

*Short Communication***Technology-driven learning, a way to improve emergency care in LMIC's**Abdus Salam Khan^{1*} and Zain Naveed Alvi²¹Department of Emergency Medicine, Shifa Tameer-e-Millat University, Islamabad, Pakistan.²Department of Emergency Medicine, New York Institute of Technology, New York, United States.

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ABOUT THE STUDY

Pakistan is a nation of 220 million people and has a fair share of man-made as well as natural disasters and calamities. Like its neighboring SAARC (South Asian Association for Regional Cooperation) countries has fragmented healthcare and especially emergency care (Sethi, et al., 2020). These people are often in need of immediate care for critical conditions, but are unable to receive such timely treatment due to a broken system of emergency care.

Emergency Medicine is yet to develop and have strong footing in SAARC countries, and Pakistan being part of SSRC is struggling to develop it (Joshipura, et al., 2004). The people who work in the Emergency department are not trained and mostly take this job as interim position. The healthcare community has yet to take full advantage of quality Emergency care due to broken system of Emergency care (Razzak, et al., 2015; Razzak, et al., 2008).

Emergency departments' role in any healthcare system is utmost important:

1. The emergency department provides care to people 24 hours a day, 7 days a week and 365 days a year (24/7/365).
2. It is a place when people can turn for all their healthcare needs regardless of age, gender or medical issues, as has the ability to deal with all emergencies, without regards to financial constraints.
3. It also plays a major role in the any natural or manmade disaster or mass emergency.

It cannot perform well unless the people working in the department are provided with the proper training to become effective Emergency care providers. Based upon the number of hospitals, Pakistan requires approximately 16,000 doctors and 48,000 nurses trained to work in the emergency department. Currently the number of trained physicians is less than 500 and

the number of trained nurses is even far less than that (Tahir, 2020).

To provide the people with necessary and quality emergency care, we need to develop the public sector and private Emergency departments, so they can be a place for the safe and quality Emergency care. This requires increasing the number of trained Emergency Physicians and nurses, through teaching and training. While examining solutions to mitigate this problem, the most effective method is to have doctor and nurse trainees work and learn under supervision in the physical proximity of the emergency department, giving them clinical experience. However, they require a good number of instructors to train doctors and nurses in a short span of time. The gap so far is quite huge and presently offered solutions seem to be insufficient for the system to cater to the disease burden comes through the doors of Emergency department (Saleem, et al., 2020).

Low and Middle Income Countries (LMIC's) face special challenges due to financial constraints and possible lack of developed systems of care and competence, the emergency care is specially affected (Kobusingye, et al., 2005). It becomes a daunting task to do quick training of staff and prepare them for the appropriate level of emergency care. Difficult economic, as well as political situations make it especially more difficult for the countries to attract trainers from outside or send trainers to outside of big city areas to help develop training system and build competence.

Alternatively, a method must be employed in which trainers can reach a larger number of audiences, both doctors and nurses, while maintaining a high quality of instruction and training. Remote learning and technology driven solutions can help us achieve that goal. From basics to advance level knowledge transfer is a must to equip doctors and nurses with competence to deliver quality care. Through technology we could effectively:

1. Provide distant/online training and deliver a defined

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curriculum to educate healthcare professionals.

2. Use mobile apps to provide easier access to drug references, diagnoses, and protocols.

3. Establish consulting services to the distant Emergency Departments to provide real-time solutions for the ease of treating doctors and nurses.

4. Deliver online courses on special topics like ultrasonography, toxicology and resuscitation courses to improve the understanding and competence of doctors and nurses.

The current situation in Pakistan is such that there are a few places which utilize the technology to impart the information to the people working in the Emergency departments across Pakistan and in other SAARC countries at the same time. The problems faced by these countries are similar and solutions can generally be the same with minor local adjustment. A one-year program is sufficient initially as it helps provide teaching and training to a bigger audience quickly, rather than letting them go through a standard training program. Similarly a hub of knowledge can be created which can link smaller emergency department, where the staff can reach out for both at will consultation, and also training needs. This can be done through either telephonic or technology driven communication application like ZOOM, or Team or MEET (Savage, et al., 2022; Roe, et al., 2010).

CONCLUSION

The infrastructures of the smaller areas have significantly improvement due to expansion of wireless technology and communication applications. By incorporating technology to the curriculum and increasing access to medical knowledge. Emergency Medicine is in developing stage in Pakistan and other LMIC's. Due to scarcity of trainers in EM, it is prudent to utilize non-traditional methods to train the doctors and nurses. Technology driven solutions in the form of distant learning through mobile technology and internet-based software for communication can help achieve this goal. By incorporating technology to the curriculum and increasing access to medical knowledge, doctors and nurses can be better equipped to provide service to the people in need of Emergency care.

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CONFLICT OF INTEREST

Both authors have no conflict of interest and nothing to disclose.

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