**Efficient emergency logistics and patient-centric interface design: Streamlining operations for admitted patients**

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**ABSTRACT**  
Managing demand at hospitals require adequate knowledge of patient flow within hospital emergency departments as it directly impacts the quality of care delivered to individuals in need of immediate medical attention. The demand for emergency services is at an all-time high, and the problem of limited resources and delays needs to be tackled through designated approaches that factor in the need to enhance patient care further. The study explores the realm of coordination at the critical care units, focusing on patient admissions, by leveraging patient-centric interface as a means to identify demand of medical resources, services and challenges.

The paper takes a detailed look into the current patient flow and the factors that affect it through methods like process mapping and data analysis, all while considering each step and which changes to it will affect the others, providing a comprehensive framework that helps optimize patient flow. We include principles from healthcare management, logistics, and   
predictive analytics that can be used for accurate predictions by identifying variables associated with patients, to provide a strategy that can streamline the patient journey. State-of-the-art methodologies in forecasting long and short-term demand of emergency services are identified with the study that uses statistical tools, machine learning models and underlying process flow involved.

Our proposed optimization strategies is implemented in the form of a Graphical User Interface (GUI) that allows for a dynamic scheduling and resource allocation system considering arrival patterns, triage procedures, diagnostic processes and so on, all while focusing on fast response times that prove to be critical in times of emergency. The results of the study highlight how well user interface design can shed light on the facilities, problems and logistic requirements for emergency critical care coordination.

Seamless integration of user interface design and logistical optimization provides valuable insights for hospitals seeking to optimize and improve their emergency department operations. Our work leverages a combination of process improvement strategies, data-driven decision-making, and logistics principles, that we have further signified with the development of a GUI that puts these strategies into operation. As the demands on healthcare systems continue to grow, the importance of operational efficiency and patient-centric tools like these remains paramount, making them indispensable for healthcare administrators and practitioners alike.