

One part tech, two parts process: Delaware healthcare system combines improved business process with an automated patient flow and bed management application to achieve commendable results. (Patient Flow: Case History)

Health Management Technology - February 1, 2007
Gale Reference Team

Word count: 2067.

[citation details](#)

Just like old habits that are hard to break, old perceptions are hard to change. For hospital nurses who are increasingly asked to perform nonclinical functions in addition to their already ambitious clinical workloads, asking for any change in perception had better have a good reason behind it.

Christiana Care Health System in Wilmington, Del., had a good reason, and proved it to both the organization's nurses and its environmental services team. The reason was patient care.

"If you throw good technology at bad process, all you get is bad technology," says Project Leader Chris Konen, who spearheaded Christiana Care's patient throughput and bed management initiative. He knew and set in motion a plan that recognized that the best technology in the world won't solve any problems when it is used with ineffective processes.

Christiana Care is one of the largest provider systems in the mid-Atlantic with nearly 1,100 licensed beds in two hospitals, approximately 300 beds in Wilmington Hospital and about 800 beds in Christiana Hospital, and nearly 10,000 employees. Annually the organization admits more than 54,500 patients and handles more than 143,000 emergency visits. But the organization labored with a legacy bed-tracking system that only indicated if beds were dirty or clean; it didn't actually manage patient throughput, and that was what the Christiana Care needed.

As in most healthcare organizations, about 90 percent of Christiana Care's inpatient admissions came through the emergency department (ED) or the surgery department--and it was in those two departments that the issue of patient throughput most clearly manifested itself. Christiana Care was fortunate; it wasn't diverting patients to other area hospitals because empty beds had not been cleaned, as some hospitals are forced to. Still, patients were boarded in the ED or PACU (post-anesthesia care unit) until an appropriate bed was clean and available, sometimes for hours.

Rick Olivere, director of environmental services (EVS) for Christiana Care, describes the bed-cleaning process as "reactionary. We would get the bed ready for the next patient when we needed it." Unfortunately, the need often began around 2 p.m. and might continue through midnight. Reacting mainly to the need for beds meant that a backlog of dirty beds might overlap one or even two shift changes. It also meant that the EVS staff working overnight--the best time in any hospital to clean all the public areas--also might be burdened with cleaning a large portion of beds that could have been managed during an earlier shift.

Process Under the Microscope

Konen spearheaded a project team that consisted of two subteams, a business process team and a technology team, whose charter was to identify and implement process re-engineering associated with patient flow. What began in December 2004 as a project to replace a magnetic white board with an electronic board evolved into an all-hands experience with analyzing current states, identifying the desired future state and determining the process changes necessary to get from current to future--and with a lot of active staff participation.

Part of the problem, says Konen, was that upon in-depth analysis, "We found little to no formal process in place around how a bed gets cleaned. We found that to be true at Wilmington Hospital, our 300-bed hospital, as well as at Christiana Hospital, our 800-bed hospital." In effect, that meant that a single dirty bed might inspire up to 10 separate phone calls or pages from floor nurses, charge nurses, housekeepers and EVS supervisors. "When anyone and everyone can do it, no one is accountable for

doing it," says Konen, and that dilutes efficiency.

The organization essentially chose its patient flow information technology before all of the organization's pertinent players became steeped in process improvement and redesign of internal processes. Christiana Care selected the Bed Management Dashboard and BedXpress Dashboard from Premise Corp., Farmington, Conn. The system relied on SQL Server; it was Web-based and it would integrate with the organization's clinical system from Cerner and ADT (admission discharge transfer) system from McKesson. Konen says he felt the product was competitively priced and represented a good financial investment value.

Premise isn't the largest of corporations, and Konen admits that large healthcare organizations sometimes face a risk in working with smaller vendors. "At Christiana Care, we are willing to work with a smaller vendor if we feel their products will meet our business needs. We felt at the time, and still feel today, that this was the right decision for our organization.

"At Christiana Care, we try to use best practices in all segments of our work," says Konen. Before the business process team had fully identified new processes to implement for improved patient throughput, "we knew we wanted to eliminate as much handing-off as possible." Part of the appeal of the Premise products was an intelligent workflow engine that not only automated the assignment of housekeeping jobs but also provided automated load-balancing. With that feature, front-line EVS staff can be redirected to where they are needed the most without the need for human intervention or delay.

Change of Priorities

The business process team's analysis produced another eye-opener: The environmental services department put a high priority on routine cleaning, while bed cleaning was used to fill in the gaps--unless some of those eight or 10 phone calls about dirty beds had been placed.

"The EVS department has changed how it does business," says Konen, describing the department's current commitment to a different priority. "Now, bed cleaning is the most important function of this department." Konen says that initially, many EVS employees were nervous about changing the paradigm. "In any hospital, environmental services is at the bottom of a steep hill. It's easy for those employees to be blamed for situations they didn't create and which are outside their ability to control." The business process team wanted a new process that would avoid such no-win situations for EVS employees.

The new EVS process is based on service standards. "We said to EVS employees, 'If we define reasonable and appropriate service levels and you achieve those levels, then you have removed yourself as a barrier to getting beds cleaned. Then, the problem falls outside the environmental service department.'" The reasonable service standards agreed to were:

- * 10 minutes from notification of a dirty bed to arrival of a housekeeper;
- * 30 minutes for a "routine" clean;
- * 45 minutes for an "isolation" clean.

Next, attention turned to the volatile question: Where would notification of a dirty bed come from?

Checks and Balances

The business process team was an interdisciplinary team composed of floor nurses, charge nurses, EVS management and supervisors, housekeepers and other staff. When the question of notification responsibility was put to the team, "that's when the discussion got interesting," says Konen.

The business process team wanted one role to be responsible for calling in a bed cleaning, and argued that the designated role should be the one person who always knew where a patient was and whether he had left the hospital. When the realization emerged that the nurse in charge of a patient and patient's room is the perfect person to make the cleaning notification, "then, the group started to polarize," says Konen. A group of nurses on the team objected, arguing that the cleaning notification

was but one more nonclinical function being foisted upon them. Nursing management also expressed concern about getting comprehensive buy-in from the nursing staff in general.

The business process team promised the nurses that making one notification call--using the automated Premise system in concert with EVS's new service levels--would eliminate anywhere from three to eight subsequent steps, such as second and third phone calls and follow-ups to see if rooms were actually clean and ready for patients. They positioned it as a trade-off: one nonclinical function that could eliminate half a dozen subsequent tasks and hours of delay. But persuasion was only a small part of changing nurses' minds and perceptions.

It took an incremental and very hands-on roll-out, beginning in fourth quarter of 2005, at Wilmington Hospital, the smaller of the two. BedXpress Dashboard was rolled out first to address the bed turnover process, after which Bed Management Dashboard followed. Training was intense. Premise Corp. sent training assistance on-site to provide train-the-trainer sessions that Christiana Care staff carried out themselves. The organization implemented extensive Web based training and what Konen describes as "a lot of nursing support" on the floor when the system went live.

The incremental implementation was viewed as a risk. "Everything we implement at Christiana Care involves checks and balances. This provides accountability for action. But as we went live with our new bed notification process, we had no way to enforce it if a nurse decided not to use the system. We knew our success depended on garnering enough nursing acceptance of the process changes," says Konen.

Turning Trial Runs Into Results

The vast majority of Wilmington Hospital nurses were willing to try the new system; Konen says the number who didn't was "tiny." They identified a bed that needed cleaning, placed a single call into Premise's interactive voice response system, and within 10 minutes, a housekeeper appeared. "About 85 to 90 percent of nurses who used the system accepted the change immediately," says Konen. "Our nurses were so accustomed to taking nonclinical action that didn't generate results, but now they saw that their one action did make a difference. They took one step with an automated bed management system; the system worked, our re-engineered processes worked, and nurses saw results within 10 minutes. They also realized that they eliminated at least half a dozen follow-up steps."

More than a year later, Christiana Care is trucking right along. "Ninety-nine percent of the time, the system assigns a housekeeper as soon as the nurse hangs up the phone," says Konen. Today the average response time from phone call to the appearance of a housekeeper is eight minutes. "There is no such thing as a stat-clean at Christiana Care," Konen says. "We do have a clean-next, but not stat-clean because there is no longer a need." Today the average clean time is 28 minutes, and the average turnaround time is 35 minutes--and both are better than the agreed upon service levels originally developed with EVS.

Early in the implementation process, housekeepers were trained that they could not clean a bed unless notification came through their pagers and through the Premise system. They were trained not to respond to verbal requests or directions, but rather to redirect those requests through the system. Today, it is the environmental service team that is ready to nudge everyone else; if a housekeeper spots a dirty bed, she often will notify her supervisor and ask if an unanticipated problem exists somewhere and why EVS hasn't been paged.

During implementation, Christiana Hospital, the larger of the two, took note of the Wilmington Hospital experience. "Their attitude was, 'We're bigger. We're different. That won't work here,'" says Konen. "But we implemented the same Premise system with the same improved processes, and we had the same results as at the smaller hospital." Today, there is no backlog of dirty beds awaiting any shift; all beds that need cleaning within a shift are cleaned in that shift.

Chris Konen says the staff of Christiana Care is lucky. "Our CIO views every technology implementation as an opportunity to also re-engineer a business process." If the patient throughput project was any indicator, that's a positive formula for continued future success.

Source

Chris Konen

Project Leader, Information Services

Christiana Care Health System

Wilmington, Del.

www.christianacare.org

Product/Company

Bed Management Dashboard and BedXpress Dashboard

Premise Corp.

Farmington, Conn.

www.premiseusa.com

For more information on the Bed Management Dashboard and BedXpress Dashboard from Premise Corp., www.rsleads.com/702ht-212

Citation Details

Title: One part tech, two parts process: Delaware healthcare system combines improved business process with an automated patient flow and bed management application to achieve commendable results.(Patient Flow: Case History)

Author: Gale Reference Team

Publication: *Health Management Technology* (Magazine/Journal)

Date: February 1, 2007

Publisher: Thomson Gale

Volume: 28 **Issue:** 2 **Page:** 34(3)