VA Intra-Hospital Patient Transportation

Design Team
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Abstract
The purpose of this Capstone Design Project is to create an improved system for transporting patients from one hospital unit to another for the Veterans Health Administration (VHA). This new process is a paperless system that uses computerized forms to communicate between departments, electronic messages to assign tasks to employees, and automatically-generated control charts to monitor the process. The goal of this project is a new Escort Service system that will decrease response time, reduce the frequency of miscommunication errors, and allow management to monitor and control the department’s performance. An improved process was designed, a computer database was created, and the new system was implemented and studied at the West Roxbury (MA) Campus of the VA Boston Healthcare System.
The Need for Project

The VHA is looking to create an improved system for transporting patients from one unit of the hospital to another. There is a critical need for process improvement of healthcare systems in the United States. Ineffective systems for medical care create exorbitant costs and avoidable errors that harm patients. The Veterans Health Administration (VHA) is a branch of the U.S. Department of Veterans Affairs (VA) that provides primary care, specialized care, and related medical and social support services to American veterans. For many VHA facilities, the system for transporting patients from one unit of the hospital to another, known as the Escort Service, is filled with inefficiencies and errors. Insufficient processes result in delayed response times, unfulfilled requests, miscommunications between departments, and low employee morale. An effective Escort Service will have a positive impact on all VHA employees and patients and has the potential for implementation at every VHA hospital across the country.

The Design Project Objectives and Requirements

The objective of this project is to design an improved process for patient transportation within the hospital. This process involves Nurses requesting Escorts to transport the patient and a Dispatcher assigning these transports to an Escort.

Design Objectives

The objective of this project is to design an improved process for requesting patient transports and assigning these transports to employees for the VHA. The three objectives of this new Escort Service system are to (1) decrease the response time, (2) reduce the frequency of miscommunication errors, and (3) allow management to monitor and control the department’s performance.

Design Requirements

There are six key design requirements that must be met to successfully complete this process improvement project, including: (1) collecting and analyzing data on the existing transportation process, (2) creating an improved process that met the design objectives, (3) designing of a computer system to manage the Escort Service system, (4) implementing the new system at a trial VHA location, (5) collecting and analyzing data on the new process, and (6) developing recommendations for use of this new system at other VHA locations.

The effectiveness of the improved Escort Service system is evaluated on the following three key metrics: reducing response time, reducing the percentage of unfulfilled requests, and increasing patient and employee satisfaction.
Design Concepts Considered

Several design concepts were developed before choosing the final design of the improved Escort Service system. One of the key alternative processes used “Push-to-Talk” phones for communication of tasks between the Dispatcher and the Escort. Another key alternative was for Nurses to page the requests directly to the Escorts.

Many design concepts were considered when creating the improved Escort Service system. Design ideas were generated via process mapping, group brainstorming, and benchmarking. Some design ideas closely resemble the current system while others are a complete system redesign.

Dispatcher and “Push-to-Talk” Phone Model

This design concept used the existing technology at the West Roxbury (MA) Escort Service Department. Nurses would call the Dispatchers to request an Escort. The Dispatcher would then assign this task to an Escort by calling them on a Nextel phone. The Escort would then call the Dispatcher once the task was complete. This design was less than desirable because extensive use of verbal communication for detailed information created a high risk for communication error.

Direct Requests from Nurse to Escort Model

One possible design had Nurses page the Escort directly to make a request. The Nurses would use an existing computer program to send out a text message to an Escort, who would then receive the request on an alphanumeric pager. This design was suboptimal because there was no system to manage the Escorts or collect data on the process.

Recommended Design Concept

The recommended design uses computerized forms to communicate between departments, electronic messages to assign tasks to employees, and automatically-generated control charts to monitor the process. The recommended design concept is a new Escort Service system that uses computerized forms to communicate between departments, electronic messages to assign tasks to employees, and automatically-generated control charts to monitor the process. First, the Nurse determines the need for a patient to be transported. The Nurse populates and submits an Escort Request Form on their computer. This form is in a Microsoft Access Database and is sent electronically to the Dispatcher, who is stationed at a computer in the Escort Service Department. The Dispatcher receives the request on their computer and determines which Escort is most appropriate for the task, based on availability and current location. The database allows the Dispatcher to view all details of completed and in-process requests. Once an Escort is chosen, the Dispatcher copies the detailed request information, which has been condensed into one string of characters for convenience and accuracy, and pastes it to the hospital’s text...
The information is then sent to the pager assigned to the Escort. The Escort now possesses written documentation of all necessary information for executing the task. The system ensures that all transfers of information are as complete and accurate as possible.

After creating an optimal process, the Design Team then programmed the computer software required to enable such a system. Once the request is fulfilled, the Escort uses a landline phone to call and inform the Dispatcher that the request is fulfilled. Finally, the Dispatcher marks the task as complete; the database records the time of completion.

The Microsoft Access database uses a table to store all necessary information about each Escort request, including: time of request, patient name, from and to locations, equipment needed, Escort assigned to request, time of assignment, and time of completion. This information is stored for every request, and historical data is used to monitor and control the process. The Design Team created reports in the database that will automatically generate control charts to evaluate the performance of the Escort Service Department, as well as individual Escort performance. The form that the Nurses use to request an Escort was then created, allowing the VHA’s shared drive to allow access by all of the Nurses.

The Design Team is using several methods to investigate the results of this design. A time study and statistical analysis will be conducted to compare the before and after response times of Escorts. VHA employees will continually provide feedback on the design to ensure a feasible and optimal solution. There are many advantages to this design concept. The new process uses written instead of verbal communication of information, which decreases the risk of communication error between departments. Nurses give their requests directly to the Dispatcher, as opposed to the current process in which the unit secretary is a middleman. Giving pagers to the Escorts allows them to receive tasks from anywhere in the hospital and then reference the information at their convenience. One of the greatest advantages of using this database to retrieve and store data is that process performance is measured and monitored by VHA management.
Financial Issues

This project provided substantial cost savings for the VHA while improving the quality of service. There are two aspects of the recommended design concept that create cost-savings for the VHA by reducing the Escort Service expenses. The first aspect is the reduction of monthly service fees as a result of replacing the Nextel cell phones with alphanumeric pagers; this change results in a cost-savings of $39 per month per Escort. This is a substantial savings, considering that the Escort Service in West Roxbury will have approximately 9 Escorts. The reduction in monthly service fees will save the Escort Service Department $4,212 each year. The second aspect is that the new system uses existing computers and programs, which does not create any additional costs for this design.

Recommended Improvements

Other areas for improvement, such as streamlining the paging procedure, should be explored before the new Escort Service system continues implementation at additional VHA locations. In the current recommended design concept, the request information is copied from a cell of the Dispatcher’s form and then pasted into the hospital’s text paging system. One possible improvement for the new Escort Service system is to create an additional feature of the database that pages the request information to the Escort directly from the Dispatcher’s form. This improvement would create a more streamlined system by eliminating one step of the Dispatcher’s process.

The new system will be implemented and analyzed in one unit of the West Roxbury (MA) Campus of the VA Boston Healthcare System by the completion of this project. The next step will be to implement the new Escort Service system throughout the hospital, while continuing to evaluate the process. Finally, a system for training and implementing this new process must be created before instituting the new Escort Service system at additional hospital locations.