

Abstract

Hospitals require patients to obtain a Medical Registration Number (MRN) before any lab work, blood tests, or radiological studies can be requested. The MRN is generated during the registration process, which is susceptible to system bottlenecks, rate of patient arrival, and human work factors and ranges from 15 to 80 minutes. There is a need for improved registration methods, and modern technology may provide the means to expedite the process. The objective of this project is to analyze and improve the current registration process in New York Presbyterian Hospital's Emergency Department. A systems decision process and Business Process Reengineering methods were used to analyze the current process, develop 3 alternative designs, and decide on a final solution. These designs included 1) Registration Kiosks, in which kiosks technology would be used such that a patient can enter their registration information themselves and begin the registration process upon entry; 2) Team Triage, which focuses on re-allocation and more efficient usage of the department's current resources; and 3) RFID Registration & Tracking, which utilizes Radio Frequency Identification (RFID) technology to aid patient registration and tracking. After simulating each alternative in a modeling program, Extend, and comparing them using the Analytical Hierarchy Process, the project team decided to utilize Registration Kiosks. This improved process design was simulated to reduce the registration cycle time by 54%. Improving registration methods in hospitals across the country has the potential to save lives, and therefore a serious effort should be undergone to bring hospitals into the 21st Century.

Future Research

Future research would involve expanding the project scope. The project scope was limited to the registration process in the Emergency Department at the Weil Cornell Medical Center. The final solution is optimal for the project scope but may not be optimal for the other campuses of New York Presbyterian Hospital. For example, the registration process at the Weil Cornell Medical Center may be different than the practices at the Emergency Department at Columbia University Medical Center. Several aspects were outside of the project's scope and were not considered such as the total time of patient stay (time of patient entry to patient exit). The team found it was necessary to limit the scope to only one aspect as there would have been far too much variability, making it difficult to analyze the design alternatives.

Project scope affected the overall decision making process and the various alternatives considered. For example, the team had, in its first design alternative, considered Team Triage. While this was found to be very effective in other hospitals in processing patients, the design would not have been optimal given the project's metrics. Team Triage did not have a profound effect on the registration process but rather on the overall patient's stay – from patient entry to the end of treatment. In having a physician in triage, some patients can be immediately treated and released. While this process created delays in the registration process, it filtered patients based on the importance of their medical need. In expanding the project scope, the alternatives originally rejected should be reevaluated and reconsidered.