



Overcoming Overcrowding: Emergency & Outpatient Department Patient Traffic Display System

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Problem Statement

To date, numerous recommendations have been adapted; however, emergency and outpatient department congestion remains a global phenomenon. In Malaysia, it has been reported that the emergency departments (ED) are overcrowded and understaffed. Similarly, outpatient departments (OPD) are inundated with patients with long queues. Medical errors, misdiagnosis, and poor clinical outcome are some of the many consequences as a result of overcrowding.

Solution

To provide a situational analysis of the ED and OPD to prospective patients remotely, and also to health care providers on duty. Armed with such data, patients enroute to the ED can decide if they want to seek medical attention at the next nearest facility or postpone their visit if it is a non-urgent matter. And those waiting in the OPD can freely decide to grab a coffee at the café without worrying about missing their turn. This technology is intended to increase patient service, satisfaction and safety. Specifically, this innovative display system will provide live data of patient load, queue number flow, average waiting times in non-critical zone and for admissions.

Value Stream Mapping

The proposed innovation of a digital dashboard displaying real-time data from the Hospital Information System (HIS) will have a significant impact on the processes identified in the Value Stream Mapping (VSM).

Firstly, the process time could be reduced as patients will have the ability to make informed decisions about when and where to seek care, potentially reducing the number of non-urgent cases in the ED at peak times. This could lead to more efficient triage and treatment processes, as healthcare providers will have more time and resources to devote to each patient.

The inventory, or number of patients in the ED, could also be better managed with the proposed innovation. By providing real-time data on patient load and waiting times, the system can help distribute patient visits more evenly throughout the day, preventing sudden surges that lead to overcrowding.

The First Time Quality (FTQ) could potentially be improved as well. With less pressure from overcrowding, healthcare providers will have more time to accurately diagnose and effectively treat each patient on their first visit, reducing the need for repeat visits.

Finally, the waiting time, a significant non-value-added activity, could be significantly reduced with the proposed innovation. By providing real-time updates on queue position and forecasted call-time, the system can help manage patients' expectations and reduce the perceived waiting time.

Anticipated Results

By analysing trends pertaining to patient visits, administrators will be able to strategically plan for effective use of resources as well as take pre-emptive measures to ensure a smooth operational flow. Once the potential of the system has been validated, it can be extended to all health facilities nationwide.

Sustainability

As a deliberate measure to ensure sustainability, this project is designed to be delivered as a Public-Private-Partnership. Stakeholder buy in will be elicited through the creation of a shared need and the promotion of the many benefits that will ensue through the adoption of this innovation such as increased operations efficiency, patient satisfaction, and projected cost reductions.

Acknowledgement

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Methodology

The proposed innovation to improve quality of care and mitigate the ramifications of systematic overcrowding is the creation of a digital dashboard available to public that displays estimated waiting time. Relevant real time data will be captured from the Hospital Information System (HIS) through integrated interfaces and presented as a digital dashboard on LED screens throughout the hospital, and also relayed to a smartphone application/ mobile friendly website accessible to the public anytime, anywhere. Data from subscribing ED and OPD facilities will be broadcasted onto a common open-access web/mobile app portal, allowing prospective patients to make informed decisions about where to seek care based on wait- times and availability. Real time updates on queue position and forecasted call-time will help manage patients' expectations and ultimately improve their waiting time experience.

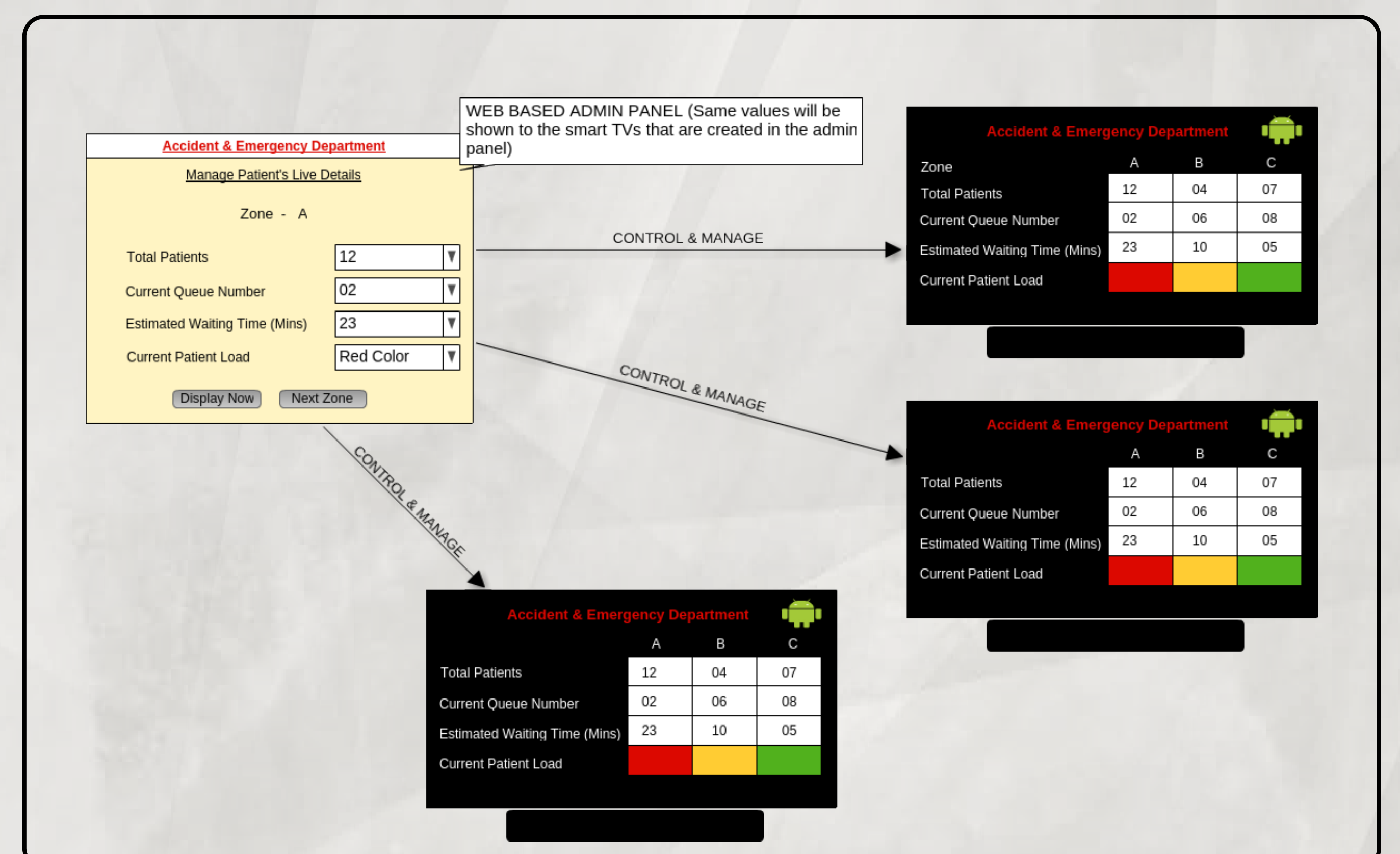


Figure 1. Illustration of variables available for viewing on dashboard display



Figure 2. User interface display on digital dashboard depicting queue numbers of registered patients in non critical zone being called in for a doctors consultation

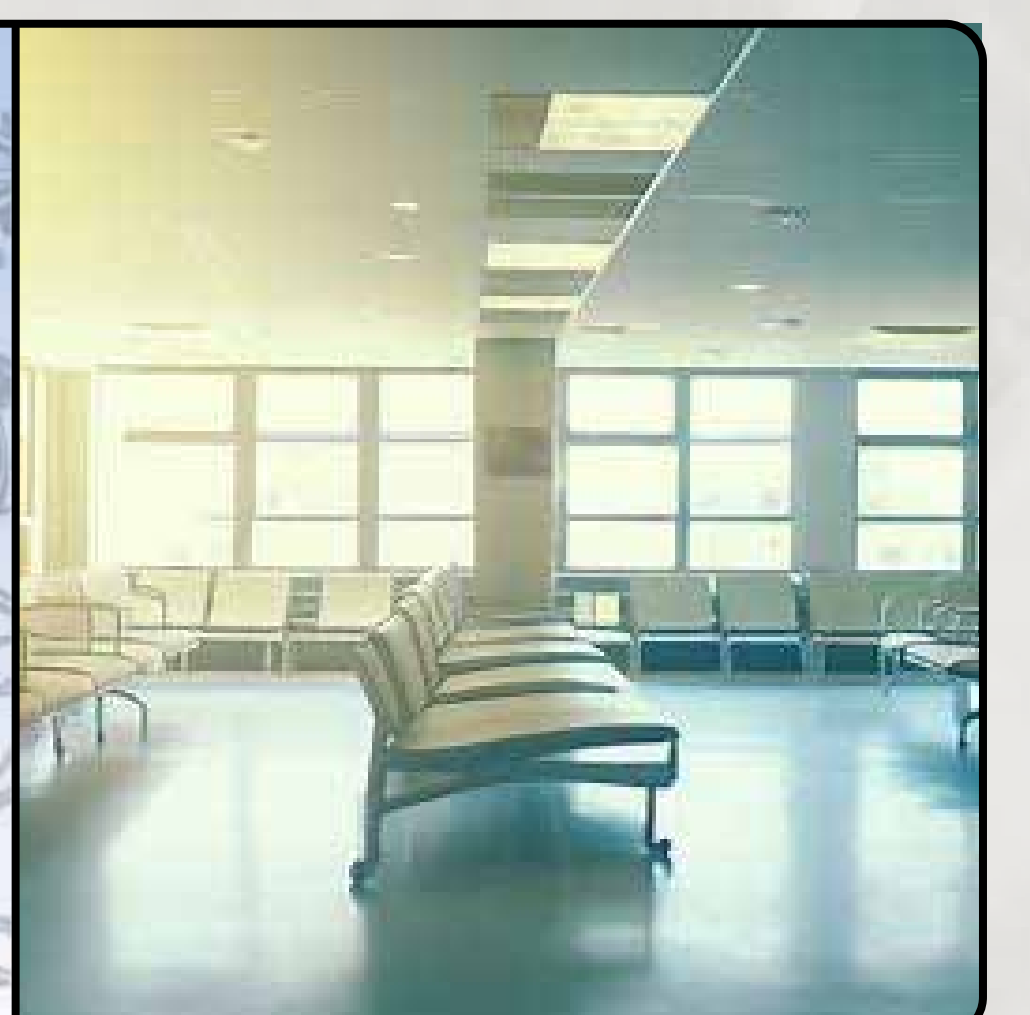


Figure 3. Decongested waiting areas in the Emergency and Outpatient Department

Keywords

Improving patient waiting experience, decongesting waiting areas

