



Viewpoints

Transforming the emergency care scenario in India: A make in India approach

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Dr. Niraj, a surgeon met with a road traffic accident and was profusely bleeding. His doctor wife, a pathologist was also injured and took him to a medical college casualty. The casualty medical officer was stressed seeing critically ill polytrauma patients. He requested a surgery PG to evaluate the patient. The PG arrived 15 min later after completing an emergency surgery. Meanwhile CT of Head was ordered. When the PG arrived in the casualty, he could not feel a pulse and IV line could not be placed. He spent 10 min to obtain an IV access by doing a venous cut down. The resource limited setting, the curious crowd of onlookers and also the fact that he had to treat his professional colleagues compounded his stress. He struggled to rapidly assess the situation, was unsure of the intravenous access and decided to shift the patient to a higher center. Predictably, the patient did not make it alive to the higher center.

Situations like this are not uncommon in India and most other developing countries. Proper medical care in the 'golden hour' makes the difference between life and death, or between severe disability and complete recovery. Even though low- and middle-income countries (LMICs) pride themselves on some of the best hospitals and some like India attract medical tourists from around the world, access to reliable and quality emergency services has been grossly insufficient, especially at the grassroots.

Globally, traumatic injuries (22%), ischaemic heart disease which include neurological and cardiac emergencies (17%), lower respiratory infections (11%) and haemorrhagic strokes (7%) make up about 60% of emergency medical diseases. In addition, emergencies also occur during labour (postpartum haemorrhage, eclampsia and complications in newborn babies), among children and due to poisoning and envenomation.

Worldwide emergency medical diseases account for more than 50% of the disease burden and deaths. This proportion is higher in developing countries and there has been a 6% increase in overall mortality due to emergency medical disease from 1990 to 2015.^[1]

Until recently, medical education has focused on making the right diagnosis with less emphasis on the principles of triage and emergency management. Although the medical curriculum includes a mandatory 2-week casualty rotation, there is no transfer of emergency care skills. Emergency care is offered in areas designated as 'casualties' that are often managed by junior specialty residents with little overview or by casualty medical officers who do not have special emergency skills training. Often, the casualty centres act as mere 'referral points' for specialised

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Figure 1: Scenario training.



Figure 4: Cardiopulmonary resuscitation (CPR) technique.



Figure 2: Learning by doing: Securing airway.



Figure 5: Learning skills in cadaver lab.



Figure 3: Scenario-based learning.

care. Hence, training in this setup does not equip young doctors with adequate skills to manage emergencies.

Many deaths due to critical illness are potentially preventable.^[2,3] Several studies have documented that the basic life-saving clinical processes – Airway, Breathing and Circulation and focus on early recognition and prompt resuscitation may be overlooked even in specialised care centres and in both high^[4-6] and low resources.^[7,8]

A 2017 study of five urban university hospitals in India concluded that three out of five all trauma deaths were classified as preventable. The important areas of improvement identified were low-cost interventions such as airway management, fluid resuscitation, haemorrhage control and surgical decision-making protocols. The establishment of clinical protocols and timely processes of trauma care delivery is the next step towards improving care. The situation can be expected to be no better, if not worse at lower levels of health care.^[9]

The inability to efficiently manage emergency patients has been leading to community rage, compromising the security of healthcare staff in the emergency department and the health infrastructure.^[10] Poor staffing which includes inadequate training has been reported as a risk factor for violence against health-care team members in the emergency setting.^[11] The lack of training among health-care personnel was further highlighted after the introduction of ambulance services (e.g., '108 ambulance' systems in India). The ambulance services transport patients to the nearest healthcare facility in a timely manner. However, there has not been a commensurate improvement in the emergency management skills of health services personnel in most LMIC. A study in 2006 found that in LMIC even among

doctors providing trauma care only a minority had taken Advanced Trauma Life Support or such other courses.^[12]

An essential emergency and critical care (EECC) concept was devised through a Delphi process, involving a diverse panel of global clinical experts based on previous guidelines and the World Health Organization/International Committee for the Red Cross Basic Emergency Care. The group concluded that all levels of hospitals around the world have clinical processes and equipment to ensure early recognition and resuscitation of critically ill patients. Such readiness will ensure facing new challenges such as COVID-19 which may arise unexpectedly.^[13]

This incident happened just 2 days after my ECLS training. We went to 'Doodh Sagar' falls in Goa. When trekking along the railway track we got into a goods train. It was all fun but things changed suddenly. A girl slipped and fell as she was trying to get in. Her legs got caught under the wheels of the train. I was confident after attending the ECLS course. I approached the police and offered to help. The girl was conscious, which gave me hope that I could save her life. Her left leg was crushed below the knee and bleeding badly. Now I had to find a decent tourniquet! I searched my bag and I improvised a tourniquet with a plastic bag to stop bleeding. I could feel her radial pulse, though it was quite feeble. It took us around 55 minutes to reach the next train station where an ambulance was waiting. After getting her into the ambulance, we started oxygen via a mask and secured an IV line and started maintenance IV fluids as she had a radial pulse. We replaced the plastic bag with a proper tourniquet and sent her to a hospital in Panjim, Goa.

I don't know if my tourniquet saved her or not. But I think she would have definitely gone into haemorrhagic shock even with moderate bleeding for an hour. This is how Emergency Care and Life Support training helped me to save a life.

- Dr. T Ikshudhanva (House Surgeon, BMCRI)

In LMICs, it is unrealistic to expect patients in an emergency situation to be cared for by a health professional specially trained (e.g., postgraduate training) in emergency care. Most emergencies occur far from the tertiary hospitals in the community.

Hence, it is imperative that all doctors irrespective of whether they are generalists or specialists have a comprehensive set of skills to be able to provide quality emergency care during the 'Golden Hour'. Thus, there is a need for comprehensive Emergency Care and Life Support training to equip all providers, irrespective of specialty, to *Recognise, Resuscitate* and when needed promptly *Refer* to a higher level of care. JeevaRaksha comprehensive emergency care and life support course (C-ECLS) empowers

doctors to be proficient to deliver the EECC package of services which contains 40 clinical processes and 67 requirements, plus additions specific to COVID-19. This was evidenced by the confidence expressed by doctors who had undergone the ECLS course when they were caring for COVID-19 patients. For example, familiarity and confidence in handling different oxygen delivery methods and securing an airway.

The Medical Council of India has been suggesting that all medical colleges should train medical graduates on emergency care. Rajiv Gandhi University of Health Sciences (RGUHS) has initiated India's unique 4-day ECLS course for doctors and a 3-day *Emergency Nursing Life Support Course* for nurses is being implemented for nurses as well. RGUHS has partnered with Swami Vivekananda Youth Movement, a nationally acclaimed Non-Governmental Organization working primarily at the grassroots. University of Utah, USA is the collaborating technical partner in this initiative [Figures 1 and 2].

The content from this course has been piloted across India through the National Health Systems Resource Centre, Ministry of Health and Family Welfare, Government of India which has recognised the efforts of RGUHS-JeevaRaksha TRUST [Figures 3 and 4]. The senior instructors from JeevaRaksha team have been invited and empanelled as Master Trainers and National trainers to roll out the emergency care and life support skills across the country.

The Course was piloted in Morocco and Uzbekistan and implemented in Bhutan (2022). This confirmed our assessment that JeevaRaksha courses are equally relevant to the context of other LMICs. RGUHS-JeevaRaksha course has the potential to be exported to other states in India as a Karnataka model and to other developing countries as an Indian model [Figure 5].

Ethical approval

The Institutional Review Board approval is not required.

Declaration of patient consent

Patient's consent is not required as there are no patients in this study.

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Conflicts of interest

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Use of artificial intelligence (AI)-assisted technology for manuscript preparation

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