

LETTER TO EDITOR

Development of Integrated AI-Based Application (App) to Optimize Emergency Department Workflow in Pakistan.

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Pakistan healthcare exhibits high burden owing to increase workload, un-optimized resource use and burnt-out professionals.¹ Emergency departments of any hospital remains the most bustling area facing overcrowdings, long wait time, unequal prioritization of patients because of manual triaging. According to Emergency services department Government of the Punjab, Pakistan average medical emergencies per day accounts for 4597 emergencies.² Triage systems and App for instance (Ambulance Dispatch System) in USA, UK³ have shown promising results, quicker assessment and more reliable allocation of patients to respective sub-specialty in a timely fashion. Everyday many patients die while reaching hospital, waiting for the help or ambulance to arrive and hospital gets overburden by manual triaging.

The authors proposed AI-based App named as (Assistance – Maawan) for Pakistani population which can connect Patient, paramedical staff and hospital with each other as well as help in triaging and tracking the patient. Everyone, or at least every high-risk patients (diabetic, hypertensive, ischemic cardiac disease, chronic kidney disease patient must get themselves registered for the App). This App aims to include:

- Patient, paramedics, doctors and hospital portal.
- It will include patients details; bio data, medical history, their appointments and lab tests.¹
- In case of emergency, they can send alert to automatic ambulance system to navigate their location and reach timely and inform nearby hospital.

This App will be able to do automated triage into Urgent/Emergency/Routine categories with time stamped decisions which will be done by AI and includes emergency department coordination exhibiting real time hospital alerts, ambulance tracking, specialty doctor notifications, treatment records, medication schedules,

and follow-up appointments integrated into patient profile. It will also include automated reminders for medications and appointments

App's performance Metrics will be assessed by Diagnostic Accuracy and Error Rates, Efficiency and Cost Savings, User Experience and Satisfaction.

This app if implemented can be cost-effective, helps in early identification of emergency, reduces triage waiting time and optimize resources to critical patients. This bilingual App can be adapted across Pakistan's hospitals. In the view of contemporaneous perspective of digitalization and AI, these proposals are no longer an optional measures but a strategic essentials for organization Healthcare system to combat modern era.⁴

There are certain limitations including patient consent and secure data encryption would be required along with 24/7 monitoring essential for emergency response. Ethical considerations includes Compliance with Pakistani healthcare and data protection regulations.

This integrated app is a unique idea which includes collaboration with patients, paramedical staff, Ambulance system and Hospital Base. Acceptability of the App by the government and stake holders and link to every hospital including public and private is the target.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

1	Ali Hassan: Conceptualization of idea.
2	Obaid Ullah Ahmad: Development of interface of the app.
3	Ayesha Shahid: Manuscript writing.