

UAB Hospital

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White Paper

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EXECUTIVE SUMMARY

In an era of decreasing revenue reimbursement and rising human labor costs that often result in decreased capital funds it is critical for healthcare organizations to identify opportunities which would enhance processes and technology, as well as improve the effectiveness of current operations to increase capacity without a significant drain on capital. The University of Alabama at Birmingham Hospital (UABH), Birmingham, Alabama, an internationally renowned academic medical center in the southeast United States, recognized and heeded the urgent call to improve daily operations directly related to patient throughput to yield increased capacity.

In collaboration with Stockamp and Associates, Inc., an assessment of operations and capacity statistics was completed as part of the **Patient Progression** initiative and a proposal submitted that UABH could increase patient capacity by four percent (4%) without submitting a Certificate of Need (CON) application for additional beds. It was determined, fairly quickly, that the most benefit to be gained existed in the processes surrounding patient flow through the system, beginning with the management of one of our most valued assets, inpatient beds. The initiative comprised of the creative implementation of technology, an electronic bedboard, coupled with enhanced processes and team collaboration from physicians, nursing services, environmental services, patient accommodations, and patient escort that would aid in more efficient management of the current complement of 908 licensed beds.

LEVERAGING TECHNOLOGY

The bed assignment processes prior to the project initiatives consisted of 1.) a paper “bedboard” utilized to manage 779 acute medical-surgical, psychiatric and inpatient rehabilitation beds and assist with patient placement of 129 intensive care units (ICU) beds, 2.) multiple telephone calls to and from nursing units to inquire about bed status and request beds for admissions and 3.) notification of dirty-bed status to Environmental Services (EVS) and Unit Support Specialists (USS) via phone or paging; each resulting in untimely patient

placements and poor coordination of resources which ultimately led to an average of 3,140 diversion hours per year.

To improve the bed assignment processes, the organization needed to obtain automated technology that could eliminate the manual notification, decrease phone call queries, and allow end-users to have a real-time view of patient capacity. In addition, the technology selected would have to be implemented with process redesigns spanning from patient accommodations to each nursing unit, and would require user buy-in at all levels, administrative support, and an organizational culture shift for success.

PRODUCT SELECTION

In the process of determining what technology would be right for the organization, based on existing Information System (IS) infrastructure, organizational culture, and ability to implement, a multi-disciplinary team comprised of representatives from nursing services, environmental services, patient accommodations, patient escort, IS and administration assessed bed management products available in the current market. The group developed criteria for evaluating the products by starting with an aggregate list of “required fields” that each product would have to offer. In addition, the group identified a list of technology features (bells and whistles) that were preferred by the end-users. Examples of the criteria used to evaluate potential products included the following:

- Ability to identify capacity statistics and patient information such as admissions, discharges, room information and basic patient demographics through Admission/Discharge/Transfer (ADT) interface capability
- Ability to support multiple users logged in concurrently at multiple sites
- Ability to dispatch patient escort
- User-friendly interface
- Real-time notification to EVS/USS regarding bed status
- EVS/USS workdriver system
- Multi-level performance tracking report package
- View of house capacity in one-screen/scroll view
- Ability to view, track and provide through client workstations:
 1. Current bed status
 2. Pending admissions

3. Transfer requests
4. Off-service placement

Once the selection committee narrowed the products to two potential options, vendor demonstrations were scheduled for hands-on trials for the intended end-users to make final recommendations. Based on the criteria assessments and product trials, a final product marketed by TeleTracking™ with two separate modules; BedTracking™ for environmental services and transport tracking, and PreAdmit Tracking™ for Patient Accommodations was recommended as the product of choice.

The selection committee then presented final recommendations to the Executive Leadership and Clinical Advisory Groups responsible for oversight for the Patient Progression initiative. With the approval of the recommendation and the commitment to provide the necessary funding for the technology, the Executive Leadership set forth a very aggressive implementation timeline to ensure that return on investment would begin at least half way through the planned project engagement of eleven months. The vendor reported that the proposed installation timeframe was one of the most aggressive of any of the installations (more than 800 facilities) to date, but agreed to the timeline. Given such an aggressive timeline, to ensure project success, the Executive Leadership team allocated IS resources that included a project manager, as well as the necessary support to interface with the vendor to complete the product installation within the established timeframe. In addition to the IS resources, the installation team consisted of the Patient Accommodations Manager serving as team leader and the Administrative Director of Patient Progression serving as team administrator responsible for escalating technical issues and process barriers that required administrative or clinical intervention. With the product approved, expressed vendor consent, and a signed contract it became clear that constant, effective communication with follow through would be the most beneficial attribute of the installation team.

PROCESS REDESIGN

With the installation of TeleTracking™, the initiation of a complete redesign of patient placement operational processes was required to maximize the benefits of TeleTracking™ within the Patient Accommodations Department. Pre-implementation work teams were established to collect and collate the required, specific information about the organization's bed capacity, nursing unit structure, end-user and bed attributes, etc. for data entry into the new

system. Security access levels within departments, user templates, user identification, and training schedules were developed to ensure a smooth implementation. Additionally, an IS support model was developed to outline the responsibilities of various departments to maintain and update all aspects of the system - from creating new users to creating additional beds and modifying nursing unit complement.

Significant process changes occurred within the Patient Accommodations Department; key operational processes had to be completely redesigned to incorporate the use of TeleTracking™. Based on the ease of locating available beds and pending confirmed discharges/transfers by unit, staff allocation was revised to maximize productivity. The ability of TeleTracking™ to filter and sort by various views, has allowed the Patient Accommodation staff to individualize, streamline and organize their on-screen work assignments, which has greatly decreased staff frustration with spending valuable time sorting through stacks of paper to find information concerning complete/incomplete bed assignments and current bed status to answer questions from callers inquiring about bed status. The ability for each staff member to update/create pre-admissions, view other co-workers worklists and completed patient assignments has resulted in decreased reliance on verbal communication of pertinent information to appropriate co-workers and increased efficiency when interacting with customers concerning patient placement. As a result, communication within the Patient Accommodations Department has greatly been enhanced with the use of TeleTracking™.

The availability of real-time information provided by TeleTracking™ has positively impacted work performance. Prior to installation of TeleTracking™, multiple phone calls had to be made to the nursing units to check the bed status, verify discharge/transfer orders, and confirm if a patient had physically vacated a room before admitting a new patient. This process often involved messages being left for the appropriate nursing staff to call back, resulting in extremely long wait times. The implementation of an ADT system interface has provided automatic updates to the Bedboard™ regarding patient discharges and transfers on the nursing units. As well, predicted discharges for each nursing unit (ICUs excluded) are now provided daily through a collaborative process involving the Care Managers, Social Workers and patient care team via the ADT interface. The predicted discharges are used by Patient Accommodations to proactively manage inpatient beds for pending admissions and next day scheduled surgeries by providing future potential census information.

Process redesigns for the departments of EVS and USS staff were key to success. Existing processes relied on manual communication via pagers that patients were discharged and being escorted from the room to the discharge area by USS or patient escort staff. The EVS/USS staff would then report to the room and begin cleaning. In the absence of automatic paging, the EVS/USS staff were reliant on communications from multiple sources that rooms were ready to clean; a system that was inherent to numerous delays. Without the technology to track time to respond to a room clean request or the time required to complete a room clean, the management teams did not have adequate outcome data to hold staff accountable and to make process improvements.

The dial-in module of BedTracking™ allows patient escort or USS staff to dial in from the patient's room at the time of departure. The dial-in automatically pages the EVS/USS staff zoned to that area to begin a room clean. Upon arrival to the dirty room, the dial-in process for the EVS/USS staff triggers the room to “**In Progress**”, which converts to clean status when staff dial-in at the completion of the room clean. Each step of the process – dirty, in progress and clean – are visible in real time on the BedBoard that is viewed by Patient Accommodations and available to the nursing units and administration for viewing at all times. The data provided to the management teams has proved invaluable in improving staff productivity, response times, and total room turn-around time. The built in escalation pages to managers when staff fail to respond to a room request adds to the accountability. The total impact has been a significant reduction in room turn-around time and the provision of operational data to support an organizational decision regarding the staffing structure that will best support optimal room management.

Patient Escort's processes were revised to include the dial-in steps to initiate the paging process for notification that a patient had vacated a room and the room required cleaning. The process change for the patient escort staff was minimal and initially considered to be needed primarily for the purposes of starting the paging notification process. However, the organization soon realized operational improvements for the Patient Escort department that proved beneficial to the entire patient flow through the system.

PROJECT SUCCESS

The current success that our organization is realizing from this initiative is attributable to multiple factors and players. One critical element, executive support, both, administrative

and clinical, probably outweighs all other factors combined. UABH's administrative and clinical leadership recognized the importance of increasing patient capacity without tapping the political CON process or further accessing capital for physical expansion. Every step of the process from technology assessment to post-implementation monitoring has been under the guidance and direction of two leadership oversight groups, the Executive Leadership and the Clinical Advisory Group. The Executive Leadership served to ensure that all decisions related to the project were financially sound and operationally feasible. The Clinical Advisory Group validated that decisions regarding processes and technology intended to enhance patient flow through the system would not negatively impact the quality of patient care or create patient safety issues.

PROJECT MEASURES AND OUTCOMES

Several outcome measures chosen to monitor post-implementation success are those that are intuitive to the healthcare arena such as 1.) hours on med/surg diversion, 2.) time required to make bed assignments, 3.) patient escort transportation time, 4.) incoming and outgoing call volume to Patient Accommodations and 5.) discharge bed turn-around times. It became apparent during the implementation process that the new technology would also provide opportunities for our organization to monitor additional measures that were not historically available such as 1.) off-service placement rate, 2.) number of patient escort cancelled trips and 3.) response time to clean a room. Each would prove valuable in identifying process barriers and opportunities to enhance services.

Of the departments and processes changed and impacted with the Patient Progression initiative, Environmental Services (EVS) was the first to realize significant return on the technology investment and process redesigns. Without existing automation to manage personnel, set standard performance expectations and track performance outcomes, accountability reporting had proven extremely difficult, if not impossible for the management team of EVS. It became obvious immediately, post go-live, that the implementation of the Bed Tracking™ module of TeleTracking™ provided the tools for not only the management teams to use and embrace, but for staff to understand and use to improve outcomes. The Discharge Bed Turnaround Time (TAT) measure includes the **Room Turnaround Time** plus the **Time to Respond**. In July 2004, four weeks post go-live, TAT decreased 23 minutes (33%) and Time to Respond decreased 21 minutes (57%) from the baseline results (**See Exhibit 1**). The

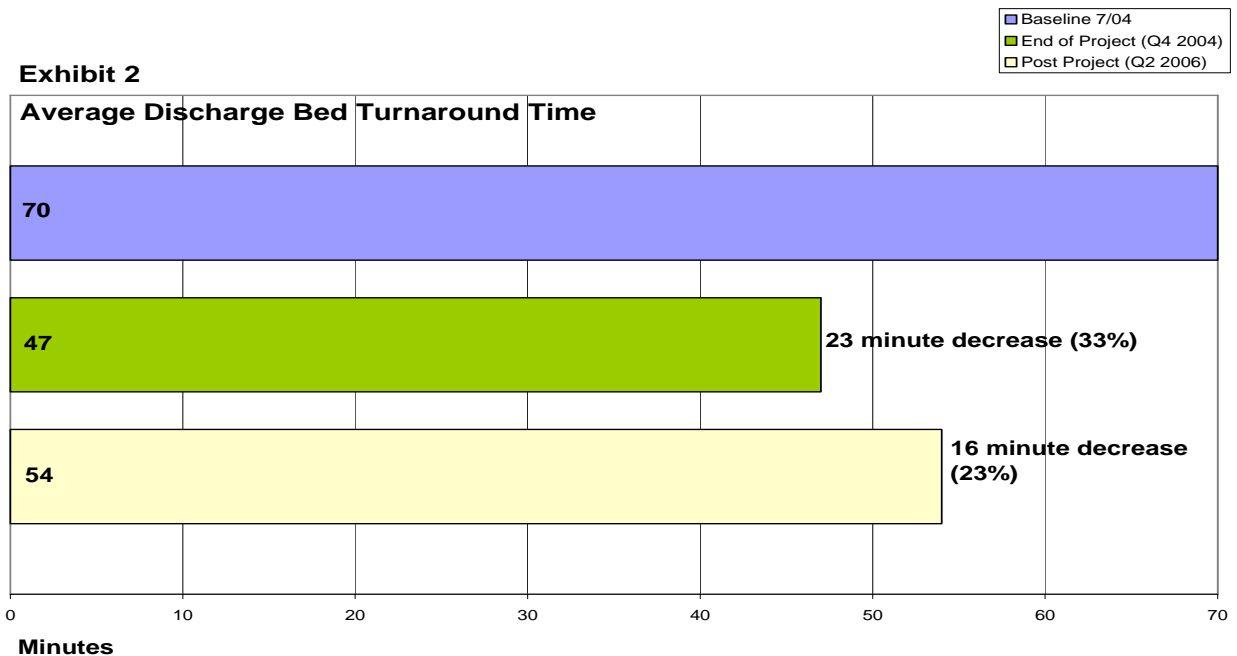
baseline measuring period was the only time that the organization would see comparable Discharge Bed Turnaround Times for the two groups, EVS and USS responsible for room turn-around.

Exhibit 1

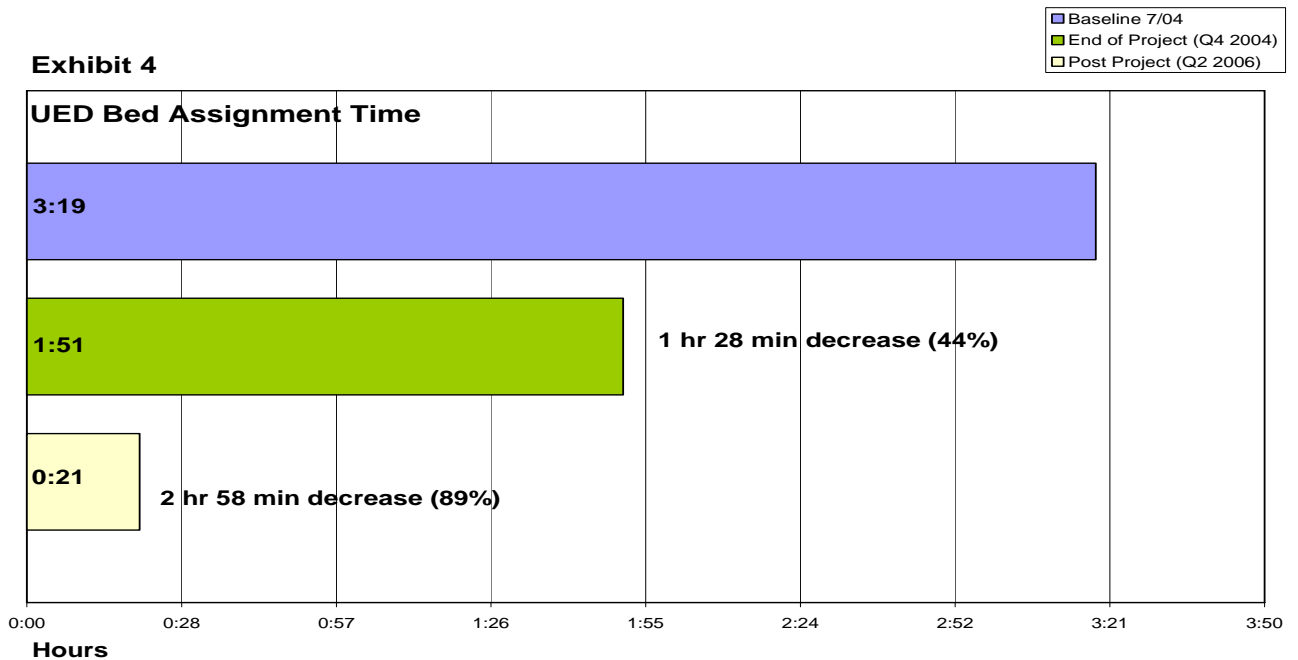
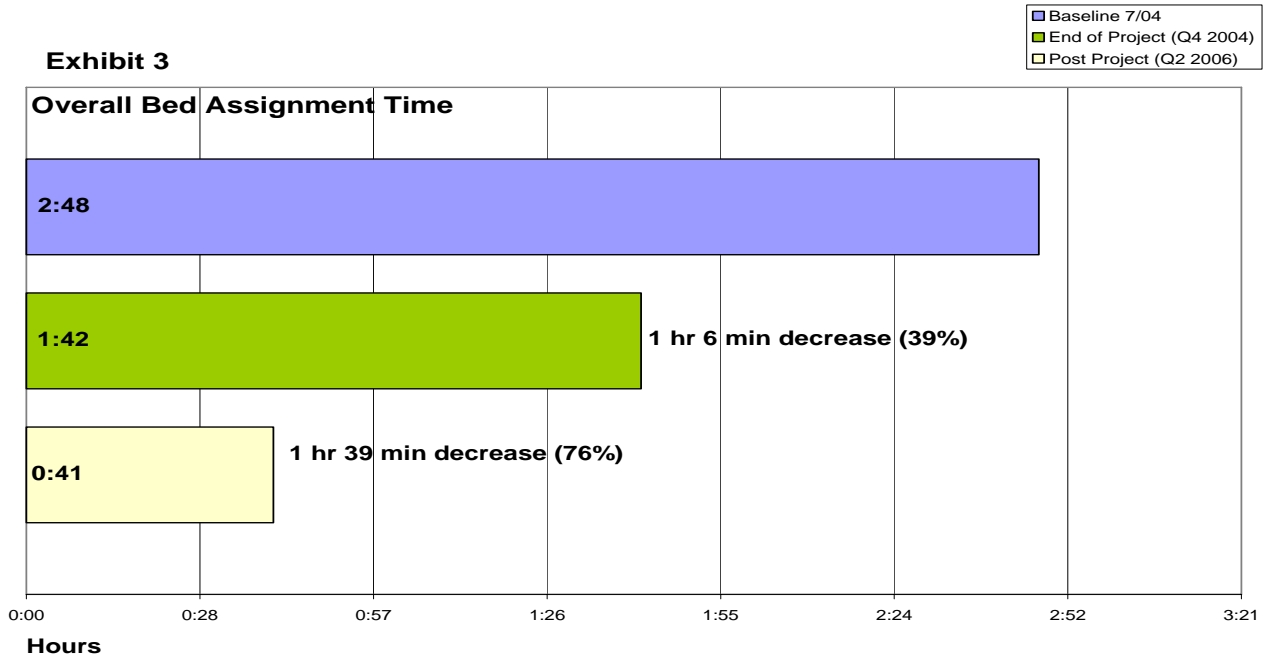
	Baseline 6/04 (minutes)	One-year Post 7/04 (minutes)
EVS Room TAT	70	47
USS Room TAT	70	61
EVS Time To Respond	37	16
USS Time to Respond	37	30

The availability of room clean and response times by the employee allows all outcomes to be viewed individually, as well as collectively for the two distinct groups; EVS and USS. This valuable information demonstrating that the EVS staff had better process compliance and efficiency was a key factor in the organization’s operational decision to transition to a fully centralized EVS model. Nearly two years post implementation; EVS staff continue to improve outcomes, even during the transition periods of assuming responsibility for new units. (See Exhibit 2).

Exhibit 2



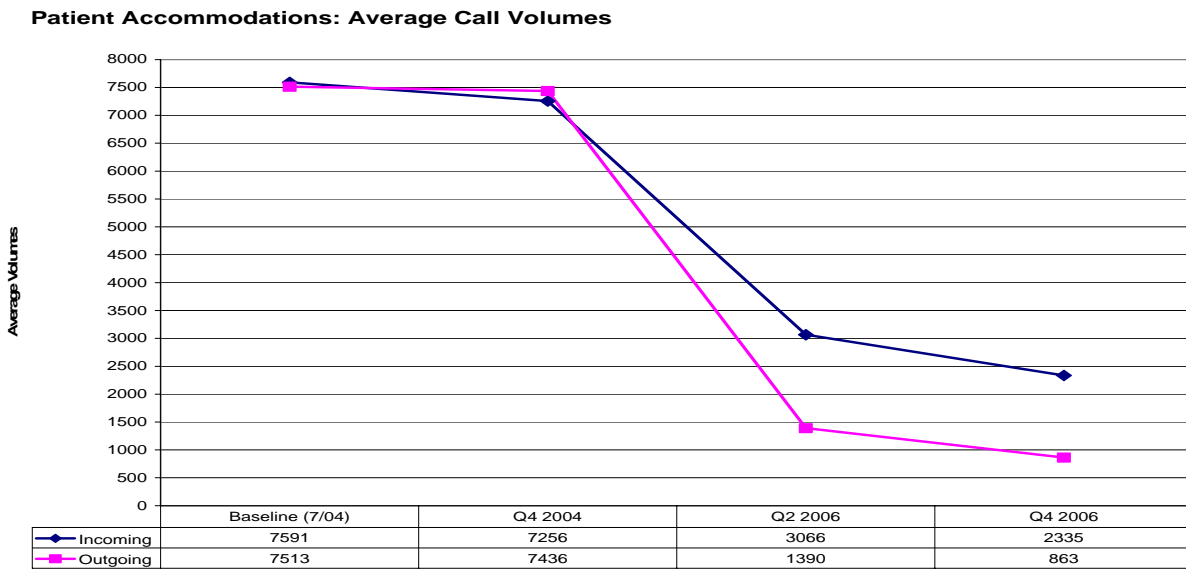
Improvements in the time required to make bed assignments by Patient Accommodations were noted early in the initiative as well. The organization has experienced a 76% decrease in the overall bed assignment time (See Exhibit 3) with even greater decreases in the assignment times for patients admitted through the University Emergency Department (UED) (See Exhibit 4).



This decrease in bed assignment time has resulted in an average of 85% of patients being assigned to a clean bed within the goal of two hours and an overall average of 97% of patients being placed within three hours. The technology supported by the activation of the Patient Placement Matrix and an escalation process to notify nurse managers when patients can not be placed on the appropriate units within 90 minutes, coupled with patient-centered Patient Accommodations staff are the underlying themes for the success noted to date. As we continuously strive to further decrease the time required to place patients in the appropriate patient care setting, data provided by TeleTracking™ such as trends by employee, unit, time of the day, day of the week, etc. (each a metric that the organization historically did not have access to) becomes more vital.

The decrease in incoming and outgoing phone calls between Patient Accommodations and the nursing units has been significant and became evident early post-implementation (See Exhibit 5). Though measurable in minutes saved, the true value of decreasing phone calls for Patient Accommodations staff and staff nurses caring for the patients is immeasurable. The decreased call volume is one indicator of employee satisfaction for patient accommodations staff and nursing staff.

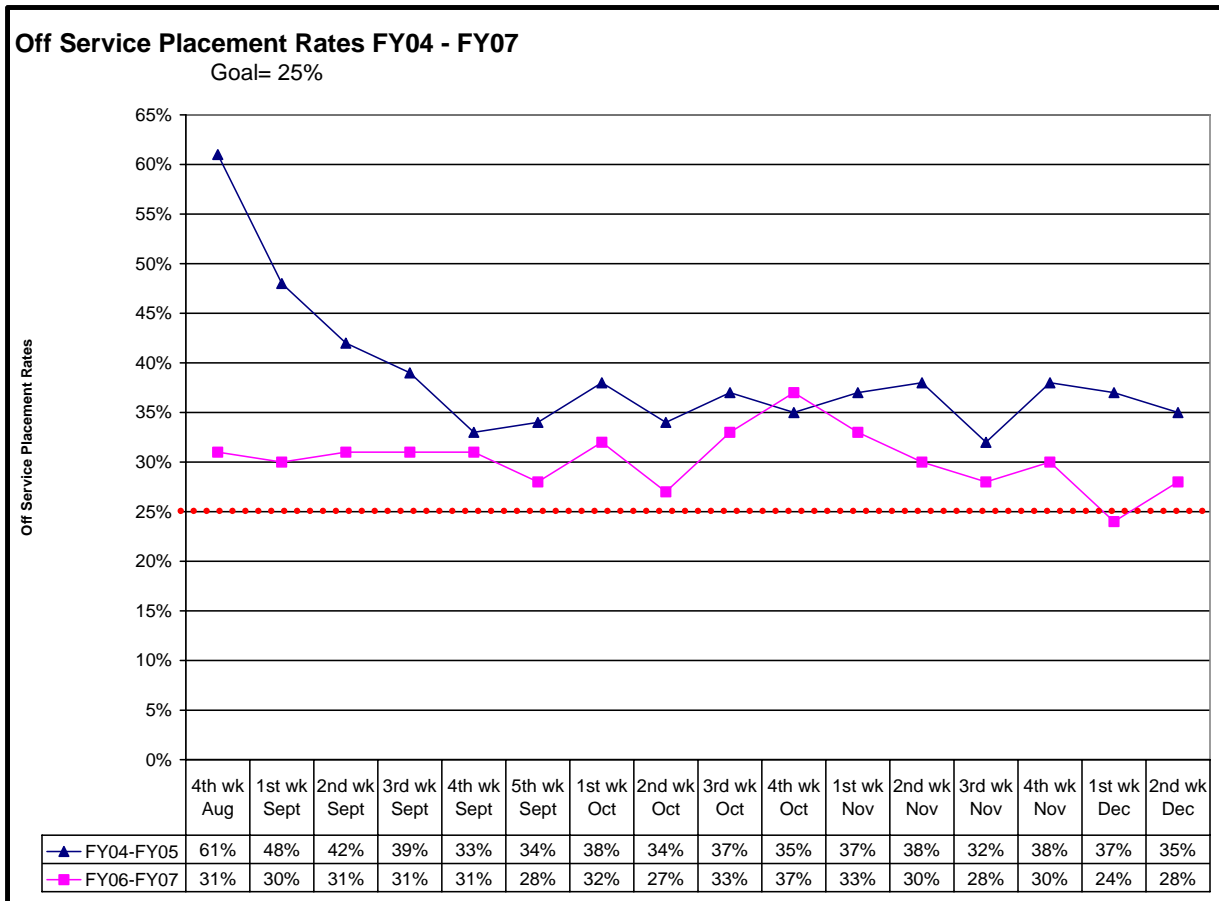
Exhibit 5



For service-aligned nursing units, there is added value to ensuring that patients arrive on the appropriate unit. A process UABH implemented in conjunction with TeleTracking™ was the use of a Patient Placement Matrix. The Patient Placement Matrix defines the primary and

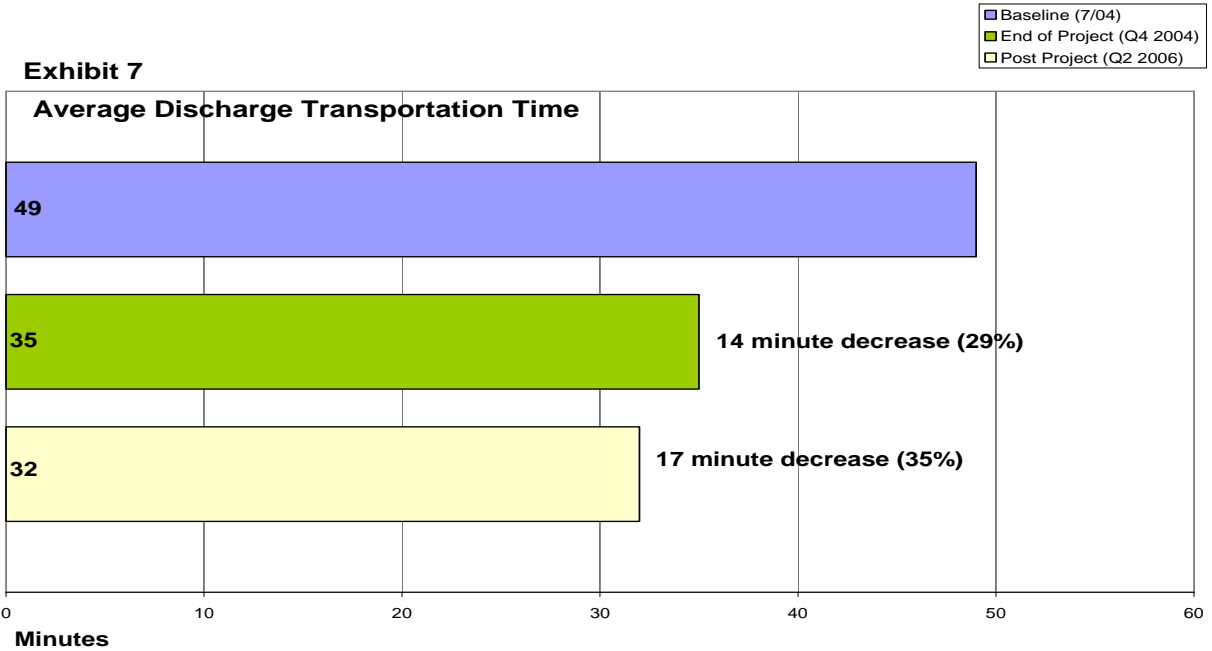
secondary units where patients for all services can be placed. “Off- service” is defined as the placement of any patient on any unit other than the primary or secondary unit indicated on the Patient Placement Matrix. Prior to the installation of TeleTracking™, the percent of off-service placements was not measurable or monitored. A baseline of 60% was established using the first four weeks post go-live; within four months the off-service placement decreased to 40% and continues to approach the organizational goal of 25% (See Exhibit 6).

Exhibit 6



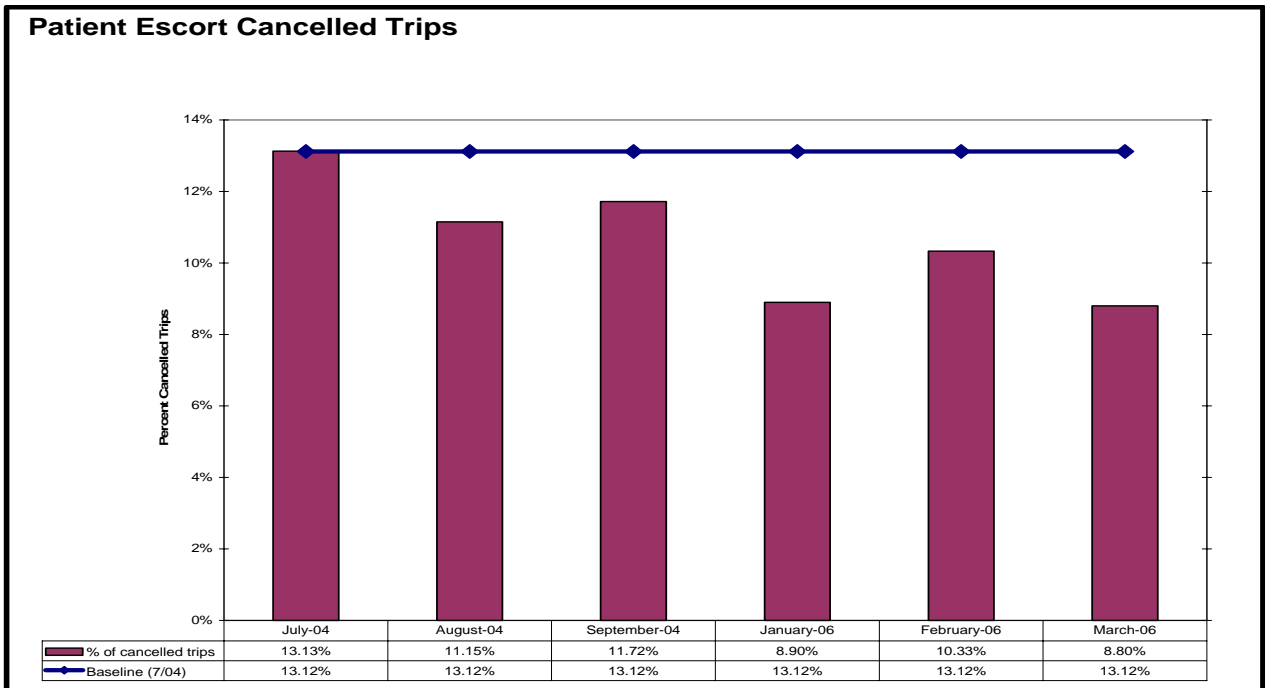
The implementation of the BedTracking™ module allows Patient Escort staff to send automatic notification of the time a patient is leaving the room to the BedBoard™ for cleaning. The result of the dial-in feature allowed for time-study analysis to enhance staffing to meet patient transportation needs by providing accurate volume and time statistics for scheduled and unscheduled trips. As a result of the management by data, Patient Escort has been able to consistently reduce patient trip times (See Exhibit 7).

Exhibit 7



An additional improved efficiency that was not anticipated at the outset of the project is the reduction in cancelled patient escort trips. As patient escort staff efficiency improved, demonstrated by shorter trip and response times, nursing and ancillary department staff became aware of the expected times and gained added confidence in the service; resulting in fewer canceled fewer trips (See Exhibit 8).

Exhibit 8

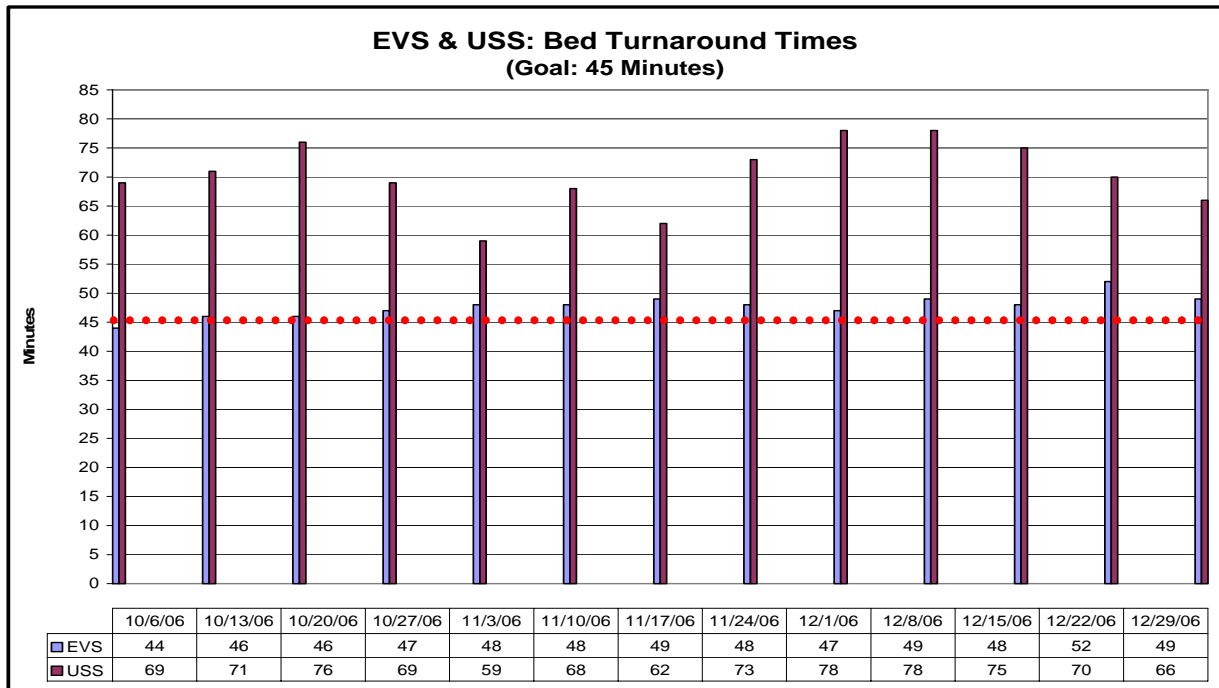


CHALLENGES

The distinct variance between the two pools of resources responsible for room turn-around at UABH (See Exhibit 9) is a testament to the fact that technology alone, regardless of its capabilities, cannot resolve an organization’s issues, nor can it meet the goals of any performance improvement initiative if process redesigns and accountability are not implemented in tangent with the technology implementation.

During the evolution of operations, UABH found its way to a hybrid model for providing environmental services required to prepare a room for a new arriving patient; centralized services provided by EVS and decentralized services by USS. Prior to the implementation of TeleTracking™, objective performance outcome data was not available and related operational decisions were made more subjectively. The new availability of performance outcomes data for the two distinct groups provided by TeleTracking™ has offered the organization data to review and make critical operational decisions regarding how services for TAT should be provided house-wide in the future. The implementation of TeleTracking™ has provided an invaluable resource for the organization to move forward in improving patient progression.

Exhibit 9



SUMMARY

Reductions in bed assignment and room turn-around times, improved patient discharge transportation times and fewer cancelled trips, decreased incoming and outgoing call volumes for patient accommodations and decreased hours on diversion have yielded enhanced patient throughput, increased patient/family and employee satisfaction and enhanced financial performance from incremental capacity created.

As part of an organizational culture that continually fosters change, we are confident with the data provided by TeleTracking™, knowledge of recent successes (and failures), and continued executive support that we will continue to identify and implement future initiatives to improve patient progression through the health system and enhance operational revenue.

We are ready to meet that challenge!

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