



Scenario 3

Estimated Impact and Cost Savings to Hospitals from PatientLocator™

To determine the possible cost benefit to a hospital, we have analyzed how the installation of PatientLocator™ at Hospital A would impact its costs.

The Hospital

Hospital A has 921 adult beds situated in several adjacent buildings with a total floorspace on the order of 2,000,000 square feet, making Hospital A a very large and complex institution. The impact of PatientLocator™ on Hospital A can be extrapolated to other hospitals, appropriately scaling to size and complexity.

In an interview with the Assistant Vice President for Revenue Cycle, she indicated quite a positive receptiveness to PatientLocator™, saying that the product as described would be expected to impact the cost, efficiency and capabilities of operating the Admission – Discharge – Transfer (ADT) function of the hospital. Activities in ADT include room control (bed assignment, financial review and insurance verification / pre – certification).

Employees

The patient access center operates 24/7, and employs about 80 people, with an average salary of \$ 20,000-25,000 per year.

- 3 Employees Transfer Center, day shift
- 2 Employees Transfer Center, evening shift
- 8 Employees Bed Control, day shift
- 4 Employees Bed Control, evening shift
- 22 FTE's in Bed Control

The Manual Process

Many activities of these employees are manually conducted on paper, in association with some computerization of patient information. For example, patients who are registered at Hospital A have demographic information viewable by computer. However, when a call comes in for a patient to be transferred to Hospital A, a paper transfer request form is completed, and its information is subsequently coordinated with registration data, and finally the patient is electronically registered.



The Transfer Center must coordinate with Bed Control which also uses a paper based system to track what beds are occupied, what beds are being emptied and what beds are clean and ready for a new bed assignment. Since the process is paper based, communication between Bed Control, the Administrators on Duty (AOD) and the transfer center is by telephone.

The AODs are mobile, moving throughout the hospital to visually and orally monitor each nursing unit's bed flow. The AOD contacts the Nurse Director or similar unit – based nurse, and collects information about patients that might be moving out of the nursing unit or who might need to come into the nursing unit. This information is entered onto a paper log, but the paper log is never transferred to an electronic system.

The Emergency Department pages the AOD to tell of patients who need to be admitted, and the AOD attempts to determine from the paper log whether a bed is available on the nursing service requested by the physician. If there is no bed available on the requested nursing unit, the AOD begins a process of calling nursing units to see who can move patients, how accommodations can be made, how fast Housekeeping is cleaning emptied beds, and how the nursing staffing is accommodating the changing patient load. When a bed cannot be identified for a patient being admitted or being transferred out of an ICU, the AOD must page the physician and attempt to work out some arrangement.

There are now 8 AODs with an estimated salary and fringe averaging conservatively estimated at about \$ 70,000 since these are all experienced RNs, many with advanced degrees or special clinical training. Much of their work is this labor – intensive, vocal communication, waiting for callbacks from pages and managing a paper logs.

One major constraint on the AODs, Bed Control and the Transfer Center is that Federal and State laws require that a reliable answer be provided within 30 minutes of request that a patient can be transferred from an outside facility, and that “outside facility” can mean the Emergency Department itself. There are stiff penalties for failing to manage a transfer between facilities.

The PatientCentral™ Difference

PatientLocator™ would have a major impact on the work, people, effectiveness and efficiency of ADT and the AODs. The Assistant Vice



President for Revenue Cycle estimates that a major change in ADT workflow would be effected by an effective electronic system that:

- Automated some tasks such as prioritized notification of Housekeeping of the need to clean a bed.
- Automatic notification when a bed is available.
- Electronic maintenance of one single database of where the patients are and where they are going.
- More efficient electronic communication would result in a major change in workflow in ADT.

Staff Efficiencies

The Assistant Vice President for Revenue Cycle indicates that the current 8 staff on daytime and 4 staff in Bed Control could be reduced to one staff per shift. She estimates that the overall personnel budget would be reduced by about a third, which translates to a reduction from about \$ 2,000,000 in salary to about \$1,333,000 in salary, or a reduction of about \$ 667,000 in ADT salaries alone. Considering fringe benefits, that is on the order of \$ 800,000 in potential savings yearly.

The AODs estimate that if there were an electronic patient tracking system that communicated with ADT and the nursing services their workload would be reduced by a third. This would not automatically mean a reduction of a third of the FTEs of AODs since they would still need to be present for a number of other functions in the hospital. Still, if we estimated a reduction of 20% of the FTEs, that would be a reduction from \$ 560,000 to about \$ 450,000, or a savings of about \$ 110,000 per year.

Other Efficiencies

The impact of PatientLocator™ in other areas is financially less readily estimable, yet the impact is real. First, more reliable completion of bed control decision making for out-of-hospital transfers would yield excellent risk reduction in view of transfer laws.

Second, the highly paid nursing management on each nursing unit would spend less time with bed control issues, and more time with other nursing tasks, improving nurse satisfaction and retention.

Patient Satisfaction

Patient satisfaction would improve since much of the time freed up would result in more direct patient care by nurses, and there would be less uncertainty and angst over patient movements within the hospital. Patients



would be more satisfied with diagnostic testing since they would have less waiting, less uncertainty, and when unexpected schedule changes occur they would be informed, thus reducing the anxiety that comes from feeling powerless and uninformed.

Communication Efficiencies

Physicians would be able to communicate better over admission and discharge issues, and their improved satisfaction would result in a competitive advantage in their decision making about which hospital into which to admit their patients. Such improved patient and physician satisfaction translates into a competitive advantage for Hospital A over other hospitals, and thus hospital revenue would probably reflect a rise with the installation of PatientLocator.

Revenue Efficiencies

Revenue should also rise from more efficient use of available beds, translating into more admissions to the hospital yet a lower actual length of stay. Given that much of the hospital's revenue derives from DRG – based reimbursement, a hospital's margin is largely based on how many patients flow through it and the extent to which variable costs can be reduced. Thus, even a half – day reduction in average length of stay would mean a large savings, and therefore a large impact on the bottom line.

On several occasions, members of the medical staff of Hospital A literally walked the floors to determine how many patient beds were empty compared to the number provided by Bed Control. On many nights the discrepancy was 20–25. That means there were 20–25 more beds available than realized, so more patients could be admitted. Alternatively, the patients could be admitted or transferred earlier, more safely, and with less frustration and inefficiency. Some of those beds would have been filled with new admissions if Bed Control knew they were there, so the number of admissions has been lower than it would be if the status of patients and beds were accurately reported.

Patient Safety Improvement

There are a number of current safety initiatives in hospitals. One such initiative is to monitor the number of missed treatments by respiratory therapists or missed doses of medications. A review of data shows that about a fifth to a quarter of missed respiratory therapy treatments occur because a patient is off the nursing unit, presumably for tests such as x – rays.

PatientLocator™ addresses this phenomenon in several ways. First, individual patients can be located in real time, so necessary treatments can



be provided. Second, analysis of missed treatments associated with the data from PatientLocator can lead to improved workflow processes in the hospital to minimize the need for high – labor efforts to “catch up” with a missing patient’s regimen, so that the hospital can give care that is both actually safer and more efficient, and prove that it is doing so. Paper based systems just don’t provide the level of analytical potential that an electronic locator, identifier and flow analyzer system like PatientLocator™ can.

It is difficult to put hard figures on the economic impact to hospitals like Hospital A for improving these kinds of safety processes. However, even the non – economic impact of having better safety and better proof of safe practices is enormous in the current regulatory atmosphere.

PatientLocator™ eliminates paper, and more importantly serves as a permanent database of patient flow events, and as such becomes a resource for process improvement, from Housekeeping efficiency to timeliness of discharge planning. Analyzing the data allows one to determine how to revise workflows to get more patients to each location (bed, radiology, OR, ICU, etc), with fewer personnel to get them there.

We have not estimated the potential for reduction in Housekeeping FTEs, but anticipate that a more efficient workflow for Housekeeping would both reduce numbers of staff and improve the satisfaction of the staff with the job they have to do.

Conclusion

Thus, in the first year of implementation of PatientLocator™ we could estimate the cost savings from reducing FTEs in ADT and AODs to be about \$ 910,000. Subsequent savings from improved workflow and increased revenue from competitive advantage and more efficient use of bed space would impact the hospital bottom line very significantly. Given that the price of installation of PatientLocator™ is nearly the same as the estimated cost savings in the first year, PatientLocator is a very cost effective product for hospitals to acquire. Again, while this analysis stems from the specifics at Hospital A, it does generalize to the situation in many other hospitals. Furthermore, having the full PatientCentral system would amplify the savings and revenues estimated here.