

# SPRTAN

Serving Patients At Risk Through Agile Novelties

The Emergency Medicine residency program of Aga Khan University Hospital holds the honor of being one of the first CPSP accredited residency program of the country. The program has a rich history of resilience, grit and innovation. Our program provides a highly supportive and synergic training environment in a high volume, high acuity, and high efficiency setting, striving towards a leading academic program of the country.

The program aspires to educate a diverse generation of emergency physicians endeavoring towards transforming health and healing through innovation, research and evidence based empathetic care. SPARTAN – the name conjures Greek warriors in a battlefield often using austere means in the face of adversity. ED Physicians, residents particularly, being at the frontlines of healthcare (pre- or intra-covid) are the living embodiment of Spartan qualities.



## Message from the Chairman

Dr Asad Iqbal Mian

Dear readers,

Welcome to the inaugural issue of our newsletter!

SPARTAN – the name conjures Greek warriors in a battlefield often using austere means in the face of adversity. ED Physicians, residents particularly, being at the frontlines of healthcare (pre- or intra-covid) are the living embodiment of Spartan qualities. With minimal resources at their disposal, our front liners have demonstrated amazing strength and grit. Regardless of the uncertainty of the pandemic, our residents have been no different from the Spartans – facing each moment with remarkable bravery, resilience, and humility.

I congratulate the editorial team for selecting such an appropriate name for this newsletter, led by our newest Program Director, Dr. Shahan Waheed. In this exciting first issue, we bring to you untold narratives that are hard to find in traditional newsletters. For instance, you will read medicine-based stories of residents, innovation updates, digital learning, emergency medicine ethics, design thinking in emergency medical education, and much more.

The world is facing an ever increasing chaos and it appears highly unlikely that we will go back to a pre-pandemic norm where people will feel entirely stable and relaxed. There is a high probability of a worldwide economic recession after the pandemic, which will inevitably worsen environmental degradation, including the ever-looming biodiversity collapse. These events are unlikely to happen one after the other. However, what is more likely is an overlap in the aforementioned catastrophic events. How does one then remain positive and upbeat as an ED physician – keeping a laser-sharp focus on what's within your control while acknowledging the grave realities that lie beyond it.

I don't have the answers to the above but as I look through this newsletter and the diversity of thought and talent in there, I'm reminded of my primary duty: to focus on our trainees and celebrate their wins and commiserate with their losses. Thus, I invite you to read this novel newsletter, and reflect on its content. Let us know how we can improve it and highlight narratives that inspire hope, sincere reflection and critical thinking about the future.



## Message from Program Director

Dr Shahan Waheed

I am super excited and thrilled to launch our first emergency medicine residency program newsletter “SPARTAN – Serving Patients At Risk Through Agile Novelties”.

Before you delve into this outstanding collection of hard work, innovation and optimism, let me give you a brief introduction to our program. The emergency medicine residency program at Aga Khan University Hospital is one of the first College of Physicians and Surgeons Pakistan (CPSP) recognized programs of the country. We have been training emergency medicine physicians for longer than almost anyone else. The program does not only focus on the technical aspects of being an emergency physician, but also promotes habits and behaviors that will lead to long and successful careers as emergency physicians. We also host some of the best educators, clinicians, and researchers in the emergency medicine fraternity of Pakistan. Since its inception in 1994, our program has hit multiple milestones. It currently enrolls 34 residents and a majority of its trained emergency medicine physicians are now working as consultants. We also take great pride in both our tradition of leadership and cutting-edge care for the acutely ill or injured

patients in Pakistan. The clinical curriculum is deliberately designed to create graduates with advanced skills in lifesaving procedures, critical care, trauma and complex pediatric illness. Residents are also provided opportunities to engage in education and research at a national level. The clinical toxicology unit of our program also holds the honor of hosting the country's only clinical toxicologist. As the leading academic program in the country, The Aga Khan University Emergency Medicine Residency Program uses a highly supportive and synergistic training environment to educate a diverse generation of emergency physicians who will transform health and heal through innovation, research and empathetic care.

SPARTAN will provide you an insight into the tremendous amount of work we do in emergency medicine training, physician well-being and innovation in medical education. I hope you will like it! I also want to give a shoutout to our outstanding residents, instructors and consultants in emergency medicine who have put a lot of effort in creating the content and contributing to this publication. We will be looking forward to suggestions for improvement and contributions.

Best of Luck!

# Reimagining the healthcare undergraduate experience through human centered design thinking approach

Going past health and disease towards development and sustainably improving human condition is the need of the hour, for which, innovation and reengineering the healthcare system becomes key. Medical care alone cannot have a substantial effect on overall population health, as the focus tends to be disease-centric rather than patient-centric.

As far as clinical medicine is concerned, guidelines and evidence-based protocols are useful, there is still room for critical thinking, experience and common sense to guide one's decision making and problem solving. A need for combination of basic scientific knowledge, adaptable learning and identifying problems will move the students towards a more knowledgeable place. This could be done by transforming healthcare education globally, which will ensure innovative, creative and entrepreneurial experiential learners who will ease into healthcare leadership of tomorrow, ready to effectively solve problems.

CCIT has demonstrated that innovation can be viewed through an expanded multi prismatic lens. One way of innovatively reimagining the healthcare education is through Human Centered Design Thinking. Human centered design thinking is an iterative process of problem identification, ideation, experimentation.

This approach utilizes the concept of empathy, to help identify and understand the problem, brainstorm ideas via divergent and convergent thinking, prototyping a solution, testing it, to get an end user to experience and feedback then repeating the prototyping and testing phase if necessary. This approach has been implemented multiple times as team-based teaching/ learning opportunities for medical and nursing students as well as other students and professionals to come up with innovative solutions.

For best practice, innovation, creativity and entrepreneurship-ICE, needs to be embedded in an organization's DNA, including but not limited to undergraduate educational agenda. Such an integrated approach will build the case for holistic innovation in healthcare, that transcends health and disease and truly addresses the human condition through human development promoting an innovation ecosystem within and outside of the healthcare domain.

Mehreen Sulaiman

CCIT

Reference:

Medjack- an extraordinary journey of an ordinary hack

# Innovations in Emergency Medicine Education

## RED Man

RED stands for “resuscitation in the emergency department.” RED-man is a hybrid standardized patient/task trainer simulator that includes a red mask used to hide facial expressions. This hybridized approach allows trainees to perform basic physical examination and history techniques on the participating facilitator while learning about diagnosis and management of a diverse range of acute pathologies. All the equipment utilized for simulations is low-cost. Refurbished medical supplies or low-fidelity models constructed from basic, readily-available materials can be used.

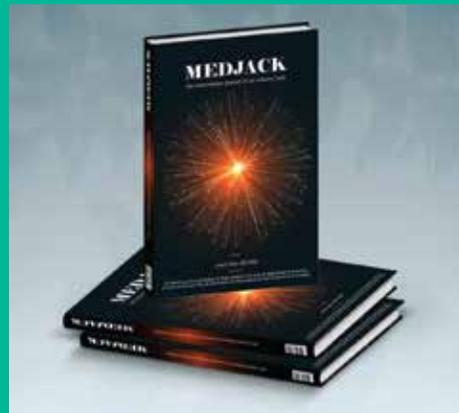
RED-man: The live patient simulator is played by a physician facilitator. The RED-man gear includes straps (tourniquets) at the forearms for securing IV cannulas and a belt at the chest for securing items such as defibrillator pads and chest tubes. The work got acknowledged in Academic Life in Emergency Medicine (ALiEM), a virtually-based, social enterprise, medical education startup.



## MEDJACK: the extraordinary journey of an ordinary hack!

Based on our experience of founding a healthcare innovation/incubation hub, Medjack is about clever ways of hacking healthcare and other problems to create sustainable solutions. We bring you the distillation of over a decade of multi-disciplinary experience at the Aga Khan University, a premier academic healthcare institution with global recognition.

Although dedicated primarily to students interested in low cost healthcare-related innovation and entrepreneurship, delving further will reveal the general principles for solving systemic problems around innovation that exist in every organisation. You can learn to change mindsets from academic to entrepreneurial reliance, from systemic to individual efforts (or vice versa) and from grant funding to seed funding by involving investors. Incidentally, you can also learn how to build and maintain a healthcare-centric innovation/incubation hub using Jugaad (low cost and frugal) means. Medjack is different from other books in this space - it tries to get across a certain innovation ethos through multiple, simple case studies. If you're passionate about embedding innovative, creative and entrepreneurial thinking into your healthcare (or other) organisation's DNA, at very low (or no) cost, then this book is for you!



## Read to change



Read to change is a program started in April 2021 with a goal to share books, both nonfiction and fiction, medical and not, that can deepen our clinical practice, and commitment to delivering great medical education to learners. As residency is a time of immense professional growth, it makes sense that we would augment the academic and technical learning with stretching our capacity for empathy, imagination, creativity and knowledge, which can be done by reading books written for a broader audience and in a softer language than a textbook. In this program every month the residents are introduced to a book that is pertinent to medical practice, self-help and the culture of medical education.



## Specialized Lectures in Emergency Medicine – SLEM

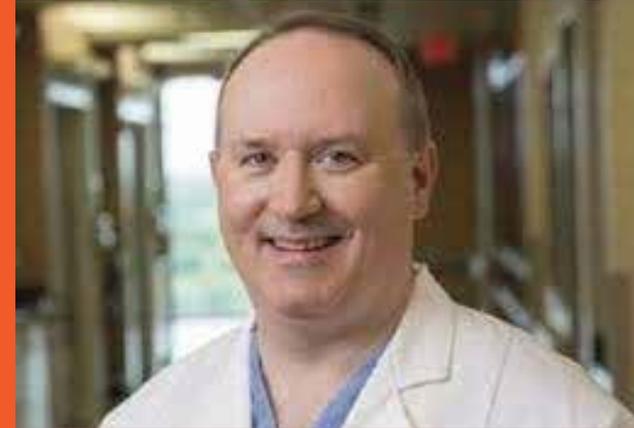
To strengthen the developing country emergency medicine residency learning an education program with an understanding of the impact of social learning underpinned with the idea of community of practice was started. The program involves physicians from the United States, United Kingdom and Canada working in emergency medicine and critical care. The topics were diverse and pertinent to the emergency medicine clinical practice of Pakistan. This program was started in April 2021 and till date we have hosted 9 emergency medicine and critical care physicians. The selection of the presenters were based on numerous FOAM resources and scores of each were reviewed on an objective grading system that was adopted from Academic Life in Emergency Medicine (ALiEM). They were further reviewed based on their content, referencing of the content in peer and non-peer reviewed publications, the evidence shared in their presentation, content gradation as per the social media index and by reviewing the faculty profiles and area of expertise from the university website. The feedback of the series was excellent and it was well received by the residents in updating their clinical practice.

## Online courses to fill the gap of learning during COVID



### Command the airway (5.5 CPDs)

A simplified and incrementalised approach to laryngoscopy, this course includes six lectures plus multiple tutorials on the skills of airway management by Professor Richard Levitan who is an adjunct professor of emergency medicine at Dartmouth School of Medicine, visiting professor at University of Maryland. He is the director of the New York City Airway Course, the Yellowstone Airway Course and the worlds largest cadaver airway course. The course was well received by our senior residents.



### Suction-Assisted Laryngoscopy (with simultaneous) Airway Decontamination – The SALAD Technique (2 CPDs)

Improving emergency airway management for critically ill patients relies on techniques that enhance first-pass success, as serious complications in this setting occur with repeated attempts. The Suction-Assisted Laryngoscopy (with simultaneous) Airway Decontamination technique (“SALAD technique”) is intended to address the principal issues which cause the failure of basic and advanced airway management on the first attempt. This virtual course includes lectures with procedure tutorials. The course is developed by Dr Jim DuCanto who is an anesthesiologist with 20 plus year experience and the originator of the SALAD technique. The course was well received by our senior residents with excellent feedback.

# Mindfulness in the Emergency Department (MED): An asynchronous learning course to practice mindfulness and resilience in the emergency room



In May 2021 a physician wellness program was launched called "Save the Heroes". Under the umbrella of it many activities were planned. The emergency department due to its fast-paced, stressful and frequent crucial rapid decisions trigger cognitive exhaustion due to which emergency physicians are especially vulnerable to burnout. Mindfulness practices have been defined in the literature and it focuses on the well-being and resilience. Mindfulness is characterized as the ability to use tools and expertise to mentally respond to environmental problems to fulfill psychological needs.

To overcome burnout, a self-directed learning course was developed for emergency physicians that include learning goals on mindfulness, peer-group discussions and tasks, lectures, role playing and practicing meditation exercises. The program aims to concentrate on the foundations of mindfulness and resilience. This program was launched with first lecture through zoom by Dr K Kay Moody on practicing resilience during emergency medicine practice.

## Rockstar Residents

Residency is a key component of graduate medical training, offering an in-depth exposure to medical practice. The emergency medicine residency requires long hours and personal sacrifice dedicated to, education, study, quality patient care, patient advocacy, research and leadership. Emergency Medicine residents are an integral part of the healthcare team, often serving as indispensable resources for medical students, especially during clinical clerkship. In April 2021 the residency program starts honoring their residents through a program called "Rockstar Resident". The program evaluates residents monthly based on their academic, clinical, and scholarly contribution.





## Honoring 2020 Graduating Residents

*"While the journey seems long and hard at the beginning with perseverance and dedication the rewards at the end last a lifetime."*

William R. Francis

## Research for Residents

The emergency medicine research team has implemented various research training activities since January 2021 in the department.

We have ongoing series of interactive sessions on research methodologies. We have taught observational designs in detail, interventional designs are planned in the upcoming months. We have used innovative online teaching methodologies to engage the learners, such as the use of "Padlet", an online web-based virtual board, where the participants interacted with the facilitators on the given research tasks. Furthermore, they were engaged through online quizzes and other virtual teaching tools.

Journal club (JC) is organized alternate month. Each JC is presented by combination of senior and junior residents, supervised by an EM clinical faculty member and a research fellow. The selected articles were shared with the department a week before the session with some key questions for discussion.

JC sessions help the team in updating their knowledge with current evidence-based emergency medicine practices in addition to acquiring critical appraisal skills of published material.

Moreover, we have VIP (Violence and Injury Prevention) webinar series facilitated by local and international speakers from Johns Hopkins and George Washington universities in collaboration with the Fogarty team. This series focus research on trauma and injury.

A series of hands-on workshops were conducted on the Use of "REDCap" a web-based application for building and managing online data collection databases and "Applying for research ERC (Ethics Review Committee) approval through "Infonetica", a web-based ethics review manager software. Last but not least, the EM residents and faculty members were split into small groups for the development of research grant application for funding call at AKU "Aleem Saeed Qureshi and Kulsum Aleem fund for medical discovery". Overall, six groups successfully applied for the grant. These groups were actively mentored for 9 weeks in writing the proposals, outlining the research project timelines, computing budget, and other research logistic planning. Although none of the groups secured the funding, the application process has been a valuable experiential learning opportunity for the teams.



**Annual  
Residents  
Brunch**

## Upcoming talks in Specialized Lectures in Emergency

### Developing a patient safety & quality culture in residency program

Friday, October 08, 2021  
04 PM PST through Zoom



Katherine Henderson MS, FRCEM  
President Royal College of  
Emergency Medicine  
Consultant Emergency Medicine  
Guy's & St.Thomas Hospital

### Emergency Department Management of Acute Atrial Fibrillation

Thursday, October 14, 2021  
06 PM PST through zoom



Professor Ian Stiell MD MSc FRCPC  
Distinguished Professor & Senior Scientist  
Ottawa Hospital Research Institute  
University of Ottawa

# Pediatric Emergency Medicine Course – Child Life Foundation

On May 2021 the residents of emergency medicine residency program in collaboration with child life foundation were given an opportunity to take basic and advance pediatric emergency medicine course. The course consists of weekly modules, mock runs and helps resident in developing a standard approach of managing a sick child.





## Faculty Insight Dr Muhammad Baqir

### 1 What made you choose Emergency Medicine as your final calling in life? Any personal experience that led you to this decision?

I asked myself in college what it was that excited me and the answer was rather obvious: helping patients in times of crisis. The immediacy and hustle bustle of the ER excited me then and continues to excite me to this day. No day in the ER is quite like another, no moment is dull; you never know who is going to be brought through the door or in what condition.

But working in the ER is challenging. It involves responding to time-sensitive health crises and making decisions quickly, sometimes within seconds, which presents the unique opportunity of refining critical thinking skills. I realized at an early age that this fast-paced, high acuity nature of the ER, where there is no option but to be on your toes every single minute, was my calling. The journey is rewarding and, may I add, adventurous, and I don't think I could have gotten the opportunity to witness so many diverse cases in any other field of medicine.

### 2 What made you choose AKU?

AKU has long carried the reputation of a prestigious institution; it is a teaching university, affiliated with a hospital that follows best practice guidelines. AKU gives its faculty the opportunity of being physicians, teachers and mentors, all at once; it was a no-brainer for me to apply for a job in a place like this. Choosing to work here was the best professional decision of my life. I get to work with some of the most brilliant, innovative minds of the country (both students and colleagues); this level of exposure couldn't be achieved anywhere else.

### 3 Had you not been an EM physician what would you have chosen and why?

Oh, I was similarly passionate about dermatology, so I might have chosen that as an alternate career choice. However, destiny has its own role to play and I'm extremely content with where I am now. I was born to work in the ER!

### 4 What major difference do you see in the AKU ED today compared to 10 years back? The Good and Bad.

As for the good, ER has got departmental recognition with an excellent Residency

Training Program now, which was unfortunately missing 10 years ago. Over the years, we have expanded our space, moved with the times, modernized our practices, incorporated advanced technology into our work, and are now able to cater to a sizeable number of patients every single day (we still have a long way to go as our rapidly increasing population demands greater expansion of beds).

As for the bad, it upsets me when I see clinical work being sidelined and disproportionate emphasis being laid on documentation and research work. In the past, we had eminent and knowledgeable 'clinicians' who made the effort to thoroughly examine the patient physically, prior to ordering relevant diagnostic tests. Medicine has become more mechanic and commercial now, and it is bizarre to see unnecessary laboratory tests and radiology being carried out blindly for every single person that knocks our door. We really need to reflect upon ourselves and question the rationale behind the innumerable prescriptions/lab tests/radiology that we order.

**5 What advice would you like to give to your juniors in ED today?**

Well, EM is tough and can be draining so you must detach from work whenever possible and find hobbies/interests that help you unwind (exercise, cooking and gardening in my case). Secondly, give your 200% to every patient and examine them well. Instead of merely fulfilling documentation formalities, try to invest time into the merits of each case, think logically, think FOR the patient and how you can make his/her life easier. Eliminate unnecessary medications. Doing laboratory tests without any check and balance should not become a trend. If you do not make use of your clinical skills, you're just a doctor by name! And I am not sure if that will give you a sense of fulfillment

**6 Three life lessons/ Rules to go by- that the floor of EM has taught you that you would like to pass on to your juniors and seniors.**

1. Gratitude is the only attitude - when I come across patients from all walks of life, with issues ranging from deteriorating health to financial crises, it only makes me thank the Almighty for every little blessing in my life.

2. There is no short-cut to success. You've got to work hard and prove your mettle every

single day, especially as the world gets increasingly competitive. Some days will be rewarding while many a times, you will be demoralized when things don't work out. But you have to continue hustling even when you don't get the results. What you do consistently over a long period of time, ultimately defines your success.

3. You have nothing but your professional ability in life. Invest in yourself, increase your knowledge, and elevate your skill set. As long as you are a good clinician (with a special emphasis on that word), it doesn't matter what credentials you have on your CV, how many research papers you have published or how fancy your degree is.

**7 What is your biggest accomplishment so far- 1 personal -1 professional**

**Professional:** I could mention teachings awards or a promotion but what gives me a genuine sense of accomplishment is when a patient tells me, "Dr. Sahab, we come to you because we have a blind trust in you." There is nothing more gratifying than hearing something like this. It validates your hard work, sincerity and honesty all at once. When my patients trust my expertise and know that they are into the hands of someone who will put the patient first at any cost, I know that I am on the right path.

**Personal:** Well...my wife has been a pillar of strength and she's stood by me in my most difficult times, rock solid. When I look back and reflect on where we started from and how far we have come, it gives me a strong sense of accomplishment. And then my children, of course. My heart swells with pride when I see them spread their wings and live life on their own terms, or whenever my little one enlightens me with her wisdom and perspective. So yeah, having a supportive partner, raising our kids in the manner that we did and then witnessing our hard work bear fruit, has got to be my greatest personal achievement.

**8 What is your driving force of inspiration to come to work every day with the same enthusiasm and energy- considering EM sometimes feels like a thankless job?**

It is honestly very simple: I want to keep working till my last breath. Hard work comes to me as second nature. I have always derived my sense of fulfillment from working hard. And I want to live a hundred plus years, with good health, a peaceful mind and a passionate heart. So as long as I keep working, I am set. It is food for my soul. It is sacred to me. Not all of us are privileged enough to be leading comfortable lives and God has given me a lot more than I deserved. So I take my job as an opportunity for service and therefore, the

"thankless" aspect does not bother me much. I am just so proud of my profession that I wish to spend another several decades contributing to the health sector and doing my part in making a difference to this great country.

**9** Everyone is aware of your gardening/farming meticulous hobby- Does that help you maintain emotional well-being in a chaotic EM field?

Oh, yes! There's no denying that my job is stressful. It can be frequently exhausting so my hobbies play a part in helping me relax and realign my thoughts. I also believe you can't give your 100% to work unless you have a sound mind. Having other areas of interest to channel your creativity is important and doctors should definitely have a life beyond work.

**10** Are there other hobbies/interests?

Well, I'm an extremely adventurous person and as of now if you ask me to wrap up everything and go for a hunting/fishing/hiking expedition, I will do so right away and whole-heartedly. Maybe I should take a break from work and submit a job application for Man vs Wild on Discovery Channel! On a serious note, travelling with my family and exposing myself to different cultures, languages and cuisines is something I live for. I sometimes cook at home; nothing makes me

happier than making barbecue over an open fire.

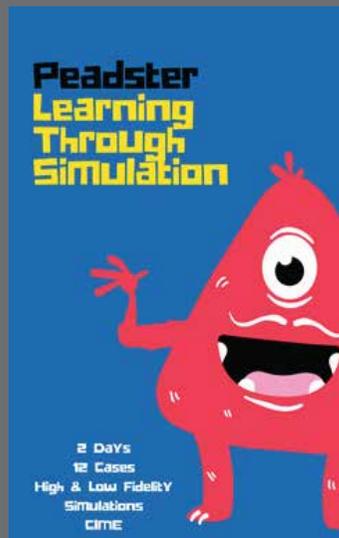
**11** If you could go back in time and change anything - what would it be and why?

It may sound diplomatic and politically correct but I would change nothing. My failures and hardships have led me to where I am today and I had to go through my own learning curve like everyone else. So, I have embraced everything happily and taken on challenges light-heartedly. "Everything happens for the right reasons" is not merely a textbook statement and you realize that with age.



# ED workshops 2021

PEADSTER – a simulation-based curriculum to practice pediatric emergency



Wounds & Lacerations –  
Principles of practice in emergency care and closure. medicine cases



Focused Assessment  
Sonography of Trauma in  
Emergency Department –  
FAST-EDmedicine cases

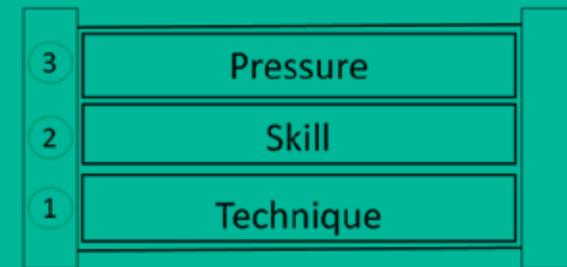


# Resuscitation in the Emergency Department – RED



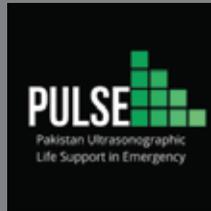
Since the inception of emergency medicine residency program in the country the resuscitation training has gone through many modifications through introduction of simulations and mandatory life support courses certifications. The emergency care providers rise to their professional best when evaluating, diagnosing, and providing life-sustaining therapies to critically ill patients. Whether performing rapid sequence intubation, initiating and adjusting mechanical ventilation, titrating vasoactive medications, administering intravenous fluids or performing cricothyroidotomy in CICO situation, the emergency physician must be an expert at resuscitation. In recent year, it has become common for critically ill patients to remain in the acute setting for exceedingly long periods of time. In fact, the amount of critical care delivered in emergency departments across the Pakistan has escalated more in the past few years. Resuscitation training is complex as most of the courses currently available offer learning through a structured format through an algorithm or checklist approach but in actual situations there are multiple issues that come into interplay that may affect the outcome of the resuscitation considerably. This is especially true for low resource settings where support in the form of trained staff and materials is mostly not available. In our resuscitation in the emergency department course, we offer training through our methodological model of complexity learning “The Resuscitation Ladder”.

The resuscitation ladder provides learning through sequential three steps of technique, skills, and pressure. Each clinical case is assessed through sequential increased complexity of technique in which approach is assessed and taught. This is followed by skills in which differential procedure skills are assessed in the same case through a different simulation followed by final step in which similar case with critical factors incorporation and using high fidelity simulations are assessed and taught. The workshop has been conducted in many parts of the country and received excellent feedback.



Our team delivering RED workshop at Pakistan Airforce, Faisal Base

# Pakistan Ultrasonographic Life Support in Emergency – PULSE



Dr Noman Ali  
Assistant Professor  
Associate Program Director  
Emergency Medicine

Using point-of-care ultrasound (POCUS) in life threatening condition is one of the successful stories of carrying portable technology in managing sick patients in the emergency room. Pakistan Ultrasonographic Life Support in Emergency-PULSE is a workshop that has been uniquely designed to meet the demands of our emergency care physicians. It is based on point of care ultrasound where we will provide the opportunity to all the participants to have hands on practice. In this course we will be covering all the life-threatening emergencies and combining Advanced Life Support and Echocardiographic life support algorithms to come up with an easy to use practical approach. The knowledge instilled at the end of this workshop will make a marked difference in clinician's skills and patient care.

# Instilling Creativity in the Emergency Medicine Residency Program



Dr Noor Baig  
Assistant Professor  
Emergency Medicine

Life in the 21st century is different in many ways as compared to the way the humankind was used to in the past. The challenges that the world face today are more complex than ever before. Healthcare and especially Emergency Medicine is not immune to them either. From clinical care to academics and from research to administration, the trainees in the field of Emergency Medicine require novel and creative thinking skills to navigate these challenges effectively. The Postgraduate Training Program of the Department of Emergency Medicine is keen to help its trainees master these "creative skills" and weave them in their lives to excel as a supreme Emergency Physician and a better human being!



## Appreciation

Thank you Dr Badar Afzal our previous residency program director who stood resiliently and lead our residency program so well!

# Publications

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