



Semiannual Newsletter

Volume 3

AKU-CETE NEWSLETTER





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Newsletter publication date: January 15th, 2025
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Welcome Message from Dr. Junaid Razzak

Founding Director, Centre of Excellence for Trauma and Emergencies



As 2024 draws to a close, I am filled with immense pride as I reflect on CETE's transformation—from a small, dedicated team to a thriving Centre of over 30 passionate 'changemakers'. Each team member is playing a vital role in tackling the critical challenges of trauma, emergency, and disaster response. This year has highlighted our team's dedication to making a sustainable impact on healthcare systems and saving lives in vulnerable communities in Pakistan and around the world.

In research, CETE is redefining public health solutions in LMICs. Our Trauma Registry has analysed data from thousands of trauma patients, driving evidence-based improvements in outcomes. The CONNECT-HTN project uses telehealth to manage severe hypertension in high-risk patients, while the FEAMER trial is revolutionizing pediatric emergency care with real-time telemedicine in ambulances. The Equi-Injury project addresses disparities in injury care by promoting equitable access to quality treatment, and the iRise initiative leverages mobile health technology to enhance disaster response readiness. Collaborating with Pakistan's emergency services, our EMS Data System is optimising prehospital care through data-driven insights.

Capacity building is central to CETE's mission. The Pakistan Life Savers Programme (PLSP) has trained over 400,000 Life Savers, with over 6,000 participants performing CPR simultaneously on World Restart a Heart Day, spanning Pakistan, AJK, and Gilgit-Baltistan. Life-saving skills like CPR and bleeding control are now part of Sindh and AJK's textbooks. Over 1,500 Lady Health Workers in disaster-prone regions were trained as first responders, boosting community preparedness. Additionally, our Disaster Leadership Course, in collaboration with AKAH, equips leaders to manage emergencies, with 35 trainees representing five countries and three government agencies in Pakistan.

CETE has prioritised policy advocacy to address the escalating impacts of climate change, focusing on heatwave management as a critical public health challenge. Through collaboration with government of Sindh authorities, meteorological experts, and health services, we are developing a comprehensive Heat Management Plan aimed at mitigating the health risks associated with extreme heat events in 5 cities.

These achievements would not have been possible without the steadfast support of our local and international partners, whose collaboration has been critical to our progress. I extend my deepest gratitude to Dean Dr. Adil Haider and Vice Provost Dr. Salim Virani for their invaluable guidance and encouragement. As we look ahead, CETE remains committed to saving lives, driving innovation, and transforming health systems through research, capacity building, and advocacy.

Thank you for being part of this impactful journey.

Message from Dr. Tania Bubela

Provost, Aga Khan University



Now that we have reached the end of 2024, I want to recognize and celebrate all that the Centre of Excellence for Trauma and Emergencies has accomplished over the past year. My congratulations to Dr. Junaid Razzak, to the CETE team, and to your dedicated AKU supporters, including Dean Adil Haider and the Vice Provost, Research, Dr. Salim Virani.

I had the privilege of speaking at the opening of the Karachi event of the Pakistan Life Savers Programme, attended by an eager audience of high school students. This was one small portion of the over 6,000 attendees reached that day, but now they know how to save a life, and more importantly, how to show others to do so as well. Of course, life saving skills, such as CPR, are essential for individuals of all backgrounds. They empower individuals to act decisively in emergency situations before professional help arrives, if such help is even available or timely.

Trauma, emergency, and disaster response are vital components of any health care system, but especially in Pakistan, which is vulnerable to natural disasters and has a growing burden of trauma and emergency cases. The work of the CETE team has contributed to AKU's rating in the top 50 universities in the world for its work on the United Nations Sustainable Development Goal (SDG) 3 - Good Health and Wellbeing.

As AKU moves to advance its Strategic Plan (2023-2028), the CETE team can contribute meaningfully to its work on environment and climate action. Pakistan is among those most vulnerable countries to climate change, which is already creating the circumstances for disaster and extreme-event emergencies. In Pakistan, extreme heat events across Punjab and Sindh, exceeding 52°C in 2024, adversely affect human health and well-being, causing crises in both urban and rural areas. Flooding leads to widespread displacement of people and immediate health emergencies. In Northern Areas, rapid melting of glaciers and permafrost pose significant risks to individuals and local communities.

What positions the CETE team at the heart of health and climate action is also work in the policy arena. We need thought-leaders to strengthen health systems to respond to the increasing frequency and magnitude of climate stressors and the emergencies they induce.

I look forward to the year ahead and increasing interdisciplinary collaboration across AKU's domains of expertise and geographies. My best to the CETE team for a productive and impactful 2025



The Centre of Excellence for Trauma and Emergencies (CETE) at Aga Khan University is dedicated to addressing critical gaps in trauma, emergency, and disaster response in low- and middle-income countries (LMICs), where health emergencies are a leading cause of disease burden. CETE operates across three main domains:



Capacity Building



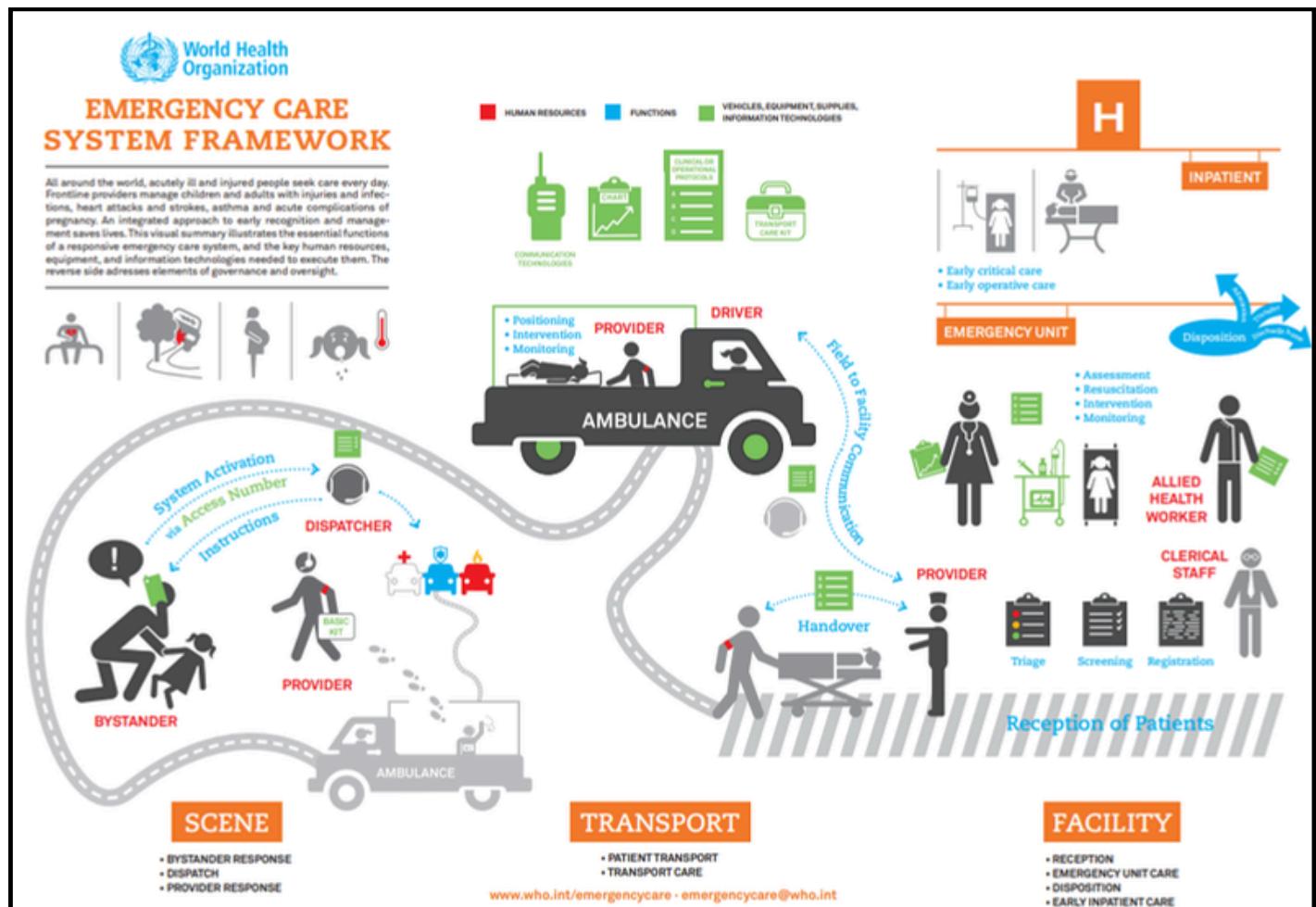
Research



Policy Advocacy

CETE's work is aligned with the World Health Organization's (WHO) framework (**as explained in the next section**) for emergency care, ensuring a holistic approach to strengthening health systems.

The Framework captures essential emergency care functions at the scene of injury or illness, during transport, and through to emergency unit and early inpatient care.





Scene



400,000+ Life Savers have been trained in CPR & Bleeding Control across Pakistan through PLSP. Life-saving skills have also been integrated into the Sindh textbook board books.

1,500+ Lady Health Workers from Sindh's most disaster-prone regions (Sanghar and Nawabshah) have been trained as **Disaster First Responders**. They are now passing on this crucial training to their communities.

CETE trains Emergency Medical Technicians (EMTs) from Pakistan's largest ambulance service (1122) in **Telephone CPR** where dispatchers guide callers in performing CPR over the phone, while also serving as 3rd party evaluators for 1000s of EMTs.

Transport



CETE's **FEAMER Trial** uses telemedicine to improve pediatric emergency care during ambulance transport through real-time communication between EMTs & doctors. In 2025, 35 ambulances with advanced technology will be added, and EMTs will be trained in telemedicine & Pediatric Early Warning Signs.

EMS Data System: In collaboration with Punjab Emergency Service Department (Rescue 1122) and Sindh Integrated Emergency & Health Services, CETE is enhancing Pakistan's prehospital **Emergency Medical Services**, focusing on capacity building, training, and data analysis.



Facility



CETE's **Integrated Disaster Response Programme** trains healthcare workers in disaster-prone areas in skills required to respond effectively to natural and man-made disasters, ensuring optimal patient outcomes.

The ongoing **Trauma Registry**, using data from 4 hospitals and 8000+ trauma patients, helps analyze trends, patient outcomes, and the impact of clinical factors on trauma care.

The **CONNECT-HTN project** tackles hypertension in South Asia, focusing on severe hypertension and improving patient outcomes through community health workers & sustainable care solutions.

Healthcare workers in low- and middle-income countries (LMICs) often face challenges in responding to disasters due to insufficient preparation and low self-confidence. CETE's **iRise study** leverages mobile health technology (mHealth) to boost healthcare workers' self-efficacy and willingness to respond to emergencies.

Celebrating

400,000+ Life Savers

Across Pakistan



Pakistan Life Savers Programme



World Restart A Heart Day 2024

6000+ students trained in CPR across Pakistan simultaneously.





On October 16, 2024, we witnessed an unprecedented moment in Pakistan's history—**#CPRUnitedPakistan!** Over **6000 students** from across the country, spanning Sindh, Punjab, Balochistan, Khyber Pakhtunkhwa, Gilgit-Baltistan, and Azad Jammu & Kashmir, united across **127 venues**, all connected via Zoom, to learn the life-saving skill of CPR simultaneously.

At the heart of this historic event, **2000+ participants** gathered at Aga Khan University's campus, while thousands more joined online. The event was graced by prominent guests, including:

- Dr. Fouzia Khan - Chief Advisor and Head of Provincial Curriculum Wing, School Education & Literacy Department Government of Sindh
- Dr. Tania Bubela - Provost and Vice President Academic, Aga Khan University
- Dr. Salim Virani - Vice Provost Research, Aga Khan University
- Dr. Rizwan Naseer - Secretary, Emergency Services Department, Government of Punjab
- Dr. Abid Jalaluddin Shaikh - Director, Sindh Emergency Service Rescue 1122



The 6000+ participants also took a monumental oath to learn CPR, teach it to others, and commit to saving lives within their spheres of influence.

#CPRUnitesPakistan on World Restart A Heart Day



2 participants trained by community members.

51 students trained by AJK Medical College, Muzaffarabad

150 students trained by Khyber Medical University

50 students trained by National Youth and Development Society

4918 students trained by Rescue 1122 Punjab

Gilgit Baltistan

Azad Jammu & Kashmir

KPK

Punjab

Balochistan

1114 students trained at Aga Khan University

Sindh





Curriculum Updates

For the 1st time in Pakistan, life-saving education is now part of school textbooks! Pakistan Life Savers Programme's modules on safety and communication, hands-only CPR, and bleeding control have been officially published by the Sindh Textbook Board in the textbooks for Grade 1 to 12.

MODULE 1: SAFETY AND COMMUNICATIONS

- Your safety comes first in emergencies. Call an ambulance as soon as possible (1023)
- You'll be asked to provide the following information on call

1. Telephone Number
2. Address
3. Age
4. Child Composer
5. Status of Consciousness
6. Status of Breathing

MODULE 2: HANDS-ONLY CPR

Signs of cardiac arrest: Unconscious/Unresponsive victim/ Absent breathing

When someone collapses or becomes unconscious - after ensuring scene safety, proceed with the following steps:

- Check for responsiveness by shaking the victim's shoulders and shouting
- Request someone to call for an ambulance
- Push Hard & Fast
- Push 100 times per minute
- Depth: 2 inches or 5cm
- Allow full chest recoil
- Push until medical help arrives or patient shows signs of life e.g. breathing

MODULE 3: BLEEDING CONTROL

Bleeding Control is carried out through 2 techniques: Applying direct pressure and wound packing

After ensuring scene safety, proceed with the following steps:

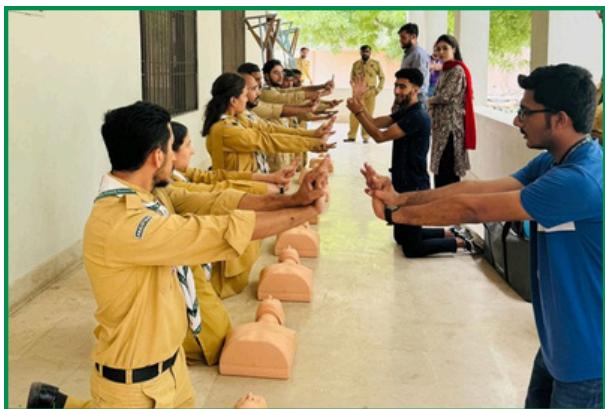
- Check for responsiveness
- Request someone to call for an ambulance
- Push Hard & Fast
- Depth: 2 inches or 5cm
- Allow full chest recoil
- Push until medical help arrives or patient shows signs of life e.g. breathing

Apply direct pressure over the wound using a Gauze Piece/Clean Cloth

Packing a deep wound involves:

- Inserting one piece of cloth into the wound
- Applying direct pressure using another piece of cloth on top

Maximum pressure on the wound for ten minutes. If bleeding continues, repeat the process to check if the bleeding has stopped. If bleeding has stopped, wrap the wound with a bandage and continue applying pressure until help arrives.



New Training Cohort

PLSP has trained over 200 Boy Scouts from the Ismaili District Boy Scout Association in life-saving skills. They're now ready to pass on this training to even more scouts! This cohort represents boy scouts from 21 JamatKhanas across Karachi, with additional leaders hailing from Hyderabad and Thatta.

Creating Resuscitation Leaders

This year, PLSP organized five Leadership in Resuscitation courses across various venues, training over 100 Master Trainers. Participants honed their skills in High-Performance CPR (HP-CPR) and learned effective team leadership strategies to excel in emergency care.



New Partnerships, Collaborations, and Engagements

CETE Partners with SMBB Institute Of Trauma to Revolutionize Trauma Care Research

CETE has partnered with Shaheed Mohtarma Benazir Bhutto Institute of Trauma (SMBBIT), Karachi—the largest trauma Centre in the city—through a formal Memorandum of Understanding (MoU) to drive advancements in trauma care research in Pakistan.

This collaboration focuses on impactful research to improve trauma care quality, facilitate secure sharing of de-identified patient data, and provide evidence-based insights for enhancing public health and clinical practices. Additionally, CETE will support SMBBIT in capacity building, offering training in grant writing, manuscript development, and data analysis, empowering their faculty and staff to drive innovation and excellence.



Engagement With PUMHS to Expand Disaster Training Programme to Nawabshah



This year, the CETE team engaged with Professor Dr. Gulshan Ali Memon, Vice Chancellor of People's University of Medical & Health Sciences for Women, Nawabshah to implement CETE's Disaster Training Programme in the district.



The Vice Chancellor has pledged full support, not only for launching the programme in Nawabshah but also for establishing it as a hub to expand into neighboring districts. With their support in improving the training curriculum through the education board, this partnership is a big step forward.



EMERGE 2024: Rethinking Emergency Care Science

450

Participants

15

Interactive workshops

12

Sessions

3

Panel Discussions

35+

Modified abstract presentations

CETE, in collaboration with AKU's Department of Emergency Medicine, successfully hosted the EMERGE 2024 (Emergency Medicine Education Research and Global Exchange) Conference on August 5th and 6th, 2024, under the theme 'Rethinking Emergency Care Science'.

The conference delved into pressing issues like evolving challenges in emergency medicine, climate change, disaster response, and the role of emergency medicine in low- and middle-income countries, emphasizing the importance of global collaboration in advancing emergency care. CETE team members and faculty showcased their expertise through impactful sessions on diverse topics:

- High-impact clinical interventions for LMICs (Dr. Junaid Razzak)
- Resuscitation science (Dr. Huba Atiq, Dr. Noor Baig)
- AI in emergency medicine (Dr. Noor Baig)
- LMIC healthcare worker readiness (Dr. Nargis Asad)
- Trauma care advancements (Komal Rahim)
- Disaster response training (Dr. Kantesha Kumar)
- Hypertension care (Dr. Badar Afzal)
- Trauma care inequities (Zabin Wajid Ali)
- Telemedicine for critically ill children (Dr. Sijal Akhtar)
- Community pre-hospital care mapping in Punjab (Dr. Bazil Musharraf)
- Modeling undernutrition in conflict, climate, and COVID-19 contexts for pregnant-lactating women and adolescents (Yasir Shafiq).



EMERGE 2024: Rethinking Emergency Care Science

The conference featured two engaging dialogue sessions addressing critical themes:

Dialogue 1: Health Policy and the Role of Emergency Medicine

Moderated by Zaheer Chaand and chaired by Dr. Junaid Razzak, this session convened policymakers including Rashid Jooma (Ex-DG Health, Pakistan), Dr. Irshad Memon (Ex-DG Health, Pakistan), Dr. Rizwan Naseer (Secretary, Emergency Services Department, Punjab), Dr. Abid Sheikh (DG, Sindh Emergency Rescue Service 1122), and Beenish Umer (Founder, Rah e Amal), to discuss frameworks for enhancing emergency care policies in Pakistan.

Dialogue 2: Emergency Medicine Leadership Challenges

Moderated by Nurali Jivani and chaired by Dr. Huba Atiq and Dr. Fazal Hamid, this session brought together global EM leaders like Dr. Benjamin Wachira (AKU Kenya), Dr. Khalid Azhar Siddiqui (AKU Pakistan), Sherin Kassamali (AKU Tanzania), Dr. Abdul Salam Khan (Shifa International Hospitals), Dr. Nosheen Razi (JPMC), Brigadier Tarique Quadir Lakhia (Sindh Integrated Emergency & Health Services), Dr. Ahson Rabbani (Childlife Foundation), and Stephen Nierman (St. Petersburg, Florida) to discuss leadership strategies in emergency medicine.



Climate Change Advocacy



CETE and PDMA Collaborate to Advocate for a Heatwave Management Plan

In collaboration with the Provincial Disaster Management Authority (PDMA) and funded by Elrha, CETE organized a stakeholder meeting as part of the Heat Emergency Awareness and Treatment project. The initiative aims to understand severe heat events in Pakistan, raise awareness, and develop a comprehensive Heat Plan to address this critical climate change issue.

Key attendees included **Dr. Sardar Sarfaraz**, Chief Meteorologist at Pakistan Meteorological Department (PMD), **Mr. Imdad Hussain Siddiqui**, Director (Operations) PDMA Sindh, Assistant Commissioners, Additional Deputy Commissioners, District Health Officers, and representatives from Rescue 1122 and Sindh Integrated Emergency and Health Services.

Discussions emphasized the importance of establishing a stronger District Disaster Management Authority (DDMA), enhancing inter-district coordination for heatwave management, and improving communication campaigns between government departments and NGOs. Stakeholders agreed to collaborate on a Heatwave Management Plan and conduct regular follow-ups to address the crisis.



AKU and Sindh Address Heat Wave Preparedness

The Centre of Excellence for Trauma and Emergencies took the first steps toward improving institutional and individual preparedness for heat waves in Sindh during a productive meeting with officials from the Provincial Disaster Management Authority and other institutions. PDMA Director of Operations Imdad Hussain Siddique praised AKU for taking "a big step in gathering different stakeholders under one roof on a very important topic." [Read More](#)

Mention in the AKU President's Review 2024

[Read More](#)



Community-Based Disaster Preparedness & Response



All Lady Health Workers in Sanghar Trained as Disaster First Responders

For the first time ever, District Sanghar has witnessed a groundbreaking initiative—bringing **all Lady Health Workers** (LHWs) under one umbrella for the CETE Disaster First Responder Course.

In flood-prone districts of Sindh, these LHWs have already begun training their communities in life-saving skills—CPR, airway management, bleeding control, wound care, and fracture stabilization, ensuring that 1,000 more individuals in each domain are ready to respond to disasters, enhancing the community's ability to respond to emergencies.



AKU Integrated Disaster Preparedness and Response Programme Officially Launched in District Benazirabad.

The Programme has been launched in District Shaheed Benazirabad, in collaboration with the People's University of Medical & Health Sciences for Women, Nawabshah (PUMHS). In this critical first phase, we are training Healthcare Workers—including Associate and Assistant Professors from PUMHS, District Health Officers from Nawabshah, and the Pro Vice Chancellor of PUMHS, who is also participating as a disaster first responder. These trained responders will then cascade the training throughout their communities.

Sanghar

251

Healthcare Workers trained as Disaster First Responders

1041

Lady Health Workers trained as Disaster First Responders

Shaheed Benazirabad

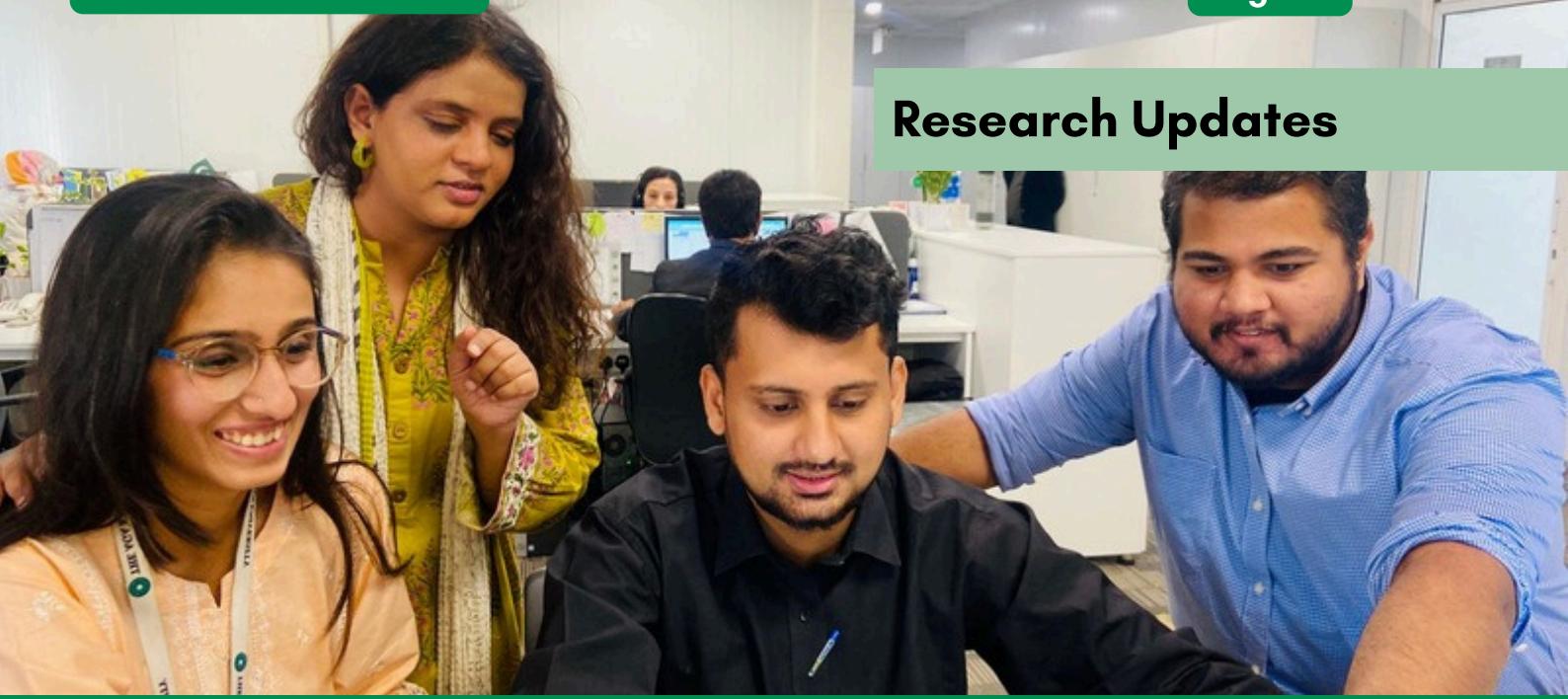
157

Healthcare Workers trained as Disaster First Responders

623

Lady Health Workers trained as Disaster First Responders

Research Updates



Coaching and Navigation by CHWs Through Telehealth for High-Risk Hypertension

Step 1: Curriculum Development

The CONNECT-HTN project has achieved a significant milestone by refining its curriculum to empower community health workers (CHWs) with the tools to guide patients in managing severe hypertension through telehealth interventions, ensuring accessible and effective care.

Led by project leads Dr. Junaid Razzak, Dr. Badar Afzal, and Dr. Unab Khan, with contributions from Zabin Wajid Ali, Dr. Nadia Fatima, and Dr. Sheza Hassan, the curriculum has been carefully tailored to be culturally relevant, comprehensive, and impactful.

Special thanks to experts Dr. Aziz Jiwani, Dr. Saira Bukhari, Dr. Ayesha Almas, Dr. Tabaan Khan, Dr. Rana Jawad Asgher, and Babar Islam. Their expertise in medicine, cardiology, telehealth nursing, and epidemiology was instrumental in shaping this initiative to enhance hypertension care.



Step 2: Training

As part of the project, the project leads are also equipping the research team with hands-on training in essential health data collection and analysis.

From measuring blood pressure, BMI, and waist circumference to assessing medication adherence, health quality, and nutrition using global standards, this training is preparing the team to drive impactful research.

EMS Data System Hub

In a pursuit to improve Pakistan's prehospital emergency medical services (EMS) through innovative research and strategic collaborations, CETE has established MOUs with leading EMS providers, including:

- **Punjab Emergency Service Department Rescue 1122**
- **Sindh Integrated Emergency & Health Services.**

These partnerships facilitate mutual growth: CETE supports these agencies with capacity building, training, and evaluations, while benefiting from access to their EMS data. By analyzing this data, CETE aims to identify opportunities for service improvement and contribute to evidence-based improvements in Pakistan's prehospital healthcare system.

Our work involves leveraging advanced natural language processing (NLP) techniques to clean and analyse large volumes of EMS data. This enables us to extract meaningful insights that can guide operational improvements in EMS delivery. Additionally, CETE has recently partnered with NED University Karachi to develop and refine these NLP models, ensuring their effectiveness and adaptability.

In a parallel initiative, CETE is expanding the scope of EMS data by integrating it with satellite-based observations. This work explores the influence of environmental and climatic factors on EMS activations, providing a deeper understanding of how external conditions affect prehospital care.



Image Credits: Punjab Emergency Service Department

Collaboration within AKU: We are currently organizing and providing this data to AKU faculty and departments upon request for their secondary analyses. Our goal is to establish a centralized repository with an accessible dashboard, enabling collaborating AKU faculty and departments to easily access and request relevant data. AKU School of Nursing and Midwifery (SONAM) serves as one such example of effective internal data sharing within AKU.

Updates from Pakistan's First Multi-Hospital Trauma Registry

With data gathered from **4 hospitals**—Aga Khan University Hospital (AKUH), Jinnah Postgraduate Medical Centre (JPMC), Civil Hospital Hyderabad, and the Syed Abdullah Shah Institute of Medical Sciences in Sehwan—and a total enrollment of **8,395 trauma patients**, CETE's trauma registry plays a pivotal role in identifying trends, analyzing patient outcomes, and understanding the impact of clinical factors and management protocols on trauma care.

Currently, efforts are focused on refining the data collection process, revisiting existing variables to enhance their utility, and simplifying follow-up outcomes. Simultaneously, the team is working on publishing research papers, shifting focus from health economics data to gaining deeper insights into clinical data.

Equi-Injury Project: Progress Update

Equitable access to quality care after injury is an essential step toward improved health outcomes in low- and middle-income countries (LMICs).

The Equi-Injury project aims to address this critical need by using integrated frameworks to explore and enhance equitable access to quality injury care in four LMICs: Ghana, Pakistan, Rwanda, and South Africa.

Here's a comprehensive look at the progress:

Stakeholder Engagement: Conducted workshops and interviews with trauma patients, community members, healthcare workers, and policymakers to explore their roles in policymaking and embedding research into policy.

A multi-stakeholder workshop united these groups to strategize on improving injury care and integrating research findings into policies. Outcomes were shared with the University of Birmingham, successfully completing key deliverables in the first quarter.



Hospital Patient Data Collection (demographics, clinical outcomes, and patient-centered care):

Aga Khan University 773 Participants	Jinnah Postgraduate Medical Centre 929 Participants	Syed Abdullah Shah Institute of Medical Sciences Sehwan 668 Participants	Liaquat University Hospital Hyderabad & DHQ Civil Hospital Thatta 559 Participants
Urban Sites		Rural Sites	

The research team gathered detailed data on:

- **Timeliness of Care:** Documented cases where patients did not seek care or expired after discharge, highlighting barriers to timely and effective treatment.
- **Provider Competency:** Assessed perceptions of safety around injury care and evaluated the competency of healthcare providers across all project sites: 13 from JPMC, 14 from AKU, 14 from Hyderabad, and 11 from Sehwan.
- **Facility Readiness Assessments:** Completed evaluations of injury care capabilities at all project sites—AKU, JPMC, Sehwan, and Hyderabad.
- **Photovoice FGDs:** Conducted focus group discussions with stakeholders using photovoice techniques to identify key priorities for quality injury care.

Feasibility and Efficacy of Ambulance-Based M-Health for Pediatric Emergencies (FEAMER)

The FEAMER Trial has made remarkable progress in exploring innovative telemedicine solutions for pediatric emergency care. This study is a collaborative effort involving Sindh Integrated Emergency Health Services, ChildLife Foundation, and Aga Khan University, supported by Weill Cornell Medicine. By leveraging real-time telemedicine in ambulances, FEAMER aims to enhance emergency care for acutely ill children and improve patient outcomes during prehospital transport.



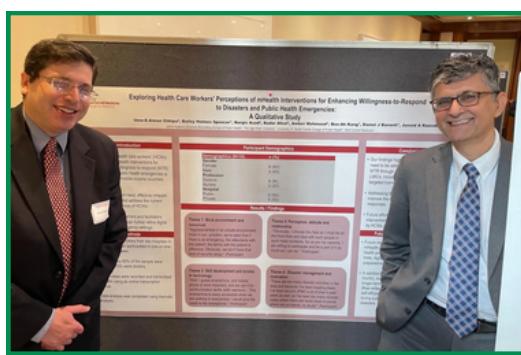
The team has completed three phases of testing. The first phases involved simulations and enrolling patients with less severe conditions, using feedback to improve the intervention. The final phase included patients of all severity levels, with a 90% consent rate and positive feedback on safety from EMTs and parents.

Intervention ambulances are equipped with advanced technology, including VoIP phones, tablets for consent and data recording, and 360-degree cameras, enabling seamless communication between EMTs and telemedicine physicians. The trial's innovative consent process ensures ethical and practical implementation in emergency settings.

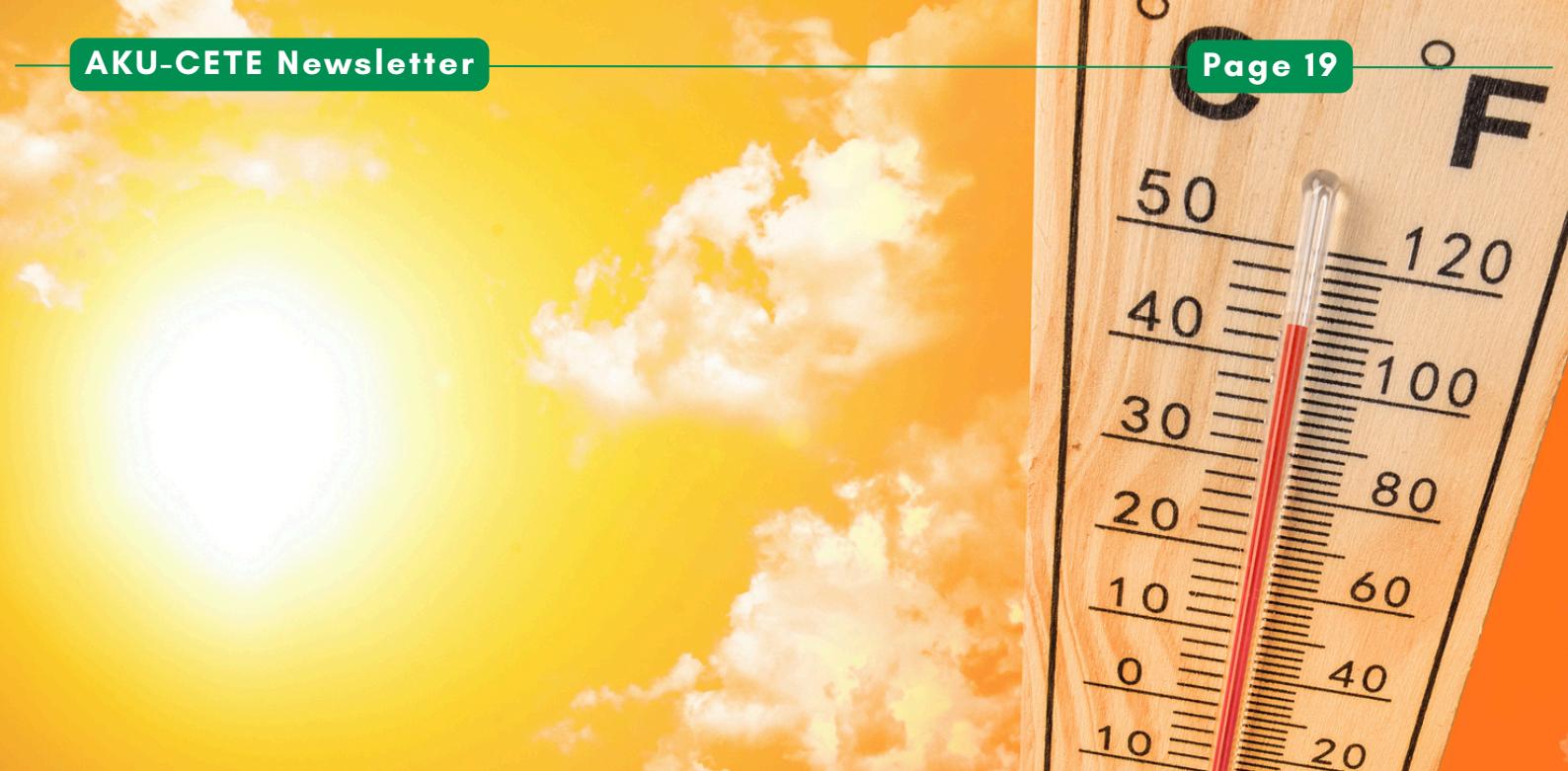
Looking Ahead: Next year, 35 ambulances will be equipped with telemedicine technology, greatly expanding the trial. All EMTs at SIEHS will receive training on telemedicine and Pediatric Early Warning Signs (PEWS) to improve their response to critical pediatric emergencies. The next phase will enroll 600 high-acuity pediatric patients, starting mid-year. Preparation includes installing equipment and creating training materials like videos and presentations to ensure EMTs are fully ready. These changes will help FEAMER set a new standard for pediatric emergency care in resource-limited settings.

Representation at 7th Virtual Healthcare in the Mainstream Symposium & Research Forum #VHC2024 hosted by Weill Cornell Medicine (New York, USA)

The iRise team, led by PIs Dr. Junaid Razzak and Dan Barnett, and Research Coordinator Bee-Ah Kang, presented their research at #VHC2024. Their poster highlighted the iRise Study, which examines healthcare workers' perceptions of mHealth interventions to improve disaster and emergency response readiness.



Dr. Junaid Razzak delivered an insightful talk at #VHC2024, showcasing how CETE's innovative solutions are transforming prehospital pediatric care through the FEAMER Trial. He also highlighted the impact of tele-consultation in driving lifestyle and behavioral changes for hypertension patients via the CONNECT-HTN grant.



Analyzing Geospatial Patterns: Medical Emergency Hotspots and Temperature Trends in Punjab

This project, funded by the University Research Council at the Aga Khan University, focuses on analyzing geospatial patterns and temperature trends in Punjab to identify regions most at risk from the harmful effects of rising temperatures on emergency health outcomes. With global temperatures projected to rise by 2-3°C by 2050, Pakistan is expected to face more frequent and intense heatwaves, which could exacerbate health emergencies, especially among vulnerable populations.

Using Poisson regression within a Distributed Lag Non-Linear Model (DLNM), we are examining EMS data from Rescue 1122 Punjab to determine the effect of ambient temperature on EMS activations and mortality for various causes, including all-cause, cardiac arrest, and injury-related emergencies. As temperatures increase, even non-heat-related health issues could worsen, underscoring the importance of understanding how heat impacts public health in real time.

Our analytical approach allows us to measure temperature effects over different lag days while accounting for the non-linear association between temperature and health outcomes. This relationship is highly context-dependent and population-specific, making it particularly important for Pakistan, where population adaptation varies. The findings of this study will provide actionable insights for targeted interventions, helping mitigate the rising health risks brought about by global warming.

New Publications (August 2024 – January 2025)



Toward Resilient Maternal, Neonatal and Child Health Care: A Qualitative Study Involving Afghan Refugee Women in Pakistan

Yasir Shafiq, Zabin Wajid Ali, Kantesh Kumar, et al.

(January 2025)



South-to-South Cooperation: Lessons from the Pakistan Life Savers Programme to Initiate a Police-based CPR Initiative in Nepal

Ramu Kharel, Junaid Abdul Razzak, Mirza Noor Ali Baig, et al.

(January 2025)



Health System Governance for Injury Care in Low- and Middle-Income Countries: a survey of policymakers and policy implementors

Junaid Razzak, Huba Atiq, Komal Abdul Rahim, Zaheer Babar Chand, Zabin Wajid Ali, Fazila Sahibjan, Mehreen Mustafa, Tariq Jakhro, et al.

(December 2024)



Exploring the long-term disability outcomes in Trauma patients: study protocol

Natasha Shaukat, Asma Altaf Hussain Merchant, Fazila Sahibjan, Ayesha Abbasi, Zeerak Jarrar, Tanveer Ahmed, Huba Atiq, Uzma Rahim Khan, Nadeem Ullah Khan, Shahid Rasul, Adnan A Hyder, Junaid Razzak, Adil Haider, et al.

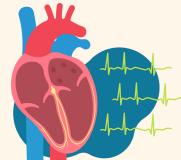
(October 2024)



In-hospital cardiac arrest in middle-income settings: A comprehensive analysis of clinical profiles and outcomes of both adults and pediatrics

Sijal Akhtar Sheikh, Huba Atiq, Asad Latif et al.

(September 2024)



Epidemiology and outcomes of out of hospital cardiac arrest in Karachi, Pakistan - A longitudinal study

Junaid Razzak, Noor Baig, Ayaz Ilyas, Munawar Khursheed, Marcus Ong, Bashir Hanif, Seemin Jamali, Ali Kashan, NadeemUllah Khan et al.

(September 2024)



Effect of maternal postnatal balanced energy protein supplementation and infant azithromycin on infant growth outcomes: an open-label randomized controlled trial

Yasir Shafiq, et al.

(September 2024)



Diagnostic Accuracy of Clinical Sign Algorithms to Identify Sepsis in Young Infants Aged 0 to 59 Days: A Systematic Review and Meta-analysis

Yasir Shafiq, et al.

(August 2024)



Predictive Accuracy of Infant Clinical Sign Algorithms for Mortality in Young Infants Aged 0 to 59 Days: A Systematic Review

Yasir Shafiq, et al.

(August 2024)



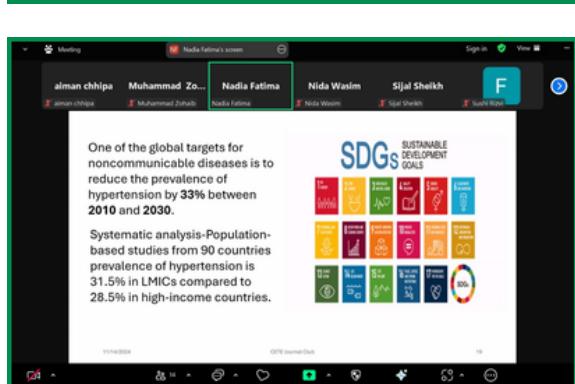
Scan the QR code to read through all of CETE's publications.

CETE Journal Club: Exploring Key Public Health Challenges



This year, we launched the CETE Journal Club, providing a platform for insightful discussions on pressing public health issues.

In the inaugural session, Waqas Ahmed delivered a presentation on "Childhood Exposure to Armed Conflict and Nutritional Health Outcomes in Nigeria." The discussion shed light on how armed conflicts increase the risk of food insecurity, a major driver of malnutrition in low-and-middle-income countries. Understanding the link between childhood conflict exposure and malnutrition is especially important for conflict-affected regions like Nigeria.



In the second session, Dr. Nadia Fatima discussed the persistent challenge of effective blood pressure control in LMICs. Despite the availability of antihypertensive treatments, these countries face difficulties in identifying individuals, initiating treatment, and managing hypertension.

8th CETE Global Lecture Series: Ensuring Care in Complex Emergencies

We hosted the 8th edition of the CETE Global Lecture Series, featuring Yasir Shafiq, Senior Instructor Research at CETE, who delivered an insightful talk on "Continuity of Care for Vulnerable Communities Facing Complex Emergencies."

The session, held both in person at AKU and via Zoom, highlighted the impact of emergencies on vulnerable communities, particularly in maternal, newborn, and child health. Yasir shared strategies to maintain care during crises, addressing barriers faced by at-risk countries.





Weill Cornell Medicine Students Complete Research Exchange at CETE

In the summer of 2024, CETE had the pleasure of hosting Serena Zampino and Mehrose Ahmed, from Weill Cornell Medicine (WCM) as part of their Summer International Projects (a two-month international summer research exchange programme). This programme offers first-year medical students the opportunity to gain hands-on experience in diverse global healthcare settings through 8-week mentored international projects, focusing on research, quality improvement, epidemiology, public health, or service-learning.

During their time at CETE, Serena and Mehrose engaged in impactful research projects under the guidance of AKU faculty mentors, while also experiencing the vibrant culture and healthcare dynamics of Karachi.

Mehrose Ahmed's research centered on evaluating the willingness and acceptability of training Pakistan's Lady Health Workers (LHWs) in CPR, utilizing both qualitative and quantitative methods. Serena Zampino focused her research on assessing the efficacy of the PLSP in increasing participants' readiness to perform CPR in the field, with a particular emphasis on understanding gender-related biases. In addition to her research, Serena became a certified CPR trainer with PLSP and visited multiple hospitals and EMS stations throughout Karachi.



Weill Cornell Medicine Students Complete Research Exchange at CETE

The CETE team is proud to have been a part of their journey and looks forward to continued collaboration with WCM students in the future.

"My time at CETE has been overwhelmingly positive. I had the opportunity to interact with the Pakistan Life Savers Programme team, visit healthcare facilities across the country, and deepen my understanding of CPR. Engaging with LHWs and learning about their work with rural and underserved communities gave me valuable insights into healthcare disparities within Pakistan. I am incredibly grateful for the mentorship and support I received from the entire CETE team, and I look forward to future collaborations for the betterment of the country."



Mehrose Ahmed



Serena Zampino

"My time at AKU has been immensely rewarding. Participating in PLSP sessions and visiting various health centres provided me with valuable insights into the differences and similarities between healthcare systems in Pakistan and the US.

This experience has significantly contributed to my career and personal development, and I am grateful to everyone at AKU who supported me during my stay."



To learn more about the Weill Cornell Medicine Summer International Projects, [click here](#) or scan the QR Code.



New Video Productions



H.E.A.T - Heat Emergency Awareness and Treatment

AKU Medical Coll... 3.97K subscribers

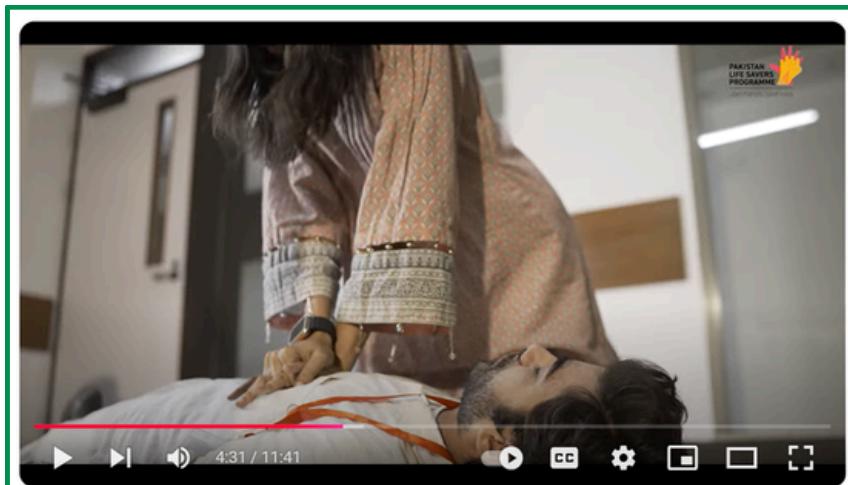
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Click on the video or scan the QR code to play the full video.

Raho Ehtiyaat Ke Chaoon Mein – As temperatures in Pakistan continue to rise due to climate change, heatwaves are becoming more frequent and severe. To tackle this growing public health crisis, CETE (with funding from ELRHA) has launched the Heat Emergency Awareness and Treatment Trial (HEAT). This awareness video was produced and disseminated as a part of the HEAT study and provides critical information on recognizing heat-related illness symptoms, effective treatments, and important safety precautions.



Pakistan Life Savers Programme | Learn CPR and Bleeding Control

AKU Centre of Excell... 308 subscribers

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Click on the video or scan the QR code to play the full video.

Join Hands, Save Lives – The Centre has launched a new instructional video for the Pakistan Life Savers Programme. Designed to teach CPR and bleeding control, the video has been distributed to master trainers and trainers nationwide. The updated version is more concise, with clearer concepts, making it easier to understand and use in training sessions.

Team Achievements

Dr. Noor Baig wins the Best Oral Abstract Presenter Award at the Emirates Society Of Emergency Medicine Conference 2024 in Dubai:

Dr. Noor Baig's study, "Effectiveness of the Chain of Survival for Out-of-Hospital Cardiac Arrests in Low-Resource Settings," and PLSP's efforts to enhance emergency care were proudly showcased.



Congratulations to Dr. Yasir Shafiq, Senior Research Faculty at CETE, for earning his PhD from Centre for Research and Training in Disaster Medicine, Humanitarian Aid and Global Health!

Dr. Shafiq's thesis, "Intersection between Maternal, Newborn, and Child Health and Complex Emergencies in Conflict-Affected LMICs," addresses critical healthcare challenges in conflict zones, offering solutions to strengthen crisis healthcare systems and advance global health equity.

Congratulations to Zabin Wajid Ali for being promoted to the role of instructor!

In her new role, she will serve as the Qualitative Lead for the Centre's Connect-HTN and Equi-Injury projects and Chair, Departmental Review Committee. Zabin will focus on the Centre's grant writing and publications while also dedicating time to teaching at AKU Community Health Sciences.



Ume Aiman Chhipa wins the Professor M. Shafy Quraishi Memorial Award for Best Scientific Abstract at Traumacon 2024!

Competing among 25 participants at the Shaheed Muhtarma Benazir Bhutto Institute of Trauma's traumatology conference, Aiman's research on the differences in mortality rates among teenagers and pre-teens in road traffic accidents in Pakistan stood out for its depth and impact.



How AI Innovations are Shaping a Sustainable Future for Healthcare in Pakistan

Rameez Ur Rehman Siddiqui
Analyst (Data)



Pakistan, ranked as the 5th most climate-vulnerable nation by the Global Climate Risk Index 2021, has endured billions in economic losses, compounded by widespread displacement and health crises. The dual threat of climate change to the nation's economy and the well-being of its people underscores the urgent need for solutions. Artificial Intelligence (AI) is proving to be a game-changer, driving innovative strategies for combating climate challenges and fostering sustainable development.

AI and Climate Resilience

Ahya, a Saudi-Pakistani collaboration, provides AI-driven tools for measuring and reducing greenhouse gas emissions. AI systems in Pakistan analyze data from environmental sensors, satellite imagery, and weather patterns to monitor and predict air pollution in real-time. Tools like RainPredict use satellite data and predictive analytics to forecast floods, mitigating economic and human losses from climate disasters.

Transforming Healthcare with AI

Although AI in healthcare is still nascent in Pakistan, it holds immense potential to address resource shortages and improve healthcare delivery, particularly in combating climate-induced health challenges. Globally, AI tools such as DeepMind enhance diagnostic accuracy for conditions like diabetic retinopathy, while platforms like PathAI improve cancer detection in tissue samples. Babylon Health's AI-powered virtual consultations and symptom checks are expanding healthcare access. Despite being in the early stages, Pakistan has made significant

strides in healthcare AI. Studies on Radiomics and Radiogenomics using Machine Learning tools have enhanced diagnostic accuracy. Additionally, collaborations like the one between AKU and GIKI for classifying lower-grade gliomas using computer vision are setting benchmarks. AKU CETE is also pioneering a project with the Bill and Melinda Gates Foundation, using ML algorithms to predict malnutrition in pregnant and lactating women (PLWs) caused by climate, COVID-19, and conflict.

Challenges and the Road Ahead

Implementing AI in healthcare in Pakistan presents several challenges. Effective AI systems require vast amounts of data, raising concerns about privacy and the need for robust infrastructure. Additionally, region-specific data is essential for developing accurate models, as generalized AI systems often struggle to account for unique genetic and environmental factors. The diversity of genetic and biological traits across regions means that AI models designed for one area may not perform as well in another. To overcome these challenges, building a skilled workforce in AI and environmental sciences is crucial for scaling and successfully implementing these technologies.

Platforms like AI-Pakistan, PIAIC, and SPCAI are leading the way by supporting research in areas like large language models (LLM) and generative AI applications. By addressing challenges and leveraging these advancements, Pakistan can strengthen its climate resilience and contribute meaningfully to global environmental and healthcare progress.

The Rising Issue of Hypertension and the Essential Role Community Health Workers Play in Screening, Education, and Management.

Dr. Nadia Fatima
Research Specialist



Hypertension, often called the "silent killer," is a leading cause of cardiovascular disease and a persistent global health concern, affecting an estimated 1.28 billion adults worldwide, with two-thirds living in low- and middle-income countries.

This silent killer is responsible for a significant burden on health systems and contributes to premature mortality. In Pakistan, hypertension affects 46.2% of adults, as reported in the National Diabetes Survey (2016-2017), with about half of these cases remaining uncontrolled. Addressing this crisis in the context of the country's resource-limited and overburdened healthcare system demands innovative solutions and collaborative strategies, such as team-based care and task shifting.

Community Health Workers (CHWs) are trusted members of the community, who play a vital role in bridging the gap between under-served populations and healthcare systems. Their culturally sensitive approach enables them to provide health education, conduct screenings, and deliver services tailored to local needs. Globally, CHWs complement physicians in team-based care models by reducing workloads, offering patient education, behavioral coaching, and preventing adverse events.

The advantages of involving Community Health Workers (CHWs) in hypertension management are significant. They can enhance patient support through education, promote sustainable lifestyle changes, and improve adherence to medications. However, challenges persist, including patient perceptions—some individuals may view care from non-physician health workers as substandard or inadequate. Additionally, legislative and policy-related obstacles, such as unclear roles, lack of supportive frameworks, or restrictive regulations, can hinder the adoption and success of CHW-based programmes.

To maximize CHWs' potential, policies should clearly define their roles, provide ongoing training and certification, and empower them to manage uncomplicated hypertension. This investment strengthens primary care systems and supports the global health goal (SDG 3.8) of reducing cardiovascular disease through prevention, early detection, and treatment.

Welcoming Fresh Faces to the Team!



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For the latest updates on **Pakistan Life Savers Programme** training sessions and other engagements, connect with us on social media:

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