2 antibodies in the blood samples.

**Results:** We will report age-specific prevalence of COVID-19 among pregnant women. Seropositivity among pregnant women with complications during pregnancy or adverse outcomes i.e. miscarriage, still births, early neonatal deaths will be computed. Finally, logistic regression will be performed to show the association of COVID-19 infection with epidemiological, socioeconomic, biological and demographic factors.

**Conclusion:** This study will provide important evidence about the factors that predispose towards adverse pregnancy and neonatal outcomes and risk of complications among women infected with COVID-19 during pregnancy. This knowledge will help establish targeted preventive measures and make the case for universal vaccination during pregnancy.

**Keywords:** COVID-19 in pregnancy, adverse pregnancy outcomes, Karachi, seropositivity, seroprevalence

## 6.79

### **PERCEPTIONS OF THE CAREGIVERS TOWARDS CHILDHOOD INJURIES RISK AND PREVENTIVE MEASURES WITHIN THE HOME IN KARACHI, PAKISTAN**

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**Background:** Childhood injuries are a major public health concern globally, that affects more than 95 % of children in low- and middle-income countries. This study aimed to explore the caregivers' perceptions regarding childhood home injury risks and effective methods for the prevention of childhood injury at home in Karachi, Pakistan

**Study Design and Method:** Qualitative phenomenology approach was undertaken. Focus group discussions and in-depth interviews were conducted with the mothers of children aged 12-59 months using a semi-structured interview guide between September and October 2010. The coding framework was developed using the transcribed and translated verbatim. A content analysis approach was used to analyze the data.

**Results:** Seven over-arching themes emerged from the data: perception of childhood injuries, knowledge of home safety, risk factors for childhood injuries, prevention of childhood injuries, barriers to injury prevention in children, experience of childhood injuries and health seeking behavior. Age, gender, risk-taking behavior and lack of adult supervision were some of the risk factors identified by mothers. Effective methods for prevention of childhood injuries included enhancing parental knowledge of home safety, supervising children's activities

and removing hazardous materials from home environment.

**Conclusion:** The home structure in Pakistan presents several risks that increase the likelihood of injuries among children. A community-based injury prevention approach focused on simple home modifications, home inspections and providing information on home hazards, would be a pioneering work towards addressing the burden of unintentional childhood injuries in Pakistan.

**Keywords:** Childhood Injuries, Perception, Qualitative Study, Pakistan

### 6.80

#### **FREQUENCY OF EARLY WEANING IN STUNTED CHILDREN BETWEEN AGES 6 MONTHS TO 23 MONTHS PRESENTING TO OUTPATIENT DEPARTMENT OF GENERAL PAEDIATRICS AT A TERTIARY CARE HOSPITAL (SAW STUDY)**

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**Background:** Malnutrition is a main cause of morbidity and mortality in children in low and middle-income countries. (1) The first 1,000 days of life (pregnancy and the first two years) are critical for brain development. (2) Stunting (i.e., low height-for-age) is a chronic condition that reflects poor linear growth accumulated during pre and/ or postnatal periods because of poor nutrition and/or health. Globally, according to the UNICEF / WHO / World Bank Group Joint Child Malnutrition Estimates 2021, 149 million children under the age of five are stunted. Multiple factors including maternal age, occupation and educational status, decreased access to basic health facilities, cultural norms, Food myths, traditional feeding practices without any scientific basis, feeding diversity and patterns influence weaning in Pakistan resulting in sub optimal feeding and hence contributing to stunting.

**Study Design and Method:** Study design: Cross sectional study

Study Setting: Outpatient clinics of General Paediatrics, Aga Khan University Hospital Karachi (AKUH).

Methods: All children of either gender from ages 6 months to 23 months who presented in outpatient clinics of General Paediatrics at Aga Khan University Hospital Karachi were enrolled. Data of all participants was recorded in predesigned data sheet. Questions were divided into child related, maternal related and sociodemographic variables. Data was analyzed by using SPSS 20. Post stratification Chi-square test was applied by taking p-value <0.05 as significant.

**Results:** Weaning was started before the age of 6 months in 61 (45.18%) children while 74 (54.81%) children were timely weaned. A higher proportion of the stunted males were weaned earlier as compared to the stunted. Early weaning was found to be significantly associated with stunting. Various factors like age difference from immediate elder sibling, mother's occupation, income and media exposure to TV, radio & internet were found to be significantly associated with a p-value less than 0.05.

**Conclusion:** Early weaning was seen in 45.18% of the stunted children. Provision of maternal knowledge about proper feeding practices along with timely weaning can significantly improve height of our children.

**Keywords:** Weaning, stunted, Early weaning

### 6.81

#### **UNDERSTANDING ADOLESCENT HEALTH PROBLEMS AND HEALTH SERVICE SATISFACTION IN OSHIKHANDASS, GILGIT, PAKISTAN**

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**Background:** Adolescence is an understudied and key period of transition from child to adulthood. Knowledge of childhood and current health problems will help identify present and future health services required.

**Objectives:** To characterize the types of health problems and needs in a cohort of adolescents/young adults from Oshikhandass village, Gilgit.

**Study Design and Method:** Young adults and adolescents enrolled as children under age 5 years in a surveillance study (1989-1996) were traced and interviewed (2012-2014); all were eligible. Questionnaires gathered information on self-reported health status, the incidence and types of lifetime health problems, whether and why they were hospitalized, and satisfaction with health services. Descriptive analyses were conducted in SPSS.

**Results:** Of 1868 enrolled in the original childhood cohort, 1463 (78.3%) were interviewed as young adults (mean age 22.6 years, SD 3.5). Most self-reported satisfactory, good or excellent health (respectively n=766, 52.4% n=294, 20.1%, n=138, 9.4%). Females were more likely than males to report poor/very poor current health (168/717, 23.4% vs 97/746, 13.0, chi square 26.8, p<.00001). Of 265 (18.1%) individuals reporting poor health, common problems were: headache (70, 26.2%), side pain/kidney stones (39, 14.7), general weakness (38, 14.3%), abdominal pain (28, 10.6%), and recurrent fever (26, 9.8%). Only one-quarter (385) of individuals reported no lifetime health problems. The remaining 1078 reported 2170 problems with the most common being: worms, blood pressure abnormalities, ear infection, fractures, diarrhea, major accidents, pneumonia, surgery, asthma, and depression/emotional problems. One-third (460/1463, 31.4%) of the cohort was

hospitalized during their lifetime, including 77 women for pregnancy/delivery. The most common reasons for hospitalization were infectious diseases (140/460, 30.6%), trauma (68, 14.9%) and surgery (59, 12.9%). Of those currently living in Oshikhandass (n=945), most (n= 812, 85.9%) were not satisfied with existing health facilities, traveling 9-580 km for health care. Of the 518 living elsewhere, 455 (87.8%) were satisfied with health facilities.

**Conclusion:** Most respondents reported that they were healthy. Significantly, one-third of young adults reported hospitalization during their lifetime. Most described current health facilities in Oshikhandass as inadequate to meet their health needs. Further exploration of types of health services required is warranted.

**Keywords:** Adolescent, Young Adult, self-reported health status, hospitalization

## 6.82

### **END USER EXPERIENCE OF HAYAT APP AND DASHBOARD: QUALITATIVE ASSESSMENT OF USABILITY, COMMUNITY ENGAGEMENT AND VALIDITY OF DATA FOR ANTENATAL CARE PROVISION AND ROUTINE IMMUNIZATION IN RURAL PAKISTAN AND AFGHANISTAN**

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**Background:** An mHealth app was developed for front line health workers, to strengthen maternal, neonatal and child health services through increased transparency, accountability, and improved governance by collecting and disseminating real-time data. Key features included tracking frontline health workers through Global Positioning System during outreach visits, registration of clients; and recording data.

To report the end user experiences of the frontline workers captured during the qualitative end line study of the Hayat app. This includes perceptions and experience of the using the digital app with a focus on usability, validity of data, and community response.

**Study Design and Method:** Qualitative assessment was carried out in select rural districts of Khyber Pakhtunkhwa and Gilgit-Baltistan in Pakistan and select catchments of Bamyan and Badakshan Province in Afghanistan. Qualitative methods used for assessment included 17 focus group discussions with LHWs and 28 key informant interviews with health workers and key stakeholders in both countries. A manual thematic content analysis was undertaken based on an adapted framework derived from the World Health Organization guide for “Monitoring and Evaluating Digital Health Interventions” and technology acceptance model.

**Results:** The study revealed high usability of Hayat app both by the end users and stakeholders at district level. Overall, this app helped in improving quality and timeliness of data, improved immunization coverage and maternal care through supportive supervision and monitoring of CHWs and LHWs in both countries. However, connectivity issues, difficulty in access to remote sites, security issues, lack of incentives and increased workload were some of the perceived barriers identified by the end users of this app.

**Conclusion:** Hayat application had high acceptability among the HCPs and has benefitted the existing health system functioning by providing reliable data, transparency, and better monitoring methods. However, successful integration requires inter sectorial collaboration to address the challenges identified in implementation.

**Keywords:** Antenatal coverage; immunization; digital technology; health workers **6.83**

### **ADDRESSING MENSTRUAL HYGIENE MANAGEMENT (MHM) NEEDS OF ADOLESCENT GIRLS AND WOMEN INNOVATIVE SOLUTION OF MAKING RE-USABLE PADS.**

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**Background:** Menstruation is a natural phenomenon for women which occurs in adolescence and continues throughout their reproductive life and has unique challenges that affect physical, social and psychological well-being of adolescent girls and women. Despite its importance, the subject of menstrual practices among girls in Pakistan has limited data and requires more robust research. This study aimed to enhance women and girls’ knowledge, attitude and practices regarding menstrual health management (MHM) leveraging with an innovative solution of making re-usable pads.

**Study Design and Method:** To assess the impact of our innovative, local, low cost and handy solution of improving menstrual practices, we conducted a cross sectional pre & post intervention household survey i.e. a baseline (2019) and an end line survey (2021). We adopted comparison of two sequential survey approach to assess the impact of interventions for sample size estimation. Using a 90% response rate, 95% CI, 80% power, 1.5 design effect, proportion of women used sanitary pads (13%) and expected coverage of at the end line (20%). Structured interviews were conducted with 736 adolescent girls and women of age 14-49 in rural Sindh. In case of more than one eligible participant available in a household, Kish grid method was used for selection of participant. Scoring Analysis method was adopted to measure the improvement in

knowledge and practices. P-value was used to analyze the difference of knowledge and practices between adolescent girls and women.

**Results:** The results of the study showed significant improvement in knowledge and practices including a decrease of 29% in particular practice of not using any absorbents during menstruation. There was a significant difference in knowledge and practices score of adolescent girls and women as compare to baseline.

**Conclusion:** Our study provides basis to scale up this intervention and consider the need of community based approaches to overcome the MHM challenges in Pakistan

**Keywords:** Menstrual Hygiene Management, innovative approach, community intervention, public health

#### 6.84

### **UNINTENTIONAL POISONING MORTALITY TRENDS IN THE SOUTH ASIAN REGION FROM 1990 TO 2019: FINDINGS FROM THE GLOBAL BURDEN OF DISEASE STUDY**

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**Background:** The rising environmental contamination and occupational exposure are posing increasing risks for the occurrence and progression of unintentional poisoning in low- and middle-income countries. This study aimed to estimate the burden of unintentional poisoning and its associated risk factors in South Asian countries from 1999 to 2019.

**Study Design and Method:** The data was extracted from the Global Burden of Disease Study from 1990-2019 to compare mortality, prevalence, disability-adjusted life years (DALYs), years of life lost (YLL), years lived with a disability (YLDs), and risk factors of

unintentional poisoning in south Asian countries. We determined the mean of the percent change and 95% uncertainty interval for the period between 1990 and 2019. We also conducted Poisson regression with model coefficients and Incidence rate ratio (IRR) to measure the percentage change in the rate per year.

**Results:** The age-standardized unintentional poisoning death rate decreased by 61.8% from 1990 (4.1 per 100 000) to 2019 (1.6 per 100 000) in the South Asia. The age-standardized prevalence decreased from 1990 (87.9 per 100 000) to 2010 (39.0 per 100 000) but rebounded in 2015 (42.6 per 100 000). The DALYs for south Asia countries except for Bangladesh also reduced significantly from 1990 to 2019 (IRR 0.97395% CI 0.966 to 0.98). All risk factors combined accounted for 15% of unintentional poisoning DALYs in 2019. The leading risk factor (carbon monoxide) for unintentional poisoning death rate and other means sequentially decreased from 1990 to 2019.

**Conclusion:** There has been a substantial progress in reducing mortality attributable to unintentional poisoning in South-Asia, but the prevalence has been increasing since 2015 which is alarming. This study recommends implementing comprehensive and community-based poison prevention and control approaches.

**Keywords:** Unintentional Poisoning, South Asia, Mortality, Burden of Disease

#### 6.85

### **IMPACT OF FLOODS ON DISTRICT HEALTH CARE SYSTEM RESILIENCE TO MAINTAIN HEALTH CARE SERVICES IN PAKISTAN: A QUALITATIVE STUDY**

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**Background:** Torrential rainfall during monsoon season every year it seriously affects availability

and accessibility of health care services, causes loss of life, and has a toll on health system's absorptive capacity. This qualitative study was undertaken to understand district health system resilience in coping with floods emergencies in Pakistan, and to get insights on the health needs during floods.

**Study Design and Method:** This qualitative study was carried out in five flood prone districts of Pakistan. Key informant interviews were conducted with 48 district stakeholders (including representatives from public and private sector organizations and 52 frontline health care providers (HCPs). Ten focus group discussions were also conducted with 56 Lady Health workers.

WHO Operational framework for building climate-resilient health systems was utilized for analysis and the findings were classified under health service delivery, health workforce, financing, supplies and equipment, governance, and information system.

**Results:** Analysis revealed the affected population at increased risk of experiencing health issues brought by disruption of health services during floods further augmented by displacements, lack of resources, and the dismal state of water, sanitation, and hygiene (WASH) resulting in infections and mal nutrition. Stockout and critical gaps in the supply chain for essential medicines and supplies was reported impeding outreach services. Shortage of female medical staff was reported in KP while other provinces reported adequate staff, however, damaged roads and transportation challenges affected their access to affected areas. Management Information Systems reporting varied across provinces with limited real time reporting for decision making.

**Conclusion:** This study identified multiple health systems constraints that results in poor resilience of district health system in delivering essential health care services during floods. These included, improving infrastructure, building healthcare practitioner capacity,

stockpiling medicines and equipment, availability of emergency transportation services and including psychosocial support and counseling as part of flood relief efforts.

**Keywords:** Floods, essential health services, health systems, disaster resilience

## 6.86

### **UTILIZATION OF TRAUMA CARE SERVICES AMONG HIV/AIDS PATIENTS IN KARACHI, PAKISTAN; A MIXED METHOD STUDY**

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**Background:** The number of people living with human immunodeficiency virus (HIV) is growing worldwide and a large subset of these patients are sustaining traumatic injuries. This study aimed to explore the trauma care utilization among HIV patients and factors affecting them in Karachi, Pakistan.

**Study Design and Method:** A mixed method study incorporating a sequential explanatory approach (quant-QUALI) was undertaken. The quantitative phase of the study investigated the types of trauma incurred and types of the trauma care facilities approached by HIV/AIDS patients via a cross sectional survey (n=212), whereas the qualitative phase explored an in-depth understanding of factors affecting these patients' trauma care seeking and their experiences at trauma care facilities (n=12). We performed descriptive analysis for quantitative data using STATA version 12. Qualitative data was transcribed and analyzed using inductive analysis approach.

**Results:** The injuries most frequently reported among HIV patients were falls (74.5%), needle stick injuries (62.3%) and road traffic injuries (53.8%). Most of the participants (86.3%) reported having accessed healthcare facilities on

at least one occasion. The most common type of services used were general physician clinics (84.0%) followed by visits to the emergency department (23.1%), with reliance being more common on public health services (69.8%) rather than private (37.3%). The qualitative narratives revealed three themes: 1) Trauma response, 2) Facilitators of trauma care utilization, and 3) Barriers to trauma care utilization. The factors that facilitated trauma care utilization included the nature of the trauma, support systems, and previous experience with health seeking, whereas the factors that impeded trauma care utilization included fear of rejection, financial constraints, and stigmatization by healthcare providers.

**Conclusion:** Access to trauma care among HIV patients is impacted by various intrapersonal and institutional factors. This study recommends implementing marginalized-oriented healthcare programs and interventions focusing on accessibility, acceptability and stigma reduction through HIV awareness.

**Keywords:** Access to Health Care; Health Services/Utilization; HIV; AIDS; Trauma Care; Pakistan

6.87

**ROAD CRASHES AMONG UNDERAGE MOTORCYCLISTS COMPARED WITH YOUNG MOTORCYCLISTS OF LEGAL DRIVING AGE: A CROSS-SECTIONAL STUDY FROM AN URBAN SETTING IN KARACHI, PAKISTAN, A LOW-MIDDLE-INCOME COUNTRY**

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**Background:** The burdens imposed by motorcyclist deaths and injuries are high in low-

and middle-income countries. Many injured motorcyclists in these settings are underage. The aim of this study was to assess the association between age and severity of injury in young motorcyclists.

**Study Design and Method:** We analysed road traffic injury surveillance data from emergency rooms of five hospitals in Karachi from 2007 to 2015. We used logistic regression to assess the association of motorcyclist age, categorized as underage (13-17 years), early licensure age (18-19 years) and late licensure age (20-24 years), with severe injury.

**Results:** The study sample included 45,366 motorcycle riders. There were 10115 (22.3%) motorcyclists aged 13-17 years, 9899 (21.8%) aged 18-19 years and 25352 (55.9%) aged 20-24 years. Almost all were male (99%). Age 13-17 years (adjusted odds ratio 1.26; 95% CI 1.11, 1.44) and 18-19 years (adjusted odds ratio 1.26; 95% CI 1.11, 1.42) were associated with higher odds than an age of 20-24 years.

**Conclusion:** Motorcyclists in the 13-17 year and 18-19 year age group had significantly higher odds of severe injury than those in the 20-24 year age group. This paper recommends implementing traffic regulatory intervention programs focused on combating the underage motorcycle riding with particular emphasis on enforcement.

**Keywords:** Road traffic injuries, adolescents, motorcyclist, driving, severity of injury, Pakistan

6.88

**BELIEFS AND BARRIERS TOWARDS VACCINATION FOR COVID-19 AMONG THE GENERAL POPULATION IN PAKISTAN; A QUALITATIVE EXPLORATORY STUDY**

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**Background:** Vaccine against COVID-19 is a key strategy to contain the pandemic. There is a widespread mistrust in the safety and effectiveness of vaccines globally. The negative attitudes towards vaccines and unwillingness to receive the vaccine puts a challenge in achieving vaccine coverage and requiring immunity. Pakistan is facing multiple challenges in achieving COVID-19 herd immunity threshold via vaccine administration, therefore this study aimed to assess the beliefs of Pakistanis towards the COVID-19 vaccination and uncover the barriers associated with vaccination among the general population.

**Study Design and Method:** This formative research employed an exploratory qualitative research design using semi structured interviews and a purposive sampling approach. The data collection methods for this formative research included in-depth interviews from general population with different age groups. The study was conducted in the community health center of Aga Khan University Hospital, during the clinical hours. The study participants were selected purposively for the interview. The study data was analyzed thematically using the inductive method (Creswell, 2002) manually.

**Results:** Our qualitative results showed that most of the participants had precise information regarding the covid-19 disease and COVID vaccine. However, some participants raised concerns about the efficacy and side effects of COVID-19 vaccination on health. In consideration of the reliability of information regarding the covid-19 disease and vaccine, participants used different resources according to their level of literacy and access to communication channels. Most of the participant's rely on government sources for information on COVID-19 vaccination. However, delusional thoughts, misbeliefs, misconceptions and not having reliable data on

the safety of vaccination were the major barriers to adopting COVID-19 vaccinations.

**Conclusion:** False rumors and misconceptions about the COVID-19 vaccines must be dispelled timely to control this pandemic. Involvement of the right stakeholders like religious leaders, school administration, teachers, and media platforms can play an integral part.

**Keywords:** COVID-19 vaccination, Vaccine hesitancy, Barriers, and beliefs

6.89

### **ASSOCIATION OF ADOLESCENTS' INDEPENDENT MOBILITY WITH ROAD TRAFFIC INJURIES IN KARACHI, PAKISTAN- A CROSS-SECTIONAL STUDY**

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**Background:** The association between adolescents' independent mobility and road traffic injuries is unclear. The purpose of this study is to determine measures of adolescents' independent mobility associated with road traffic injuries (RTIs) in an urban lower middle-income setting.

**Study Design and Method:** A cross-sectional study was conducted to survey adolescents aged 10-19 years in grades six to ten from 75 schools in Karachi, Pakistan. The outcome measure was any RTI that resulted in any first-aid or consultation in a healthcare setting.

**Results:** Adolescents who had weekend activity/ies outside the home by themselves (adjusted odds ratio (aOR) 1.68; 95% confidence interval (CI) 1.02 to 2.80) or had activities accompanied with adults as well as alone (aOR1.63; 95% CI 1.03 to 2.64) had higher odds

of RTIs. This variable is also statistically significant in subgroup analysis of adolescents aged 10-15 years along with allowed to cross main roads alone (aOR 1.43; 95% CI 1.02 to 1.99).

**Conclusion:** Measures of independent mobility, i.e., engaging in weekend activities outside the home and crossing main roads, are associated with an increased risk of RTIs among adolescents.

**Keywords:** Independent Mobility, Road Traffic Injuries, Adolescents, Pakistan

## 6.90

### **FREQUENCY OF SICKLE CELL HEMOGLOBIN IN THE SAMPLES RECEIVED FOR HIGH PERFORMANCE LIQUID CHROMATOGRAPHY**

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**Background:** Sickle cell disease and its variants are genetic disorders resulting from the presence of a mutated form of hemoglobin, HbS. The gene defect is a single nucleotide mutation of Beta-Globin gene which results in Glutamic acid being substituted by Valine at position 6. Under low Oxygen concentration, HbS polymerizes and forms fibrous precipitates, distorting the shape of the red blood cell and making it fragile and susceptible to destruction. The major clinical features are related to hemolytic anemia and vaso-occlusion which can lead to acute and chronic pain and tissue ischemia or infarction including splenic infarction. The major diagnostic methods in use are High Performance Liquid Chromatography (HPLC) and Hemoglobin Electrophoresis.

**Study Design and Method:** After getting approval from the Aga Khan University Hospital Ethics Review Committee(AKUH-ERC), data was collected from samples received between the period 1st February 2020 to 31st January 2021. Data was collected according to a

proforma, which included patient's age, gender, locality, CBC parameters and variants of sickle cell disease. These details were extracted from the hospital records using ILMS (Integrated Laboratory Management System) and PCI (Patient Care Inquiry). A separate grid was maintained to compile medical record numbers with serial number of the forms so as to avoid misuse of patient's information. Spss v 23 was used for analysis of the data.

**Results:** The mean age of patients that were included in this study was 14.2 years ranging from 6 months to 59 years. The composition of males and females were 59.4% and 40.6% respectively. Majority of the samples that were received were from Balochistan(43%), followed by Sindh(32.1%), KPK(16%) and Punjab(8.9%). The hemogram showed mean hemoglobin of  $8.6 \pm 2.6$  g/dl with lowest recorded as low as 2.4, while highest hemoglobin being 16.9. Out of total 295 samples received, sickle cell trait was found in 21.5% of the patients, sickle cell disease in 28%, sickle beta thalassemia in 31.1%, compound heterozygote for HbS and HbD in 4.4%, while 15% were post transfusion samples.

**Conclusion:** Analysis of 295 cases of sickle cell hemoglobin in this study showed that the highest frequency was of sickle beta thalassemia while the compound heterozygote for HbS and HbD had the lowest frequency. This study also proved it to be more prevalent in Balochistan followed by Sindh.

**Keywords:** sickle cell hemoglobin, thalassemia, high performance liquid chromatography

### **METHODS OF SUICIDE IN PAKISTAN: A LITERATURE REVIEW**

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**Background:** Suicide is a pressing public health concern in the world today. Globally, an approximate number of 800,000 people end their lives each year, and there are numerous more

who attempt to. In 2019, over 77% of all global suicides occurred in low- and middle-income countries where good quality prevention, investigation, and intervention strategies are limited. In 2019 the estimated suicide rate in Pakistan was 8.90 per 100,000 people, with a total of 19,331 suicides (4560 females and 14771 males). The aim of the review is to map available literature on methods of completed suicides in Pakistan.

**Study Design and Method:** Three databases, PubMed, Google Scholar, and Pakmedinet.com were searched from the beginning of their time frames until July 2021 using a combination of key terms 'suicide', 'methods' and 'Pakistan'. The inclusion criteria included studies conducted in Pakistan that focused on completed suicides and mentioned methods of suicide explicitly available in the English language.

**Results:** After accounting for duplicates and relevance, a total of seventy-three articles were extracted from all three databases. There were 30 studies conducted in Sindh, studying 18,082 patients, 26 done in Punjab studying 1203 patients, 10 from Khyber Pakhtunkhwa studying 493 patients, 2 studies from Gilgit Baltistan, and 1 from Balochistan. The majority of the studies were from urban areas covering mainly Karachi, Lahore, Peshawar and Hyderabad. The three most common methods seen overall were poisoning, hanging and use of firearms.

**Conclusion:** After identifying the prevalent methods we can develop an understanding of the possibilities to prevent or limit access to reduce rates of suicide. It will also help in establishing national policies for prevention, and ultimately establishing a central self-harm registry in Pakistan. The evidence, however, is limited, and calls for more robust analytical research designs, along with a focus on risk factors.

**Keywords:** suicide, methods, Pakistan

6.92

### **THE EPIDEMIOLOGY OF DOG BITE INJURIES AMONG CHILDREN AND**

### **ADULTS FROM A TERTIARY CARE HOSPITAL IN KARACHI, PAKISTAN**

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**Background:** Dog bite injuries is a serious public health problem globally. The incidence of dog bite in Pakistan as reported in 2019 was 60/100,000 cases. Dog bites can result in the rabies if not treated. However, little is known about the epidemiology of the dog bite injury from a low-and-middle-income country like Pakistan. This study aims to determine the epidemiology and treatment of dog bite injuries among children and adults from a tertiary care hospital in Karachi, Pakistan.

**Study Design and Method:** We conducted a cross-sectional study with 2178 patients visiting the emergency department of a major public tertiary care hospital in 2016. Data was collected on demographic such as age, gender and location, bite history, and management of dog bite. Data was stratified on age i.e. >18 and ≤18 years (children and adults). Frequency and percentages were calculated. The Chi-square test was considering p-value ≤0.05 significant.

**Results:** Out of 2178, 87% of the victims were males and more than 50% had formal education. Most dog bite injuries tend to occur outside the house by stray dogs biting without provocation in 2052 (94.2%). People aged 18 years and above (61.2%) and males (children: 84.6%, adults: 89.1%) tend to be bitten more often. Lower limbs are most frequently bitten (children: 69.5%, adults: 85.8%). Free-roaming stray dogs (children: 73.4%, adults: 74.9%) played a major role in exacerbating the problem. Medical First aid kit was not available at 91.3% of the victims' homes. Majority of the victims received vaccination.

**Conclusion:** There is a high burden of dog bite injuries due to stray dogs biting in Karachi, Pakistan. Efforts should be made to create



awareness among the public on the risks of dog bites and on seeking proper first aid and medical attention for dog bite injury.

**Keywords:** Dog bite injury, treatment, epidemiology children, adults

#### 6.94

### ***ANALYSIS OF SELF-POISONING CASES ADMITTED TO THE NATIONAL POISONING CONTROL CENTER (NPCC) IN 2019 IN KARACHI, PAKISTAN***

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**Background:** Poisoning is a significant global public health problem and the major cause of morbidity and mortality worldwide. The epidemiological data on poisoning is very limited in Pakistan. In a national health survey of Pakistan, poisoning was the second commonest cause of unintentional injuries in people aged five years and above. Considering the limited evidence we aimed to identify the prevalence of self-poisoning cases retrospectively in patients admitted to National Poisoning Control Centre, JPMC, Karachi.

**Study Design and Method:** We conducted a retrospective study utilizing the information of patients' records available in NPCC, Karachi. All patients who presented with an act of self-poisoning between January 2019 and December 2019 were included in the study, and data was analyzed using descriptive statistics.

**Results:** A total of 4057 patients were admitted at the NPCC, out of which 3767 patients were admitted with self-poisoning. There were 1983 females, 1769 males, and the gender of 16 was unknown. The most common method used was organophosphate poisoning by 52% of patients, followed by 14% using unknown methods, and 13% ingested tablets. 3418 patients were

discharged, 84 expired, 134 left against medical advice, and 51 were shifted into intensive care units. Out of the 84 deaths, the highest fatality was reported by Organophosphate poisoning accounting for 54%, unknown poisoning was 22%, and Blackstone ingestion was 10%.

**Conclusion:** This study adds to the existing data available on self-poisoning in Pakistan, thus regulatory agencies can identify the toxic risk existing in the community and monitor the toxicity of easily available commercial products and environmental hazards. Target interventions can be devised for the communities. This also helps us identify the commonly used poisons and the population groups most vulnerable, for effective preventive and educational measures.

**Keywords:** Suicide, self-harm, poisoning, pakistan

#### 6.95

### ***BREASTFEEDING TO COVID-19 POSITIVE MOTHERS: A LITERATURE REVIEW***

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**Background:** A worldwide consensus is drawn that breastfeeding is crucial for the health of mother and child. Despite the WHO guidelines, sustainability of breastfeeding always remained a concern and the outbreak of the COVID-19 pandemic further raised these concerns in terms of the safety of breastfeeding when the mother is infected. International health organizations agreed to provide breastmilk to the baby either in the form of breastfeeding or EBM (Expressed Breast Milk), but breastfeeding practices still could not be preserved during the pandemic.

**Study Design and Method:** An independent literature search was done using PubMed, Google Scholar, Science Direct, and Cumulative Index to Nursing and Allied Health Literature (CINAHL). Relevant literature was identified. Studies related to breastfeeding to COVID-19 positive mothers were included in the review. A

PRISMA diagram was developed and following the process of identification, screening, eligibility, and inclusion, a total of 20 articles were shortlisted for a thorough literature review.

**Results:** A descriptive content analysis of the short-listed articles was done, and four major themes were identified. Those were i) Vertical infection transmission ii) Breastfeeding practices during pandemic iii) COVID-19 infection in breastmilk iv) Immunity developed in breastmilk post-COVID infection. However, among the reviewed articles, only two studies discussed the breastfeeding experiences of COVID-19 positive mothers.

**Conclusion:** Studies showed that COVID-19 infection does not transmit vertically through breastfeeding. If breastmilk is infected, it has no significant effects on the baby. Moreover, the expression of immunoglobulin IgG in breastmilk identified the immunity against homotypic infections. Despite the protective evidence, breastfeeding could not be preserved during the pandemic as showed in most of the included studies. It is suggested that COVID-19 positive mothers' perceptions should be explored, and local breastfeeding guidelines should be developed and disseminated so, the practice of breastfeeding can be executed properly.

**Keywords:** Breastfeeding, COVID-19 positive, Mothers

## 6.96

### **OUT OF HOSPITAL CARDIAC ARREST (OHCA): EXPERIENCE OF A BYSTANDER CPR TRAINING PROGRAM IN KARACHI, PAKISTAN.**

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**Background:** The out of hospital cardiac arrest (OHCA) survival rate in Pakistan is 0 to 2%. Nearly 90% of the OHCA patients are witnessed, yet only 2.3% received bystander CPR (cardiopulmonary resuscitation). This study aimed to determine retention of knowledge and skills of Hands-Only CPR among community participants in early recognition of OHCA and initiation of CPR in Karachi, Pakistan.

**Study Design and Method:** The pre and post-tests was conducted among participants from diverse non-health related backgrounds from July 2018 to October 2019. Participants were tested for knowledge and skills of CPR prior to training (pre-test), immediately after training (post-test) and six months after training (retention test). All the participants received CPR training through video and scenario-based demonstration using manikins. Post-training CPR skills of the participants were assessed using a pre-defined performance checklist. The evaluator read out numerous case scenarios to the participants, such as drowning, poisoning, and road traffic injuries etc., and then asked them to perform the critical steps of CPR identified in the scenario on manikins. The primary outcome was the mean difference in the knowledge score and skills of the participants related to the recognition of OHCA and initiation of CPR.

**Results:** The pre and post tests were completed by 722 participants, whereas the retention test after 6 months was completed by 358 participants. The mean knowledge score related to the recognition of OHCA, and initiation of CPR improved significantly ( $p < 0.001$ ) from pre-test (47.2/100,  $\pm 13.2$ ) to post-test (69.9/100,  $\pm 12$ ). The mean CPR knowledge after six months (retention) reduced slightly from (69.9/100,  $\pm 12$ ) to (64.8/100,  $\pm 9.3$ ) which was statistically significant ( $p < 0.001$ ). Similarly,

the CPR skill retention for various components (correct placement of the heel of hands, complete chest recoil, check for scene safety, check for response, and activate emergency response system) slightly deteriorated among participants compared to the post-test ( $p < 0.001$ ).

**Conclusion:** Community members with non-health backgrounds can learn and retain CPR skills, allowing them to be effective bystander CPR providers in OHCA situations. We recommend training the mass population in Pakistan regarding CPR to increase the survival rate from OHCA.

**Keywords:** Bystander, Cardiopulmonary Resuscitation, Out of the Hospital Cardiac Arrest, Training, Pakistan

6.98

### **UNDERSTANDING PREFERENCES FOR GENERAL HEALTH CONDITIONS IN URBAN SLUM SETTING – A DISCREET CHOICE EXPERIMENT**

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**Background:** The discrete choice experiment (DCE), a quantitative technique used for eliciting preferences over multiple attributes of a service or commodity that is being increasing used to inform economic evaluation in low-income countries. It involves presenting respondents with hypothetical scenarios with competing multi-profile options of an intervention or service. Advances in the treatment of general symptoms (malaria, cholera, diarrhoea, and depression) and various eligible alternative strategies have made treatment selection a very complex process in which the patient's perspective is becoming increasingly relevant. The knowledge of patient needs can, therefore, translate to the effective use of healthcare services, thus increasing patient satisfaction and adherence to treatments, which can lead to better outcomes.

**Study Design and Method:** Design of study  
Discrete choice experiment.

**Method:** This study elicited patient preferences over healthcare providers. We used both qualitative (focus group discussions/in-depth interviews) and quantitative (DCE) methods. Our condition of interest are general health symptoms. The survey participants were asked to assume that they are experiencing a particular health symptom. Choice sets based on six attributes (treatment cost, time, type of facility, health care provider, confidentiality and gender) were presented in a questionnaire.

**Results:** Results: We obtained 5396 responses to DCE choices. These were obtained from 200 respondents considering 3 health need scenarios (fever, diarrhoea, mental health) completing 9 choices per scenario. For each of these responses, respondents were presented with 4 options – Health Facility A, Health Facility B, a 'Status Quo' option aiming to represent the most appropriate option currently available to them, and a 'self care' option in which the respondent would not choose to visit any of the available options for that choice. B was chosen slightly more often than A. The most influential attribute is 'Provider', with a very strong preference for a qualified over an unqualified provider. The next most influence attribute is cost, across all three scenarios. There are some differences between scenarios. Time has less influence on choice for scenario 1 than scenarios 2 and 3. Respondents have a marked preference against informal facilities for scenario 1, but this is not as marked for scenarios 2 and 3.

Note: These are preliminary findings that might change

**Conclusion:** The type of provider (qualified/unqualified) is of utmost importance to people living in urban slum for seeking healthcare.

**Keywords:** Urban slums, health care provider, attributes

6.99

**FOLLOW-UP HOUSEHOLD ASSESSMENT FOR CHILD UNINTENTIONAL INJURIES TWO YEARS AFTER THE INTERVENTION: A COMMUNITY-BASED QUASI-EXPERIMENTAL STUDY FROM KARACHI, PAKISTAN**

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**Background:** Unintentional childhood injuries are a growing public health concern globally. Home is the most common location for these injuries in children less than 5 years of age. An injury prevention educational pamphlet and in-home tutorial were tailored and executed in a neighborhood of Karachi, Pakistan in 2010. This study aimed to assess the long-term effectiveness of these interventions in reducing the presence of injury hazards for children under 5 years of age.

**Study Design and Method:** This was a quasi-experimental study (intervention group= in-home tutorial and pamphlet & comparison group = only educational pamphlet) in two neighborhoods of a low-income government housing community in Karachi. The interventions were conducted in June-July 2010. The long-term follow-up injury hazard assessment was conducted during November 2012 – January 2013 through a tailored tool.

**Results:** The study enrolled a total of 503 homes, with 256 receiving an in-home tutorial, plus educational pamphlet and 247 receiving

only educational pamphlet for injury prevention health education at baseline but during long-term follow up there were 311 households. Overall, the two groups had comparable demographic profile, but the respondents in the pamphlet group had higher education than the in-home tutorial group. Overall, during baseline to short-term, the risk ratio of hazards for drowning such as, open bucket of water (1.43 [1.08 -1.88]), uncovered vat/pool of water (1.97 [1.35 -2.89]) were higher in home-tutorial but these risks decreased (0.45 [0.85 -0.98] & 0.46 [0.76 -0.94] respectively) in the long-term phase after receiving in-tutorial and educational pamphlet. Similarly, the risk ratio of Iron within reach of the child was 1.43 [1.09 -1.89], which significantly decreased to 0.56 [0.33 -0.78]. Likewise, poisoning risks such as, Shampoos/soap within reach, Medicines within reach of the child were 1.52 [1.1 -2.11] & 1.27 [0.85 -1.91] which significantly decreased to 0.53 [0.44 -0.77] & 0.7 [0.44 -0.98] respectively.

**Conclusion:** To sustain long-term effectiveness of an injury prevention program multiple educational approaches should be considered instead of a single intervention. However, special considerations such as resource needs, literacy requirements, etc. should be considered when choosing to use an in-home tutorial or an educational pamphlet in other areas within Pakistan for injury prevention.

**Keywords:** unintentional injuries; home injuries; children; accidents; trauma; home visits; long-term effectiveness, Pakistan

### 6.100

#### **INTERNET ADDICTION AND RELATED PSYCHOSOCIAL FACTORS AMONG PAKISTANI POPULATION DURING COVID19**

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**Background:** Internet addiction has surfaced as a significant concern to public health in these unprecedented Covid19 times due to social distancing and lockdown. This study aims to determine the burden of internet addiction and related psychosocial factors among the Pakistani population amidst COVID-19

**Study Design and Method:** An analytical cross-sectional survey was broadcasted on internet via google form link which was completed by 1145 Pakistani residents. The outcome variable was Internet addiction and was assessed using the "Young's Internet Addiction Test" (IAT). In addition, symptoms of depression, anxiety, and stress were evaluated using the "Depression, Anxiety, and Stress Scale-21" (DASS-21). The multinomial logistic regression was applied, and adjusted odds ratio along with 95% confidence intervals were reported for significant factors associated with Internet addiction.

**Results:** The majority of participants were females and youth (between ages 20-24 years). The prevalence of problematic-internet-users (PIU) and addictive-internet-users (AIU) was 27.3% and 11.3%, respectively. The odds of extremely severe anxiety among AIU were approximately three times (Adj OR: 2.6 (1.1-7.1) followed by the odds of having extremely severe depression was 3.14 (95% C.I.: 1.53 – 6.44) times greater among PIU and odds of extremely severe stress being about five times

higher among AIU (Adj OR: 5.42 (1.66-17.68)) as compared to normal-internet-user (NIU).

**Conclusion:** Amid Covid 19, the burden of internet addiction was discovered to have surged among the Pakistani populace. This study found that gender, marital status, depression, stress, anxiety, work situation, and mood changes amidst the pandemic are significantly associated with problematic and addictive internet use.

**Keywords:** Internet, Addiction, Survey, Covid-19, Depression, Anxiety, Stress

### 6.101

#### **PREVALENCE OF SUNSCREEN USAGE IN PAKISTANI POPULATION AND THEIR PERCEPTION ABOUT SUN EXPOSURE AND SUNSCREEN**

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**Background:** Sun exposure causes extensive intrinsic as well as extrinsic changes in the skin. Various manifestations of photoaging such as sagging, wrinkling, and photocarcinogenesis which are caused by damage to cells, and DNA may be prevented with regular sunscreen usage. This study aims to assess the knowledge of sun exposure and change the sun-protection behavior in the general population

**Study Design and Method:** This prospective Cross-sectional study was conducted at (AKUH) Dermatology outpatient department after approval from Ethical Review Committee. This study was completed over a period of 6 months. Patients above 18 years of age with any dermatosis, and gave consent for participation in the study were included. Patients known to have a photodermatitis were excluded from the study. Predesigned proforma was used to assess the perception of patients.

**Results:** Total 200 patients were recruited of which 67.5% were females and 32.2% males,,

most of them were young.84% had an indoor occupational nature of work.97% did not have skin cancer history.46.0% used sunblock.34% wore sunblock every day while 54% applied occasionally and majority of them used SPF 50 or more. More than 65.3% participants had knowledge about effects of sunexposure.70% respondents were aware about using sunblock, but were concerned about side effects of these sun screens

**Conclusion:** This study concluded that although skin cancers are not prevalent in our population, majority of the participants had knowledge about the effects of sunexposure and most of them used a sunblock despite having concerns about its side effects.

**Keywords:** Photoaging, Photo carcinogenesis, Sunscreen

### 6.102

#### **IMPACT OF PUBLIC AND PRIVATE PARTNERSHIP IN IMPROVING THE QUALITY AND VOLUME OF PRIMARY HEALTHCARE SERVICES IN SINDH PROVINCE, PAKISTAN: IMPLICATIONS FOR UNIVERSAL HEALTH COVERAGE**

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**Background:** Universal health coverage (UHC) encompasses all population groups having access to the health services they need, in sufficient quality to be effective, without facing financial hardship. Public-Private Partnerships (PPPs) have led to overall increased utilization of Primary Health Care (PHC) services worldwide. In Pakistan different contracting arrangements have been made between government and private providers to improve the quality, utilization, and management of health infrastructure and services in rural and peri-

urban areas. This study aims to assess the performance of PPP arrangements in delivering quality of primary health care services in Sindh and to identify strengths and bottlenecks in PPP service delivery.

**Methodology:** A cross-comparison of a total 44 facilities across 14 districts in Sindh, Pakistan, of which 26 contracted facilities and 18 non-contracted facilities were included. The survey was conducted in July and August 2020. Health facility performance was reported through 9 approved domains of balanced score card.

**Results:** PPP facilities obtained a cumulative score of 70% (borderline satisfactory) while the Department of Health (DoH) managed facilities scored a cumulative of 41% (borderline). PPP facilities had satisfactory performance in 7 domains (Infrastructure, Human Resources, Equipment, Medicines, DHIS Patient Satisfaction and Service Delivery Standards) and borderline performance in 2 domains (Service Volume, and Diagnostics availability). The DoH facilities scored borderline in 7 domains (Human Resources, Medicines, DHIS, Patient Satisfaction, Infrastructure, Equipment and Service Volume) and unsatisfactory performance in 2 domains (Diagnostic Availability and Service Delivery Standards). A significant difference was found between the PPP facilities and DoH managed facilities (P value= 0.0040).

**Conclusion:** The contracted PHC facilities outperformed non-contracted facilities almost in all the domains used as part of this assessment. Areas requiring improved performance include MNCH and family planning service volumes and also, availability of diagnostic laboratory services.

**Keywords:** contracting, primary health care, private partnership

### 6.103

#### **ASSESSMENT OF MACRONUTRIENTS CONSUMPTION IN THE DIET OF ADOLESCENT SCHOOL CHILDREN IN FOUR SEASONS - A LONGITUDINAL**

## **STUDY FROM AN URBAN CITY IN PAKISTAN**

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**Background:** A healthy diet in the adolescence period is essential for physical, mental, and immunological development. We aimed to assess macronutrient consumption in the diet of adolescent school children using 24 hour recalls in four seasons of the year.

**Study Design and Method:** This was a longitudinal study conducted from February 2014 to June 2015 which included 155 school children aged 7-14 years from an urban school in Karachi. 24HR recall was conducted on 4 random days of the 4 main seasons. A food composition table was developed where the weight, calories, carbohydrate, fat, and protein content of the food items were listed. Macronutrients quantification was calculated by using proportional weight from the food composition table. Food groups were also assigned to each food item including vegetables, fruits, grains, protein foods, dairy products, and oils.

**Results:** Out of 155 preadolescents and adolescents, 150(96.7%) agreed to participate. The mean(SD) age of the children was 11.31(1.6) years. Overall mean(SD) daily intake for all seasons was 195.31(86.87) grams of carbohydrates, 94.77(71.87) grams of proteins, and 55.87(30.79) grams of fats. Carbohydrates formed 48.16%, proteins 21.92%, and fat 29.93% of the total caloric intake. The mean(SD) daily caloric intake was 1517(644) grams. Overall, the highest source of calories was from carbohydrates; 781(347) Kilocalories (Kcal), followed by fat 502(277) Kcal and protein 379(287) Kcal. The Carbohydrate intake in 24 hours was highest in the autumn;

212.81(85.37) Kcal. There was a significant difference in carbohydrate intake in all seasons (p-value 0.003). Consumption of discretionary food group was high (31.3%), and consumption of fruits and vegetables was low (29%).

**Conclusion:** The study reports a suboptimal caloric intake of fewer than 2000 calories /day among the adolescents from school. The highest source of calories was from carbohydrates. The highest consumption of food was in autumn and the least in summer. Fruits and vegetable intake was low and discretionary food intake was high.

**Keywords:** Adolescent, 24-hour diet recall, Pakistan, nutrition

## **6.104**

### **PERCEIVED STRESS AND ROLE OF INTERNET ADDICTION AMONG PAKISTANI POPULATION DURING COVID19 PANDEMIC**

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**Background:** During the Covid19 pandemic, perceived stress and Internet addiction became serious public health concerns, although there have been limited studies on the association between the two. Therefore, this study aims to examine the role of internet addiction and its relationship with stress in the Pakistani general public during the Covid19.

**Study Design and Method:** A web-based cross-sectional design was used and a total of 1145 Pakistani citizens had completed this e-survey. The dependent variable was the level of stress and was measured using the "Depression, Anxiety, and Stress Scale-21 (DASS-21)". The primary exposure was the level of internet addiction measured by Young's Internet Addiction Test (IAT). Multiple Multi-nominal

logistic regression was applied to assess the effect of internet addiction on stress controlling for other demographic and other variables. Adjusted odds ratios along with a 95% confidence interval were reported

**Results:** Approximately half of the respondents in this study were youth in the age bracket of 20-24 years (49.9%). Less than two-thirds (60%) of the participants were women. The overall mean stress score of respondents was  $14.1 \pm 10.8$ . Among participants with severe and extreme stress levels, 54% and 62% were found to be Problematic to the additive internet user. The odds of extreme stress were 28 fold (12.85-61.37) among addictive internet users. Additionally, the odds of severe stress were 13 times (7.16-23.79) among addictive internet users

**Conclusion:** The COVID-19 pandemic adversely impacted the use of the internet and increased the severity of Internet addiction and stress among the general population in Pakistan, especially in the high-risk group.

**Keywords:** stress, Internet addiction, Covid 19

**6.105**

#### **ROLE OF TOBACCO CONTROL POLICIES IN SMOKELESS TOBACCO UPTAKE AND USE AMONG SECONDARY SCHOOL CHILDREN IN SOUTH ASIA: PROTOCOL OF A FEASIBILITY STUDY**

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**Background:** South Asia has the highest burden of smokeless tobacco (ST) users in the world. It is estimated that out of 300 million ST consumers around world, 85% reside in South Asia. ST is one of the most common forms of tobacco use in Bangladesh, India and Pakistan and also cause of high burden on health and economy. ST control has received less attention in South Asia and implementation of WHO FCTC is negligible. Evidence based policies can help in reduction of high burden of ST in these countries. The objectives of this study are to assess the feasibility of conducting a cohort study among secondary school children (aged 12- 16 years) in urban and rural schools in Bangladesh, India, and Pakistan and to evaluate existing tobacco control policies on smokeless and smoked tobacco uptake and use.

**Study Design and Method:** A mixed methods approach is used to collect data from two administrative areas (urban & rural) in Bangladesh, India and Pakistan. Eight eligible secondary schools were randomly selected and a cross sectional survey was conducted to collect data on tobacco uptake and potential predictors from students of grade 6, 7 & 8 using self-administered questionnaire. The qualitative component has assessed the acceptability of the study instrument (questionnaire) and data collection methods via focus group discussions with students and semi-structured interviews with schoolteacher. The recruitment rates/timescales, completeness of the questionnaires, frequencies and associations of tobacco use and potential predictors will be reported. Qualitative data will be analyzed



thematically using a modified framework approach.

**Results:** It is anticipated that the study is feasible however the permission process from the authorities is longer and all students took more than half an hour to complete the questionnaire.

**Conclusion:** Results obtained from this study will provide suggestions for improving the recruitment and consent processes.

**Keywords:** Tobacco, smokeless, secondary school children, South Asia, feasibility study

### 6.106

#### **BEHAVIOURAL SUPPORT WITH AND WITHOUT NICOTINE REPLACEMENT FOR SMOKELESS TOBACCO CESSATION, PROTOCOL OF ASTRA CESSATION STUDY**

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**Background:** Smokeless Tobacco (ST) refers to a wide range of tobacco containing products which may be placed in the oral cavity, chewed, or inhaled without being burned. Smokeless Tobacco (ST) is consumed globally by more than 350 million people, with approximately 85% of all users based in South and South-east Asia. In this region, people use a variety of ST products, however, there is a lack of evidence-based interventions to help them quit ST use. The study aims to conduct a feasibility trial of Behavioural Intervention for Smokeless tobacco

Cessation in Adults (BISCA) and Nicotine Replacement Therapy (NRT) for developing large scale Randomized Controlled Trial for ST cessation in South Asia.

**Study Design and Method:** A multi-country, factorial design feasibility randomized controlled trial (RCT) is conducted in Bangladesh, India, and Pakistan. Trial participants (n= 264) are the daily ST users (> 25 days/month) motivated to quit ST use. Participants are randomised to receive either Intervention A (NRT), Intervention B (Behavioural support), a combination of Interventions A and B, or minimal support i.e., very Brief advice (VBA). Intervention A participants receive 4-6 mg NRT chewing gum for 8-week period. Intervention B participants receive face-to-face behavioural support (BISCA); this includes at least one pre-quit session, quit session and up to 6 weekly post-quit sessions. Participant data on ST use is collected at baseline, and 6, 12 and 26 weeks following their quit date. The Primary outcome is biochemically verified, continuous abstinence to tobacco; secondary outcomes are 7-day point abstinence at 6, 12 and 26 weeks.

**Results:** It is expected that the self-reported continuous abstinence to tobacco at 26 weeks post quit date will vary among all 4 arms.

**Conclusion:** Our findings will provide a strong foundation to develop such evidence-based interventions in the South Asian context, with relevance to wider regions and populations having high rates of ST use.

**Keywords:** behavioural support, nicotine replacement, Smokeless tobacco cessation, South Asia

### 6.107

#### **BEHAVIOURAL SUPPORT WITH AND WITHOUT NICOTINE REPLACEMENT FOR SMOKELESS TOBACCO CESSATION, PROTOCOL OF ASTRA CESSATION PAKISTAN TRIAL**

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**Background:** Smokeless tobacco (ST) is a term used to describe a wide variety of tobacco products that are consumed without smoking which includes various types of chewing tobacco and snuff, such as paan, gutkha, and naswar. Among the 140 countries where ST is consumed, Pakistan is among the top three countries with the highest ST-related disease burden. Over 9.6 million adults in Pakistan consume ST regularly and the most common used ST product in Pakistan is Naswar followed by tobacco containing paan and gutkha. Therefore, this study aims to conduct a feasibility trial of Behavioral Intervention for Smokeless tobacco Cessation in Adults (BISCA) and Nicotine Replacement Therapy (NRT) for developing large scale Randomized Controlled Trial for ST cessation in Pakistan.

**Study Design and Method:** A factorial design feasibility randomized controlled trial (RCT) is conducted at Aga Khan University, Karachi, Pakistan. Trial participants (n= 88 ST users) are recruited from the 02 Health care facilities in Gulshan e Iqbal and Essa Nagri, Karachi. Participants are randomised to receive either Intervention A (NRT), Intervention B (Behavioural support), a combination of Interventions A and B, or minimal support i.e., very Brief advice (VBA). Intervention A participants receive 4-6 mg NRT chewing gum for 8-week period. Intervention B participants receive face-to-face behavioural support (BISCA); this includes at least one pre-quit session, quit session and up to 6 weekly post-quit sessions. Participant data on ST use is collected at baseline, and 6, 12 and 26 weeks following their quit date. The primary outcome

is biochemically verified, continuous abstinence to tobacco; secondary outcomes are 7-day point abstinence at 6, 12 and 26 weeks.

**Results:** It is expected that the self-reported continuous abstinence to tobacco at 26 weeks post quit date will vary among all 4 arms.

**Conclusion:** This study will provide a strong foundation to develop evidence-based interventions for ST cessation in Pakistan.

**Keywords:** behavioural support, nicotine replacement, Smokeless tobacco cessation, Pakistan

### 6.108

#### **AN OBSERVATIONAL STUDY TO ANALYZE THE PERCEPTION AND USAGE OF AVAILABLE TELE HEALTH CARE DURING POST-NATAL PERIOD AMONG WOMEN IN KARACHI**

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**Background:** Pakistan with a population of 111,797,710 women, and 48,734,153 numbers women of reproductive age, experience 27.4 per 1000 numbers of births in 2020 - this number is growing at a rate of 2% (growing birth rate). In contrast - Pakistan only has 1019 number of qualified OBS&GYN specialists according to SOGP, and 54,706 number of midwives, and nursing staff who are adequately trained to handle basic care management of new born child, and mother. The period following new mother discharge, is the most critical period, health wise, for a new mother and her baby. Post discharge follow ups, community care, and traditional interventions have been heavily relied upon as a medium of support and counselling - however several issues in the effective delivery of post discharge care are regaining. This paper seeks to propose certain system level changes which can be developed through a macro perspective, and channeled through technology.

**Study Design and Method:** This is an analytical cross-sectional study that will be conducted among general population in Karachi. Our calculated sample is 460 women (calculated via open epi) who delivered babies in tertiary care hospital in last 2 years. Our sampling strategy will be purposive sampling. We will use self-made questionnaire based on 30 questions (we will first do pre-testing on 5% of total sample, and we look for Cronbach alpha, sensitivity and specificity of the questionnaire). And then questionnaire will be translated in Urdu. We will analyze data using STATA version 14 by applying multinomial regression

**Results:** We plan to initiate data collection during Jan 2022; preliminary findings will be available by end of May 2022.

**Conclusion:** Post-natal complication are easily preventable through effective technology of tele health. This disparity of resources, is indicative of an issue far more sinister - the deteriorating wellbeing and health of our women, and future generations.

**Keywords:** Postnatal care, Tele health, maternal care, complication, awareness

## 6.109

### **TOBACCO CONTROL AND THE SMOKELESS TOBACCO SUPPLY CHAIN IN BANGLADESH, INDIA AND PAKISTAN**

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**Background:** The main aim of this study is to assess the compliance of smokeless tobacco (ST) supply chain actors (manufacturers, distributors/suppliers and retailers/wholesalers)

with FCTC provisions and specifically with national tobacco control laws in Bangladesh, India and Pakistan

**Study Design and Method:** 32 interviews were conducted in the three countries. The interviews were transcribed verbatim and translated into English. The data were then subjected to thematic analysis using a modified Framework approach, which is designed to address policy and programme-related questions. The final step was to synthesise the descriptive findings across all three countries – looking for commonalities and differences.

**Results:** The main findings is that the majority of interviewees in Bangladesh and Pakistan had little knowledge about ST domestic and international laws and regulations and also highlighted a lack of government inspections to ensure compliance. Respondents in India were more aware of existing laws and regulations and inspections do take place but these are typically very low key. Of the three countries, compliance seems highest in India yet promotion activities still take place at quite a large scale despite an official ban.

**Conclusion:** Although there is an increasing awareness of the harmful effects of ST use and laws and regulations have become stricter over time, the success of efforts to curb the use of ST products still lacks behind initiatives to control the consumption of cigarettes. This study shows that part of the problem is a lack of knowledge about rules and regulations of ST supply chain actors as well as government enforcement.

**Keywords:** Smokeless Tobacco; supply chains; qualitative methods; FCTC

## 6.110

### **EFFECT OF INTERNET ADDICTION ON DEPRESSION AMONG PAKISTANI POPULATION AMIDST THE COVID 19.**

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**Background:** Internet addiction has proved to have detrimental effects on the mental health wellbeing of people. During COVID19, these effects are amplified significantly, therefore this study aims to assess the effect of internet addiction (IA) on the presence of depression among the Pakistani population amidst COVID 19.

**Study Design and Method:** A cross-sectional design was employed using an anonymous web-based survey link. This link was disseminated via different social media platforms. The "Young's Internet Addiction Test" (IAT) and "Depression, Anxiety, and Stress Scale-21" (DASS-21) screening tools were used to measure Internet addiction (IA) and level of depression respectively. Adjusted odds ratios along with 95% confidence interval were reported using multinomial logistic regression for the association of IA and other predictors associated with depression.

**Results:** A total of 1145 individuals has completed this survey. Overall, the prevalence of severe and extremely severe depression was found to be 9.7% and 16.4% amidst the Pakistani population during the Covid-19 outbreak. The odds of extreme depression were 15 times more among (AIU) addicted internet users (95% CI: 8.26-28.8) and 7 times more among (PIU) problematic internet users (95% CI: 4.57-12.05) as compared to (NIU) normal internet users.

**Conclusion:** In the aftermath of COVID 19, depression was found to be significantly related to internet addiction. This study determined that addicted and problematic internet users are more prone to suffer from depression.

**Keywords:** Depression, Internet Addiction, Pakistan, Covid19

## 6.112

### **DOCUMENTING RESPONSE TO COVID-INDIVIDUAL AND SYSTEMS SUCCESSES AND CHALLENGES: A LONGITUDINAL QUALITATIVE STUDY**

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**Background:** This feasibility study aimed to assess the use of WhatsApp for qualitative data collection to document the evolution of perceptions of frontline healthcare workers (FHCW) regarding their wellbeing and the quality of health systems' response to the COVID-19 pandemic over four months.

**Study Design and Method:** This was a prospective longitudinal qualitative study conducted during the four months coinciding with the peak and trough of the first wave of the COVID-19 pandemic (June-September 2020). We approached frontline healthcare workers (physicians and nurses working in emergency departments) in two hospitals using the WhatsApp group of the Pakistan Society of Emergency Physicians (PSEM). We introduced the study and obtained consent using a google consent form. Each participant was asked to self-record their perception of their personal wellness and their level of satisfaction with the quality of their hospitals' response to the pandemic. Each participant sent their voice notes/audio-recording to a central WhatsApp number. We transcribed and analysed the recordings and identified themes and sub-themes, and the changes to these themes over six months.

**Results:** We invited approximately 200 FHCWs associated with PSEM to participate in the study. Of the 61 who agreed to participate, 27 completed the study. A total of 149 audio recordings were received and transcribed. Three themes and eight sub-themes have emerged from

the data. The themes were individual-level challenges, health system-level challenges, and hope for the future. Sub-themes for individual-level challenges were: fear of getting or transmitting infection, financial stressors, stress due to turning away those patients who need care, anxiety due to the general public's lack of compliance with preventive measures, physical exhaustion, and fatigue. For the healthcare system, sub-themes were: issues with logistics and management of the hospital/healthcare system and lack of focus on providing air conditioning to address heat due to PPEs and sub-themes under hope for the future were the improved disease knowledge and vaccine development.

**Conclusion:** Despite a lower level of completion, our study identified possible use of a ubiquitously available mobile app to collect longitudinal real-time data from FHCWs during the initial period of the pandemic. The overall perceptions and experiences of FHCWs evolved from negative to positive as the curve of COVID-19 went down.

**Keywords:** COVID-19; frontline healthcare workers; individual-level challenges; health system-level challenges; hope for the future; prospective longitudinal qualitative study.

### 6.113

#### **DEVELOPMENT OF DIGITAL PAKISTAN TRAUMA REGISTRY**

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**Background:** Injury remains a major cause of morbidity and mortality worldwide.(1) Based on the 2017 Global Burden of Disease (GBD) study, injury was responsible for nearly five million deaths globally, of which a major proportion occurred in low- and middle-income countries (LMICs).(2) Moreover, in 2005, Pakistan Health and Demographic Survey (PDS) reported 42 deaths per 100,000 population or 6%

of all deaths due to injury.(3) In recent years, although a significant improvement has been observed in the quality of trauma care in high-income countries (HICs), the burden of injuries continue to increase in LMICs.(4)

To reduce the number of trauma-related deaths in LMICs, World Health Organization (WHO) published a trauma care quality improvement (QI) manual in 2009.(5) The manual focused on developing hospital trauma care systems and evaluating quality of care. The major component of these quality assessment tools is the trauma registry. A trauma registry is a disease-specific collection of uniform data elements describing the injury event, demographics, prehospital information, diagnosis, care, outcomes, and costs of treatment for injured patients.(5) Since trauma registries have been beneficial in HICs for decades (6), the implementation of these registries is slowly increasing in LMICs as well.(5)

Although development of trauma registries is being considered in LMICs, there are various barriers that hinder its effective implementation. These include poor data quality, lack of resources, insufficient prehospital care, and administrative and organizational difficulties.(7) Moreover, even after overcoming these barriers, the developed registries collect fewer variables, have less stringent inclusion/exclusion criteria, and lack uniformity in content and structure.(8,9)

Pakistan has struggled to develop a standardized, digital trauma registry. Limited number of hospitals collect injury- and trauma-related data and either the collection is done manually, or electronically but only utilized for administrative purposes. Moreover, no uniformity exists in the content of the collected variables. Therefore, the specific aim of this study is to develop, and pilot test Pakistan Trauma Registry using the Collector trauma registry as a guideline and include patient-reported disability outcomes (PROs) at one, three, six and twelve months post-injury.

**Study Design and Method:** A prospective cohort study design will be used in which we will develop and pilot test the multihospital digital trauma registry and assess short, medium, and long-term disability outcomes. The registry will include all admitted adult trauma patients (> 18 years) and a sub-sample of the patients will be followed prospectively to assess for disability outcomes over one year. Data will be collected prospectively by trained medical officers from the patient records and HIMS (ED/OR, radiology reports, discharge summary) and entered directly into the digital form in the RedCap database. Patients will be identified through triage nurse/physician, trauma lists, and new admissions. For further information needs each patient will be contacted three times during his stay: at the time of admission, 24 hours after admission, and before discharge. In case the patient is unable to answer, the caregivers/attendants will be interviewed. At the time of discharge, patients will be explained that they will be followed up and interviewed at one, three, six, and twelve months through telephonic interviews, to collect information about their recovery. The disability tools include Functional Independence measure (FIM), Trauma Quality of Life (TQoL), Patient-Reported Outcomes Measurement Information System (PROMIS-29). The study will be conducted over one year at three sites (AKU, JPMC, Darul Sehat). The data will be collected 8-10 hours per day, six days a week. The outcomes will be mortality and disability status.

**Results:** -

**Conclusion:** -

**Keywords:** trauma registry, trauma, disability outcomes

6.114

### **PHYSICAL AND MENTAL HEALTH IMPACTS OF COVID-19 ON HEALTHCARE WORKERS: A SCOPING REVIEW**

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**Background:** Coronavirus disease (COVID-19) pandemic has spread to 198 countries, with approximately 2.4 million confirmed cases and 150,000 deaths globally as of April 18. Frontline healthcare workers (HCWs) face a substantially higher risk of infection and death due to excessive COVID-19 exposure. This review aimed at summarizing the evidence of the physical and mental health impacts of COVID-19 pandemic on health-care workers (HCWs).

**Study Design and Method:** We used the Arksey O'Malley framework to conduct a scoping review. A systematic literature search was conducted using two databases: PubMed and Google Scholar. We found 154 studies, and out of which 10 met our criteria. We collected information on the date of publication, first author's country, the title of the article, study design, study population, intervention and outcome, and key findings, and divided all research articles into two domains: physical and mental health impact.

**Results:** We reviewed a total of 154 articles from PubMed (126) and Google Scholar (28), of which 58 were found to be duplicate articles and were excluded. Of the remaining 96 articles, 82 were excluded after screening for eligibility, and 4 articles did not have available full texts. Ten full-text articles were reviewed and included in this study.

Our findings identified the following risk factors for COVID-19-related health impact: working in a high-risk department, diagnosed family member, inadequate hand hygiene, suboptimal hand hygiene before and after contact with patients, improper PPE use, close contact with patients ( $\geq 12$  times/day), long daily contact hours ( $\geq 15$  h), and unprotected exposure. The most common symptoms identified amongst HCWs were fever (85%), cough (70%), and weakness (70%). Prolonged PPE usage led to cutaneous manifestations and skin damage (97%), with the nasal bridge (83%) most

commonly affected site. HCWs experienced high levels of depression, anxiety, insomnia, and distress. Female HCWs and nurses were disproportionately affected.

**Conclusion:** The frontline healthcare workers are at risk of physical and mental consequences directly as the result of providing care to patients with COVID-19. Even though there are few intervention studies, early data suggest implementation strategies to reduce the chances of infections, shorter shift lengths, and mechanisms for mental health support could reduce the morbidity and mortality amongst HCWs.

**Keywords:** COVID-19, Healthcare workers, Health impacts, Risk factors, Occupational health

#### 6.115

### **HEAT EMERGENCIES: PERCEPTIONS AND PRACTICES OF COMMUNITY MEMBERS AND EMERGENCY DEPARTMENT HEALTHCARE PROVIDERS IN KARACHI, PAKISTAN: A QUALITATIVE STUDY**

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**Background:** Heat waves are the second leading cause of weather-related morbidity and mortality affecting millions of individuals globally, every year. The aim of this study was to understand the perceptions and practices of community residents and healthcare professionals with respect to identification and treatment of heat emergencies.

**Study Design and Method:** A qualitative study was conducted using focus group discussions and in-depth interviews, with the residents of an

urban squatter settlement, community health workers, and physicians and nurses working in the emergency departments of three local hospitals in Karachi. Data was analyzed using content analysis.

**Results:** The themes that emerged were (1) perceptions of the community on heat emergencies; (2) recognition and early treatment at home; (3) access and quality of care in the hospital; (4) recognition and treatment at the health facility; (5) facility level plan; (6) training. Community members were able to recognize dehydration as a heat emergency. Males, elderly, and school-going children were considered at high risk for heat emergencies. The timely treatment of heat emergencies was widely linked with availability of financial resources. Limited availability of water, electricity, and open public spaces were identified as risk factors for heat emergencies. Home based remedies were reported as the preferred practice for treatment by community members. Both community members and healthcare professionals were cognizant of recognizing heat related emergencies.

**Conclusion:** This qualitative study suggest that there is an awareness about heat emergencies among community members and healthcare professionals in Karachi. There is a need to carry out preventive actions that take into account the socioeconomic challenges of the communities. This may inform heat prevention policies in communities facing longer and more intense hot spells.

**Keywords:** heat emergencies; heat exposure; extreme heat events; perceptions; Pakistan

#### 6.116

### **THE PREVALENCE OF GLUCOSE-6-PHOSPHATE DEHYDROGENASE (G6PD) DEFICIENCY IN HEALTHY BLOOD DONORS IN KARACHI, PAKISTAN; A MALARIA ENDEMIC AREA**

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**Background:** Karachi is a highly endemic area for malaria with seasonal peaks and introducing primaquine to asymptomatic G6PD deficient individuals for eradication of malaria can lead to severe hemolysis. So this study is fruitful in screening healthy population and this in turn will provide us data that will help in planning eradication of malaria here.

**Study Design and Method:** Adult healthy male blood donors, were recruited after informed consent during 1st March 2018 till 30th November 2020 in a hospital blood bank at Karachi, Southern Pakistan. G6PD enzyme was measured by a qualitative method (Trinity Biotech Glucose-6-Phosphate Dehydrogenase Qualitative Kit catalogue no. 400-10\*10, Sweden) based on detecting the rate of reduction of NADP to NADPH through decolorization of dye. Tested individuals were classified as G6PD-normal, -intermediately deficient, and – completely deficient based on color change within the time frame of 20, 20-60 and after 60 minutes.

**Results:** 29 (8.4%) out of 342 adult male blood donors were identified to be G6PD deficient of which, 28 (8.1%) were intermediately deficient for G6PD deficiency while one was completely deficient (0.3%).

**Conclusion:** Our small-scale study indicated an appreciable frequency of G6PD deficiency in Karachi Pakistan, requiring G6PD screening prior to administration of primaquine for malaria eradication. Large-scale studies are required for complete mapping of the city which will eventually build into malaria-roll-out program.

**Keywords:** Deficiencies, Glucose phosphate Dehydrogenase, G6PD deficiency, blood donors, anemia, hemolysis, Malaria

6.117

**ASSESSING KNOWLEDGE AND PERCEPTION REGARDING FALLS AND**

**FALL INDUCED INJURIES AMONG OLDER ADULTS.**

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**Background:** This study aims to assess knowledge and perception regarding falls and fall induced injuries among older adults as it is foremost health concern of this age group. It will help to plan and implement effective health promotional activities for elderly to improve their health condition.

**Study Design and Method:** Sample size of 300 old-aged participants (125 males & 175 females) above 65 years and above were assessed through a questionnaire tool administered by interviewer. Mean age of study participants was 73 years.

**Results:** In knowledge assessment, 67% participants were aware of biological factors that increases the risk of falls and fall induced injuries, while 55% were aware of environmental and behavioral factors. 58% of total participants possessed average, 24% poor and 18% found to have good knowledge on falls and fall induced injuries. Whereas 22% of poor knowledge, 15% of good and 50% of average knowledge participants had experienced falls during last 12 months. Significant associations were found between age and education with level of knowledge related to falls. In perception assessment regarding falls 72.8% had positive while 27.2% had negative perception. Significant associations were found between gender, age, and education with perception of falls.

**Conclusion:** This study showed that older adults had average knowledge and positive perception related to falls and awareness of preventive measures. Thus, indicating the need of health promotion activities regarding fall and fall induced injuries.



**Keywords:** Older adults, Health promotion, Knowledge and Perception

### 6.118

#### **EFFECT OF ANDROID BASED MOBILE APPLICATION USE BY FRONTLINE HEALTHCARE WORKERS ON UTILIZATION OF MATERNAL AND CHILD HEALTH SERVICES IN HARD TO REACH AREAS OF AFGHANISTAN AND PAKISTAN**

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**Background:** Afghanistan and Pakistan carry highest burden of maternal and child morbidity and mortality in the region. Poor utilization of maternal and child health services (MCH) remains a major challenge in both countries. Mobile health interventions are being widely used to improve utilization of essential health services.

**Study Design and Method:** We conducted a quasi-experimental study in hard to reach areas of Afghanistan and Pakistan, to evaluate effectiveness of mobile (android) based application named “Hayat” employed in existing health system for improving utilization of essential MCH services delivered through community health workers (CHWs). Antenatal care (ANC), postnatal care (PNC), family planning and childhood immunization were assessed using baseline and endline cross sectional surveys in intervention and control areas. Difference-indifference (DIDs) was calculated to see the effect of intervention.

**Results:** 2400 mothers eligible to participate in the surveys equally divided in intervention and control arms were sampled from Afghanistan and Pakistan during baseline and also during endline surveys. In Afghanistan, DID showed

significant improvement for ANC4+ visits (11.4,  $p<0.01$ ), PNC at least one visit (44.1,  $p<0.01$ ), use of any family planning methods (45.8,  $p<0.01$ ), and proportion of children aged 12-23 months who had received 3 doses of Pentavalent (44.5,  $p<0.01$ ). In Pakistan, DID showed improvement for ANC4+ visits (3.2,  $p=0.28$ ) but it was statistically insignificant. However, significant improvement was found for PNC at least one visit (7.7,  $p<0.01$ ), use of any family planning methods (14.5,  $p<0.01$ ) and 3 doses of Pentavalent among children aged 12-23 months (8.7,  $p<0.01$ ).

**Conclusion:** The evidence in this study indicates that use of mobile based application by CHWs can improve utilization of essential MCH services in remote hard to reach areas of Afghanistan and Pakistan.

**Keywords:** android based mobile application, frontline healthcare workers, maternal and child health services, Afghanistan and Pakistan

### 6.119

#### **MIXED METHODS STUDY ON ORAL NICOTINE POUCHES/VELO IN PAKISTAN**

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**Background:** Prevalence of various forms of smokeless tobacco (SLT) usage among adolescents is on a rising trend. Oral nicotine pouches/VELO (ONP) are a relatively new product in Pakistan and there is little information about product, including its manufacturer, brand, availability, marketing, supply chain, users’ perceptions and beliefs in Pakistan. There is clear need to better understand these issues in order for policymakers to make informed decisions when developing policies to regulate this new product. The objectives of study are to assess availability, price, flavors, advertisement, and promotion of ONP at point-of-sale (POS) in shops located in Karachi, Pakistan. To examine current marketing strategies used by tobacco

industry to encourage retailers to sell and promote ONP. To understand consumers' beliefs, perceptions and knowledge of the product regarding initiation, and perception of health risks.

**Study Design and Method:** Mixed-methods, cross-sectional survey in three areas/neighborhoods of Karachi will be conducted based on socio-economic status and density of retailers that sell ONP. POS that sell ONP will be observed via close-ended structured questionnaire. Shopkeepers that sell ONP and ONP consumers' will be interviewed by open-ended, semi-structured questionnaire to guide interviews. Non-probability snowballing technique will be employed. GPS readings of POS will also be recorded.

**Results:** The proportion of POS that carry and display ONP/VELO products will be calculated for each of three areas. Sub analysis will include mean price of VELO product, proportion of shops that display VELO at same eye line height for a child and demographics will be reported. Shopkeeper and consumer interviews-recordings and notes from interviews will be transcribed. Main themes and findings will be identified and grouped.

**Conclusion:** The results obtained from the data of the study will help policy makers to make informed decisions when developing policies related to regulation of this new product ONP/VELO that is being used by our youth at a fast pace.

**Keywords:** Nicotine, survey, cross-sectional, beliefs, knowledge, Pakistan

6.120

#### **AWARENESS, USAGE AND PERCEPTIONS ABOUT E- CIGARETTES AMONGST UNDERGRADUATE UNIVERSITY STUDENTS OF KARACHI, PAKISTAN**

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**Background:** Electronic Cigarettes (E-Cigarettes) are used as cheaper and “less harmful” alternatives to conventional cigarettes. They are battery operated-devices which are used for flavor and nicotine vapors that they emit. Despite increasing use, there is significant gap in knowledge regarding its regulation and constituents.

**Objectives:** To determine prevalence of electronic cigarette usage among undergraduate university students in Karachi. To assess awareness and common motivating factors of electronic cigarettes among undergraduate university students and to assess practices regarding e-cigarette use.

**Study Design and Method:** Methods: A cross-sectional analytical survey is employed to elicit data from four undergraduate institutions [medical, nursing, engineering and business studies] after administrative approvals. Non-probability purposive sampling technique will be used. Undergraduate university students, > 18 years will be included. The data will be collected through a self-administered, structured questionnaire in English via Google forms sent to participating institutes after consent.

**Results:** RESULTS: Data analysis will be done via Statistical Package for Social Sciences (SPSS) Version 23. Quantitative data will be described using mean  $\pm$  standard deviation (SD). Categorical data will be described as frequencies and percentages and differences between groups will be assessed using Chi-Square tests. Knowledge scores will be computed based on 7 questions with each correct answer given a score of 1 and maximum score that could be achieved being 7. Mean knowledge scores will be reported and difference among groups will be analyzed by Analysis of Variance (ANOVA). Logistic regression model analyses will be done to examine possible associations between independent and outcome variable. A p-value

<0.05 will be considered as statistically significant.

**Conclusion:**

CONCLUSION/RECOMMENDATION: This research will help identify trends of E-cigarettes usage among young undergraduate students of Pakistan. This study will also highlight perceptions and factors associated with its usage. This data can help us address key factors associated with E-cigarette usage which can potentially help in decreasing its trend in the future.

**Keywords:** Smoking, cigarette, nicotine, Pakistan, prevalence

**6.121**

**FEBRILE NEUTROPENIA ASSESSMENT AND MANAGEMENT PRACTICES IN THE EMERGENCY DEPARTMENT – A CLINICAL AUDIT**

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**Background:** Background: Febrile neutropenia is an Oncology emergency. In suspected neutropenic septic patients the door to needle time is significantly delayed. There is limited data regarding patients with febrile neutropenia, their management and risk stratification in our part of the world, hence it is important to set guidelines which should be immediately implemented once a patient is received with febrile neutropenia in Emergency Department

**Study Design and Method:** Methods: Study design: Cross sectional, Study duration: Six months audit, Participants: Oncology patients who had received chemotherapy in last 6 months, Study setting: Department of Emergency Medicine, Aga Khan University Hospital.

**Results:** Data Collection in process

**Conclusion:** Conclusion: We should locally implement evidence based, patient-centric, clinically effective strategies for patients

presenting to Emergency Department with febrile neutropenia. Clinical audits should be frequently conducted to ensure quality, safety and clinical outcomes of the patients, and then retrospectively reviewed.

**Keywords:** Febrile Neutropenia, Emergency Department

**6.122**

**DEVELOPMENT AND CONTENT VALIDATION OF LIFE SKILLS BUILDING CURRICULUM FOR MEN ENGAGEMENT IN WOMEN EMPOWERMENT**

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**Background:** Empowerment of women is essential to ensure family health and economic development. Engaging men in women empowerment through increasing men's capacity to understand self and women is vital in building positive gender attitudes and family dynamics for women health and development. The current study is nested under the parent study "Men engagement in Women empowerment (MEWE) through Cash Transfer and Life Skills Building". This study aimed to develop and establish the content validity of a life skill-building curriculum (LSB) for engaging men in women empowerment in Thatta

**Study Design and Method:** This study was carried out in two stages. In Stage I, LSB curriculum for men was developed with the help of literature review and the formative assessment findings (conducted by the parent study team). In Stage II, a total of six content experts (Psychologist, Sociologist, senior specialist scientist, educationists, and nurse) having vast experience of gender and mental health studies were part of the panel. The experts assessed the Content Validity Index (CVI) of LSB curriculum on a self-developed tool.

**Results:** An interactive LSB curriculum was developed which consists of 10 modules. For the validation, data analysis revealed the overall CVI of relevance and clarity as 0.96 and 0.72, respectively. The LSB curriculum have strong content validity on relevance.

**Conclusion:** The LSB curriculum for men is valid. However, the clarity of the curriculum will be further enhanced during the field testing and the revalidation. This curriculum will assist in imparting skills and knowledge among men which could contribute in enhancing women's empowerment among the women living in a rural setting of Thatta.

**Keywords:** women empowerment; men engagement; content validity; life skills building curriculum

#### 6.124

### **ASSESSING SOCIAL BEHAVIOR AND PERCEPTIONS REGARDING SAFE PRACTICES DURING THE COVID-19 PANDEMIC AMONG POPULATIONS FROM DEVELOPED AND DEVELOPING NATIONS**

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**Background:** According to the latest statistics there have been more than 4.9 million COVID-19 related deaths reported worldwide. Despite the mass vaccination campaigns, the SARS-CoV-2 infection cases remain on a surge hence its imperative to adhere to standard operating procedures (SOPs) for the prevention of SARS-CoV-2 infection therefore it remains crucial to compare the social behavior and perceptions regarding the adherence to COVID-19 SOPs in the developed and developing nations where the degree of affliction by the pandemic remains

diverse and could be attributed to various factors.

**Study Design and Method:** This cross-sectional online survey based study was conducted on the general population from a total of 14 countries between December 2020 and March 2021. A total of 384 participants were included in the study via convenience sampling.

**Results:** The overall compliance to safe practices regarding COVID-19 remained poor despite the high prevalence of knowledge regarding COVID-19 in the study population. Adults (25-64 years) were found to be the most compliant to social distancing (p value = 0.003) and overall the participants from developing countries had a higher compliance to all preventative measures against COVID-19 spread except for in handwashing compliance where the difference between the two populations remains insignificant. (p value = 0.038, <0.001, 0.016) Participants with no prior history of COVID-19 infection were more adherent to wearing a mask in public as compared to those with a positive history of SARS-CoV-2 infection. (p value = 0.044) However, socioeconomic status or presence of comorbidities did not significantly affect compliance rates.

**Conclusion:** Mass educational campaigns as well as strict policies regarding adherence to SOPs are necessary to increase precautionary measures. Effects on mental health are an important reason for noncompliance and measures such as opening parks as well as providing online counselling may be especially helpful.

**Keywords:** COVID-19, social behavior, perceptions, knowledge, SOPs adherence, developing and developing countries disparities

**6.127**

**ACCEPTANCE OF COVID 19 VACCINE AND THE FACTORS ASSOCIATED WITH IT AMONG DENTAL HEALTHCARE PRACTITIONERS: A CROSS SECTIONAL SURVEY**

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**Background:** One of the greatest inventions of the 21st century is the development of vaccine against life threatening pandemic of SARS-CoV 2. Hence it is imperative to explore the factors that will influence the acceptance of this vaccine in our dental health care professionals, as they are the first subgroup in the population to receive the vaccine.

**Study Design and Method:** A survey based cross-sectional study was conducted on 164 health care professionals (general dentists, dental specialists with two years of experience after graduation, and dental assistants). The data was collected by sending a Google link questionnaire form in the form of hard and soft copy through all social media platforms. This form had two sections, one with the demographic details and the second part was designed to assess the acceptability of SARS-CoV 2 vaccination among dental healthcare professionals and its related factors. Normality of the data were assessed by Shapiro-Wilk test. Cox regression algorithm was applied to evaluate the factors associated with the acceptability of SARS-CoV 2 vaccination.

**Results:** Out of 164 participants, 85.37 % showed a positive response to vaccine acceptability, and only 14.63 % of dental healthcare professionals were either not willing or not sure to get vaccinated; out of them, 14 were females, and 10 were males. Those who

refused or were not sure to get vaccinated included 3.6 % general dentists, 15.6 % dental assistants and 21.1 % dental specialists. The most common complication of concern was the fever, myalgia and lethargic condition immediately followed by the vaccine.

**Conclusion:** A small percentage of health care professionals declined to get vaccinated against SARS-CoV 2, and the main reason was the uncertainty about the associated side effects. The most concern side-effect was fever, myalgia and lethargic condition immediately followed by the vaccine.

**Keywords:** SARS-CoV 2, Vaccine, Acceptance, Dentist, Health Care Professionals.

**6.128**

**MATERNAL AND CHILD SURVEILLANCE IN PERI-URBAN COMMUNITIES: PERCEPTIONS OF WOMEN AND HEALTH WORKERS FROM A LOW MIDDLE-INCOME COUNTRY**

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**Background:** Community health workers (CHWs) in MNCH programs play an important role in demographic surveillance activities; however, there is lack of literature regarding the community and CHW's perceptions about these activities. The purpose of this study was to explore perceptions of married women of reproductive age (MWRA) regarding role of CHWs involved in maternal and child surveillance and explore facilitators and barriers for CHWs involved in surveillance activities.

**Study Design and Method:** exploratory qualitative study

**Results:** The results showed that MWRA perceived surveillance CHWs as service provider with regards to standard counselling and distribution of iron and folic acid tablets to

pregnant women, child growth assessment and referral of sick kids to health facility. MWRAs considered routine surveillance visits as an enabler to trust CHWs, whereas lack of tangible incentives were cited as barriers to share their health data. CHWs perceived themselves as an important pillar of primary health care in terms of providing preventive counselling and creating linkage between community and health facility. CHWs highlighted enabling environment such as appreciation, supportive supervision, training imparting necessary knowledge and skills, and utilization of digital data collection tool as facilitators for their work. Low health literacy of the communities, lack of provision of incentives by CHWs to community and facility-based experiences of community were reported as barriers.

**Conclusion:** Surveillance CHWs are an integral link between health facility and MWRAs. Hence an enabling environment for them may lead to improved health service delivery, translating into meaningful impact for the mother and child.

**Keywords:** maternal and child surveillance, community health workers, perceptions, facilitators, barriers

### 6.129

#### **HEALTHY EATING AND PHYSICAL ACTIVITY AMONG POST GRADUATE MEDICAL TRAINEES, AN OBSERVATIONAL STUDY FOR SELF ANALYSIS**

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**Background:** it's a unique study of its own kind in which life style related to eating habits and physical activity are addressed among post graduate medical trainees working at akuh

**Study Design and Method:** Cross section observational study

**Results:** Trainees were found to have lackings in physical activity and healthy eating

**Conclusion:** Physical activity and healthy eating are essential elements for a healthy life style specially for health care workers, trainees need to focus on both of these domains to achieve a better and healthy life style

**Keywords:** Healthy eating , Physical activity , PGME , healthy lifestyle

### 6.131

#### **EFFECTIVENESS OF UNCONDITIONAL CASH TRANSFERS COMBINED WITH LIPID-BASED NUTRIENT SUPPLEMENT AND/OR BEHAVIOR CHANGE COMMUNICATION TO PREVENT STUNTING AMONG CHILDREN IN PAKISTAN: A CLUSTER RANDOMIZED CONTROLLED TRIAL**

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**Background:** In Pakistan, the prevalence of stunting among children under-five years has remained above WHO critical thresholds ( $\geq 30\%$ ) over the last two decades. We hypothesized that an unconditional cash transfer (UCT) combined with lipid-based nutrient supplement (LNS) and/or social and behavior change communication (SBCC) will prevent stunting among children 6-23 months of age.

**Study Design and Method:** This was a four-arm, community-based cluster randomized controlled trial conducted in the district of Rahim Yar Khan, Pakistan. A total of 1729 children (UCT n = 434); (UCT+SBCC n = 433); (UCT+LNS n = 430) and (UCT+LNS+SBCC n = 432) were enrolled at 6 months of age and measured

monthly for 18 months until the age of 24 months.

**Results:** At 24 months of age, children who received UCT+LNS (rate ratio [RR], 0.85 [95% CI 0.74, 0.97]; P = 0.015); and UCT+LNS+SBCC (RR, 0.86 [95% CI 0.77, 0.96]; P = 0.007) had significantly lower risk of being stunted as compared to the UCT arm. No significant difference was noted among children who received UCT+SBCC (RR, 1.03 [95% CI 0.91, 1.16]; P = 0.675) in the risk of being stunted as compared to the UCT arm. The pooled prevalence of stunting among children 6-23 months was 41.7%, 44.8%, 38.5% and 39.3% in UCT, UCT+SBCC, UCT+LNS and UCT+LNS+SBCC, respectively. In pairwise comparisons, a significant impact on stunting among children in UCT+LNS (P = 0.029) and UCT+LNS+SBCC (P = <0.001) was noted as compared to UCT arm.

**Conclusion:** UCT combined with LNS and UCT+LNS+SBCC were effective in reducing the prevalence of stunting among children aged 6-23 months in marginalized populations. UCT+SBCC was not effective in reducing the child stunting prevalence.

**Keywords:** Stunting, unconditional cash transfer, lipid-based nutrient supplement, social and behavior change communication

6.132

**EFFECTIVENESS OF SPECIALIZED NUTRITIOUS FOODS AND SOCIAL AND BEHAVIOR CHANGE COMMUNICATION INTERVENTIONS TO PREVENT STUNTING AMONG CHILDREN IN BADAKHSHAN, AFGHANISTAN: PROTOCOL FOR A QUASI-EXPERIMENTAL STUDY**

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**Background:** Stunting predominantly occurs during the first 1000 days of life and continues to the age of five years. We will aim to assess the effectiveness of specialized nutritious foods (SNF) and social and behavior change communication (SBCC) strategies during the first 1000 days of life to prevent stunting among children in two rural districts of Badakhshan, Afghanistan.

**Study Design and Method:** This will be a quasi-experimental pre-post study with the control group utilizing qualitative and quantitative methods. Before launching the program, formative research will be conducted on the acceptability, appropriate use and SBCC strategies needed to support the introduction of intervention package. Repeated cross-sectional baseline and endline surveys will be conducted in both the intervention and the control districts. After the formative research and baseline household survey, an intervention focusing on the provision of SNF, targeting pregnant and lactating women and children 6–23 months, and SBCC strategies will be implemented for at least 12 months.

**Results:** The primary outcome will be a reduction in the prevalence of stunting among children under two years in the intervention group compared to the control group. We will aim to compare the intervention and control group between the pre- and post-intervention assessments to isolate the effect of the intervention by difference-in-differences estimates. The program monitoring and evaluation component will examine the quality of implementation, acceptability of intervention, identification of potential barriers and to learn how to enhance the program's effectiveness through ongoing operational improvements.

**Conclusion:** The results will be beneficial to design interventions to prevent stunting within Afghanistan and other low–middle-income countries.

**Keywords:** Stunting; specialized nutritious foods; social and behavior change communication

6.134

**EFFICACY OF COMPLEMENTARY AND ALTERNATIVE MEDICINE IN TREATMENT OF POSTPARTUM DEPRESSION: A SITUATION ANALYSIS**

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**Background:** Postpartum depression is a major public health issue worldwide. It varies in prevalence across countries. Pakistan remains highest to have the prevalence of postpartum depression among South Asian countries. A number of complementary and alternative medicines can help in decreasing depressive symptoms in the postpartum period. The purpose of this article is to subject review the use of complementary and alternative medicine as a treatment for postpartum depression.

**Study Design and Method:** A comprehensive review of the literature was conducted from articles using PubMed, CINAHL, PsycINFO, EMBASE published since the last ten years. Inclusion criteria included only full-text papers in the English language published in the last ten years were preferred. Research studies were selected that included risk factors of PPD, CAM therapies, and CAM therapies for depression, especially in Pakistan.

**Results:** The findings of this review suggest that various complementary and alternative therapies may help in the treatment of postpartum depression. This literature review demonstrated the significant effectiveness of complementary

and alternative medicine in the treatment of postpartum depression.

**Conclusion:** As conclusion, the prevention and treatment of postpartum depression are essential for maternal as well as new-born health. Complementary and alternative medicine has less side effects than antidepressants which can affect maternal and newborn health adversely.

**Keywords:** Postpartum depression; complementary and alternative medicine; Pakistan.

6.135

**KANGAROO MOTHER CARE: UNDERSTANDING COMMUNITY PERCEPTIONS AND PRACTICES FOR DESIGNING APPROPRIATE COMMUNITY BASED KMC IMPLEMENTATION PACKAGE: A FORMATIVE RESEARCH**

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**Background:** Low birth weight (LBW) is a common outcome of preterm birth and increases the risk of an infant’s morbidity and mortality. About 20 million neonates are born LBW globally. A significant number of births in Pakistan take place at home; therefore, it is important to focus on the use of KMC (skin-to-skin contact) in communities to improve neonatal outcomes.

**Study Design and Method:** We conducted a formative research in order to understand the context of communities and facilities with regards to neonatal care and KMC practice, inform the design and delivery of culturally appropriate platforms to introduce KMC in communities, and develop effective recruitment and retention strategies of KMC, in rural areas of district Dadu, in the Sindh province. We



conducted focus group discussions, in-depth interviews and key informant interviews with families of LBW babies, community members, healthcare providers and hospital administrators to identify barriers, enablers and a knowledge base for KMC interventions.

**Results:** Newborn care practices in communities were suboptimal. The community was generally unaware of KMC intervention for care of LBW babies. Although healthcare providers had heard about KMC and its benefits, they were not confident to practice it. Women and family members were willing to provide 6-8 hours of KMC session per day to improve neonatal outcomes. However, they feared to do household chores with baby in KMC position. We found significant support system within the community as enablers to facilitate in KMC. The administrative staff at the facility considered hospital environment conducive for implementation of KMC.

**Conclusion:** KMC is widely accepted in the community to improve LBW neonatal outcomes. This formative research provided strategically valuable information for developing effective implementation strategies by identifying common community practices for LBW babies, and barriers and enablers to KMC practice.

**Keywords:** Kangaroo Mother Care, Low Birth Weight Newborns, Enablers and Barriers

## 6.136

### **COVID-19 VACCINATION ACCEPTANCE AND HESITANCY AMONG GENERAL POPULATION OF PAKISTAN- A POPULATION BASED SURVEY**

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**Background:** COVID-19 has been a significant threat to many lives in during this and past year.

Since it has been declared pandemic many scientists, researchers and clinicians started

doing vaccination trials to prevent larger populations through herd immunity from this fatal disease. After successful human trials and a year's struggle there were few vaccines developed and made available for the public. Vaccine hesitancy has been a significant challenge since the first vaccine development. Similarly, for the COVID-19 vaccine many people were reluctant to get it. Therefore, we conducted a population-based survey to determine the vaccination acceptance and hesitancy among the general population of Pakistan.

**Study Design and Method:** A cross-sectional survey was conducted from June 1 to August 31, 2021, with 541 participants from general population all over the Pakistan through a questionnaire designed for the study purpose using purposive sampling strategy. Included participants who were above 18 years of age and gave informed written consent to participate in the study. Data was analyzed using STATA 16. Frequency and percentages were computed for the categorical variables, multiple logistic regression was used to check the effect of vaccination status on independent variables. P-value  $\leq 0.05$  was considered significant.

**Results:** The age range of participants were from 18 years to 74 years. Out of 541, Those do not get vaccinated with COVID-19 have highest proportion in the age-group of above 42 years 68 (29.96%). The sample shows that the proportion of males has the highest vaccination rates (53.18%) than females (46.82%). Majority of study participants belonged to Sindh with highest vaccination rates 236 (75.16%). Majority of the participants were not healthcare workers or not working in the hospital who got vaccinated 204 (64.97%). The result of the multivariable logistic regression shows that the age, location, occupation and factors for not getting vaccinated have significant relationship with participants vaccination status at p value  $< 0.05$ . Fear of post vaccination COVID-19 had

the 4 times higher odds (OR: 4.01 CI: 2.69-5.17) of not getting vaccinated compared to other factors.

**Conclusion:** COVID-19 vaccination rates are still unsatisfactory in the general population, it requires a great coverage to achieve the herd immunity. In order to understand the coverage and factors associated better a surveillance study should be conducted to have an eye on the COVID-19 vaccination rate.

**Keywords:** COVID-19, Vaccination, Acceptance, Hesitancy, Pakistan

6.137

**DO EMPOWERED WOMEN RECEIVE BETTER QUALITY ANTENATAL CARE IN PAKISTAN? ANALYSIS OF DEMOGRAPHIC AND HEALTH SURVEY DATA**

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**Background:** Quality antenatal care is a window of opportunity for improving maternal and neonatal outcomes, as well as reducing morbidity and mortality during pregnancy. Numerous studies have shown a positive effect of women empowerment on improved coverage of maternal and reproductive health services, including antenatal care (ANC). However, there is scarce evidence on whether women's empowerment enable them to receive better ANC service coverage and quality ANC consultation with service providers. We examined the relationship between multi-dimensional measures of women empowerment on utilization of quality ANC (service coverage and consultation) in Pakistan.

**Study Design and Method:** We used Pakistan Demographic and Health Survey 2017-18 (PDHS) data which comprised of on 6,602 currently married women aged 15-49 years who had a live birth in the past five years preceding

the survey. Our exposure variables were three-dimensional measures of women empowerment (social independence, decision making, and attitude towards domestic violence), and our outcome variables were quality of antenatal coverage [i.e. a composite binary measure based on skilled ANC (trained professional), timeliness (1st ANC visit during first trimester), sufficiency of ANC visits (4 or more)] and quality of ANC consultation (i.e. receiving at least 7 or more essential antenatal components out of 8). Data were analysed in Stata 16.0 software. Descriptive statistics was used to describe sample characteristics and binary logistic regression was employed to assess the association between empowerment and quality of antenatal care.

**Results:** We found that 41.4% of the women received quality ANC coverage and 30.6% received quality ANC consultations during pregnancy. After controlling for a number of socio-economic and demographic factors, all three measures of women's empowerment independently showed a positive relationship with both the outcomes. Women with high autonomy (i.e. strongly opposed the notion violence) in the domain of attitude to violence are 1.66 (95% CI 1.30 – 2.10) and 1.45 (95% CI 1.19 – 1.75) and times more likely to better receive antenatal coverage and quality ANC consultation respectively, compared with women who ranked low on attitude to violence. Women who enjoy high social independence had 1.87 (95% CI 1.44 – 2.43) and 2.78 (95% CI 2.04 – 3.79) higher odds of quality antenatal coverage and consultations respectively, as compared with their counterparts. Similarly, women who had high autonomy in household decision making 1.98 (95% CI 1.60 – 2.44) and 1.56 (95% CI 2.17 – 1.91) are more likely to receive quality antenatal coverage and consultation respectively, as compared to women who possess low autonomy in household decision making.

**Conclusion:** The quality of ANC coverage and consultation with service provider is considerably low in Pakistan. Women's

empowerment related to social independence, gendered beliefs about violence, and decision-making – each has an independent positive association with utilisation of quality antenatal care. Thus, efforts directed towards empowering women could be effective strategy to improve utilization of quality antenatal care in Pakistan.

**Keywords:** Women empowerment, quality of care, antenatal coverage, antenatal care

### 6.138

#### **HEALTH WORKERS EXPERIENCE OF A DIGITAL HEALTH RECORD IMPLEMENTED IN PERI-URBAN COMMUNITIES IN A LOWER MIDDLE-INCOME COUNTRY**

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**Background:** In many lower middle-income countries (LMICs) there is a lack of access to proper health services for vulnerable communities including women and children. Maternal, Newborn and Child Health (MNCH) especially is impacted due to physical, technological, geographical, and financial barriers. To help improve access to and the delivery of beneficial health services, digital health interventions (DHI) are introduced in LMICs in the form of telehealth consultations, health applications, and other online health systems.

The aim of the study is to assess the acceptability, usability and aesthetics of a DHI by front line care providers (community health workers, midwives and physicians) in peri-urban settings in Karachi, Pakistan.

**Study Design and Method:** A mixed methods study will be carried out in Rehri Goth, Ibrahim Hyderi, Ibrahim Hyderi Extension, Bhains Colony and Ali Akbar Shah. Community health workers, midwives, and physicians who have been using the platform for at least six months

will be recruited. For quantitative data, a questionnaire has been designed to include close-ended questions with a 5-point Likert scale. The questions inquire about the module design and interface, technical difficulty, event logging, and appropriate utilization. For qualitative data, audio-recorded in-depth interviews and focus group discussions will be conducted. The questions will be regarding experiences regarding operability, the app's design, and its effect on work efficiency and providing beneficial health services.

**Results:** Data collection will start after ERC approval

**Conclusion:** After ERC approval

**Keywords:** public health, digital health, digital health intervention, DHI, health application, lower middle income countries, LMIC, MNCH, maternal health, child health

### 6.139

#### **COVID19 AND MENTAL HEALTH OF PRIMARY HEALTHCARE WORKER (PHCW): LESSONS FROM A LARGE-SCALE INQUIRY IN SINDH AND PUNJAB PROVINCES OF PAKISTAN**

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**Background:** In view of negligible evidence, this mixed-method study gauge the psychological impact of COVID19, health system response, and sought suggestions and recommendations from the primary healthcare workers (PHCWs) to address their psychological needs in pandemic crisis.

**Study Design and Method:** Using mixed-method parallel design, a total of 534 PHCWs (community health workers – CHWs and facility-based service providers) underwent a quantitative assessment (using validated instruments) and 47 appeared in in-depth interviews over phone across 23 districts in Sindh and Punjab provinces of Pakistan.

**Results:** About 30% of the facility-based service providers reported to be seconded to isolation centres. Reportedly, 4% of CHWs and 12% of facility-based staff had been infected with COVID19. The symptoms of burnout were mainly related to exhaustion (16%). Experiences of anxiety and depression hovered around 6%; whereas PTSD was at 2.4% and insomnia (8%). Fear, stress and anxiety among PHCWs of being infected and infecting their families was immense at the beginning of this outbreak and its peak which tapered off over time. It was triggered by lack of information about the virus and its management, false rumours, media-hype, lack of PPEs, non-cooperation from patients and community people. Awareness raising trainings and PPEs provided by the healthcare system, while social support from co-workers and supervisors was instrumental in addressing their psychological needs. In addition to above, they also recommended appreciation and recognition, and provision of psychosocial support from mental health professionals.

**Conclusion:** Primary healthcare system should be prepared to provide timely informational, instrumental, organisational, and emotional and psychological support to PHCWs in order to mitigate the psychological impact of pandemic crisis.

**Keywords:** COVID19, primary healthcare, mental health

6.140

### **HEALTH SYSTEM BOTTLENECKS IN THE PROVISION OF INCLUSIVE AND RESPECTFUL MATERNITY CARE**

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**Background:** The effectiveness of maternal health services is highly dependent on the positive patient-provider experience. However, evidence to inform the primary healthcare system to promote inclusive and respectful maternity care (I-RMC) is lacking. Therefore, we examined health systems bottlenecks that impede the provision of I-RMC in Pakistan's public healthcare system.

**Study Design and Method:** Guided by the WHO's six health system building blocks, forty in-depth interviews with maternity care staff of six public health facilities were conducted using a qualitative exploratory design.

**Results:** Bottlenecks to I-RMC identified as Leadership/governance: strategic focus, institutional guidelines, leadership will and a favourable attitude, supervision and monitoring, accountability mechanisms, predominant focus on clinical care; Health financing: investment in staff capacity and facility environment; Information system: a systematic mechanism to screen and record patient psychosocial needs; Health workforce: training opportunities, knowledge and skills, appreciation from leadership; relationship and coordination between clinical and non-clinical staff; Service delivery: a mind-set that patient is un-cooperative, acceptability of non-RMC manifestations under certain conditions; policies for active engagement of companions; and Infrastructure and material management: cleanliness, screens for privacy, seating arrangement for a companion.

**Conclusion:** a comprehensive service-delivery intervention package is needed that effectively employs all six health system blocks:

investments in maternity staff capacity building to conducive facility environment via proper governance and accountability mechanisms. Such interventions should focus on women's dignity and ensure responsive care to the psychosocial needs of pregnant women without any discrimination.

**Keywords:** health system, respectful maternity care, quality of care, mistreatment

### 6.141

#### **SUPPORTIVE CARE – A MISSING PIECE IN THE CURRENT GLOBAL EFFORTS OF PROMOTING RESPECTFUL MATERNITY CARE**

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**Background:** There is a clear recognition worldwide that respectful and dignified maternity care is a fundamental right of every woman. Over the past decade, numerous interventions have been tested to promote respectful maternity care in facility-based settings. However, these interventions seem to have neglected an important component of respectful maternity care (RMC) – that is ‘supportive care’. This research aims to build a case for integration of supportive care (aka psychosocial support) more comprehensively during intrapartum care.

**Study Design and Method:** We reviewed recent World Health Organization’s framework and guidelines regarding maternal health. In light of WHO framework of RMC, we also comprehensively reviewed seven RMC training manuals developed and used in different parts of the world, particularly in low-and middle-income countries.

**Results:** Although termed variably, ‘supportive care’ has been an integral part of WHO’s current

framework and policy recommendations. It is also reflected in WHO’s definition of RMC; in fact, lack of supportive care is identified as one of the types of mistreatment. While all seven training manuals covered various forms of RMC such as abuse, inclusiveness, maintaining professional standards (e.g. confidentiality, consent, autonomy), and effective communication, none of the training manuals explicitly covered the component on the provision of supportive care.

**Conclusion:** We propose that supportive care needs to be integrated more comprehensively in distinct psychosocial elements, such as mental, emotional and social support. Where every pregnant woman, inclusively, receives standardized element-specific care.

**Keywords:** respectful maternity care, supportive care, mistreatment, quality of care, health system

### 6.142

#### **LIFESTYLE MODIFICATION FOR WEIGHT REDUCTION WITH PEER SUPPORT AMONG ADULTS IN AN URBAN SLUM OF KARACHI, PAKISTAN: A MIX METHODS DESIGN**

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**Background:** The burden of obesity increases exponentially, affecting almost one-third of the world's adult population. Lifestyle modification is essential for weight reduction and maintenance, but adherence to lifestyle modification is challenging. Peer support is an effective strategy for better compliance and weight loss. Still, limited research explores the role of peers in low-resource communities. Therefore, we assessed the effect of lifestyle modification for weight reduction with peer support among adults in an urban slum of Karachi, Pakistan, using a mix-methods design.

**Study Design and Method:** The study setting was Azam Basti, an urban slum in Karachi. Using a pre-post-test design, we enrolled 50 men and women aged 20 to 60 years with body mass index > 23 kg/m<sup>2</sup>. We enrolled participants nominated peers, i.e., family members, aged > 20 years and agreed to help them with lifestyle modification. We provided online education on lifestyle modification to the participants and their peers. We assessed weight, calorie intake using 24-hours dietary recall, and energy expenditure using a general physical activity questionnaire every month from June 2020 to September 2021. We did a preliminary analysis for thesis work due to the timelines issue using a generalized estimating equation for repeated measures to determine a change in mean outcomes from baseline to three months.

**Results:** Of the 50 participants enrolled in the study, 42 were females. The mean age was 36.82 + 1.26 years. While among peers, 31 were females, and the mean age was 35.9 + 12.0. The estimated average weight was 0.9 kg (95% CI: -2.1 to 0.2) lower after providing the intervention compared to the baseline (no intervention) when adjusted for participant's gender, relation of a peer with participant, monthly household income, energy intake, age, and energy expenditure. The estimated average energy intake was 86.3 kcal/day (95% CI: -211.4 to 38.7) lower after providing the intervention than the baseline when adjusted for participant's gender, age, relation of a peer with participant, and monthly household income. The estimated average energy expenditure was 33.2 kcal/day (95% CI: -18.0 to 84.4) higher after providing the intervention compared to the baseline when adjusted for relation of a peer with the participant, monthly household income, stress, age, and participant's gender.

**Conclusion:** The study findings that are limited to three months follow-up tended to reduce weight and energy intake and improve energy expenditure after the intervention. However, the results are insignificant but in the right direction. For better estimates of the intervention effect,

this study has completed its one-year follow-up visit. The analysis and write-up are in process to access the outcomes after one year from the baseline.

**Keywords:** Obesity, Lifestyle modification, peer support

### 6.143

#### **USING PDSA (PLAN – DO – STUDY - ACT) MODEL TO INCREASE MEDICINE RECONCILIATION IN A TERTIARY CARE HOSPITAL OF A DEVELOPING COUNTRY**

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**Background:** The WHO defines the medication reconciliation process as ‘the formal process in which health care professionals partner with patients to ensure precise and complete medication information transfer at different interfaces of care’. Medication errors at time of a patient's hospital admission are common occurrence in health care settings. Majority of the error occurs during prescribing, dispensing or administration of medicines. In order to avoid these errors, medication reconciliation processes and systems have been employed by health care organizations throughout the world. Implementing medical reconciliation has successfully reduced medication error in many institutes.

**Study Design and Method:** It was a quality improvement project conducted in the Department of Medicine, Aga Khan University Hospital Karachi. We included residents and interns working in Medicine department. The written proforma was distributed in three sessions for three consecutive weeks. The PDSA model was implemented for four months from February 2019 to May 2019 in the department of internal medicine.

**Results:** The Medicine reconciliation compliance improved from 4% in February 2019 to 96% in May 2019.

**Conclusion:** With the help of PDSA cycle we advised and managed to implement quality improvement interventions and changes that resulted in significant improvement in medication reconciliation compliance. This strategy of PDSA cycle can be applied in other quality indicator projects also for increasing patient safety and decrease preventable harm. This project also shows that engaging the health care workers will overcome the resistance to change and implement sustainable systems.

**Keywords:** Medicine reconciliation, PDSA cycle, Developing country

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### ***SARS-COV-2: HAS ARTIFICIAL INTELLIGENCE STOOD THE TEST OF TIME***

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**Background:** Artificial Intelligence has proven time and time again to be a game-changer innovation in every walk of life- medicine being

one of them. Being married to medicine in 1976 by Dr. Gunn to accurately diagnose acute abdominal pain and list potential differentials, AI has since come a long way. AI is commonly used in all fields of medicine- primarily in radiology, to identify key diagnoses with greater sensitivity and specificity-using exhaustive machine learning algorithms- than the human brain. However, AI has proven to be more than just a tool to facilitate healthcare workers in decision making and limiting physician-patient contact during SARS-CoV-2. It has guided governments and key policymakers in formulating and implementing laws- such as lockdowns and travel restrictions, to curb the spread of this viral disease. This has been made possible by the use of social media to map SARS-CoV-2 hotspots- laying the basis of the 'smart lockdown' strategy- now adopted all over the globe. However, with great powers, come great responsibilities! Significant concerns regarding the privacy of individuals and un-consented surveillance have been raised- and need to be thoroughly addressed by relevant authorities to develop a sincere, ethical government-public relation.

**Keywords:** SARS-CoV-2, COVID-19, Artificial Intelligence, Public Health