

Letter to the Editor

**Here to Stay: Implementation of Tele-Emergency Medicine in a High Volume, Health Care network in Pakistan**

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**To the Editor,**

Emergency Medicine (EM) is cardinal to any health care system. Pakistan is a low-and-middle income country (LMIC) with a rudimentary health care infrastructure, where EM is underprioritized; plagued by multiple challenges in the form of a mismatch between demand and scarce resources, including untrained personnel.<sup>1</sup> Pakistan is home to 235,824,862 inhabitants and World Health Organization (WHO) reports one physician/1351 and one nurse/ 3225 individuals.<sup>3</sup> Despite 75% of the Pakistani population living in rural and remote areas, there is a major disparity in health care resource distribution with only 22% of doctors serving in these under-privileged areas.<sup>3,4</sup> This is augmented by delayed transfer to urban centers of the critically ill patients, culminating in high morbidity and mortality. Amidst these challenges, Emergency Departments (ED) in Pakistan face the dilemma of overcrowding, prolonged waiting times and length of stay (more than ten-hour in 41% and more than four hours in 16% patients) with bounce-backs.<sup>5,6</sup> Poor performance on these key indicators affect the quality of care and patient satisfaction.<sup>6</sup>

EM was recognized as a specialty in Pakistan more than two decades ago. Presently, only 15 accredited residency institutes and 35 supervisors at the College of Physicians and Surgeons of Pakistan (CPSP) are training approximately 200 EM residents. Novel solutions are mandated in the background of these constrained resources and dearth of trained personnel. Telemedicine (TM) has been advocated for its ability to utilize technology to provide online health consultations to patients in remote areas.<sup>7,8</sup> TM is a complementary system, through which rural health care facilities may be able to access experts from urban centers.<sup>9,10</sup> TM has been utilized in EDs, neurology, cardiology and in provision of acute and critical care consultations; depicting promising outcomes.<sup>11-15</sup> Tele-Emergency Medicine (Tele-EM) has also proven beneficial in improving ED through put with Hanson Hsu et al. reporting median 64 (42.6 - 93.6) in TM and 134 min (90.6 -196.8) in Standard pathway ( $p= 0.001$ ) with a reduction in 72-hour ED re-visits 3.4% and 3% ( $p=0.303$ ) respectively.<sup>12</sup> Similarly, Greenwald PW et al. reported a median ED LOS of 28 min in TM pathway, versus 60 min for standard pathway ( $p<0.001$ ).<sup>13</sup> Though, Pediatric ED TM consultations<sup>16, 17</sup> have been established in (Blinded), this avenue has not been explored in adult EDs till date.

Indus Hospital and Health Network (IHHN) is a philanthropic, private sector health care network that provides quality healthcare, free-of-cost to millions of deserving patients through its countrywide footprint of fourteen hospitals, with one of its busiest centers located in Korangi district, Karachi, Pakistan. The ED, (IHHN), has robust educational programs like Certification Program in Emergency Medicine (CPEM)<sup>18</sup>, Foundation Program in Pediatric Emergency Medicine (F-PEM) and the national accredited EM residency program through which EM physicians are educated nationwide, in an effort to bridge the existing gap.

As a step forward, an innovative Tele- EM project has been implemented across two IHHN network District Head Quarter hospitals in the cities of Badin (rural city of Sindh Province) and Gwadar (rural district of Baluchistan province). Qualified Emergency Physicians from ED, IHHN, provide online consultations for high acuity adult patients to these remote areas through 24/7 real -time, video-based consultations.

It is our hope that this endeavor will provide robust EM care and optimize management of acute emergencies, alongside training EM physicians on ground in Badin and Gwadar. This will expedite appropriate patient disposition and translate in reduced ED waiting times and length of stay, bounce back and improve patient satisfaction. Through Tele-EM, we aim; for not only capacity building of physicians and nurses, but empowerment of our network hospital workforce. It is our objective to see improvement in diagnosis and effective management of acute emergencies, provision of high-quality care and enforcement of safe transfer practices. With published literature depicting propitious results;<sup>14-17</sup> it is our hope that the pilot Tele – EM project at IHHN will provide EDs in low- and middle-income countries (LMICs) with a generalizable model to improve patient outcome.

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