

System increases charge captures

BY SUSAN BIRK

As the state's only medical center dedicated exclusively to pediatric care, Children's Hospital of Wisconsin, located near Milwaukee, averages a bed occupancy rate of approximately 98 percent. In 2006, the hospital, a research and teaching facility affiliated with the Medical College of Wisconsin, admitted 22,000 infants, children and adolescents, cared for

284,000 patients in its 70 outpatient specialty clinics and for 60,000 in its emergency/trauma unit, and performed 14,000 surgeries, including bone marrow transplants.

The hospital, also the bustling flagship of the independent Children's Hospital and Health System, knew from ongoing audits that its charge capture rate for infusion pumps and syringe pumps was averaging only 75 percent to 80 percent. The hospital began addressing the issue in 2002 with NurseSaver, a wireless point-

of-use system that automates charge capture and minimizes the potential for over-billing on this heavily used, portable equipment. The system has worked so well that the hospital plans to expand it to automate charges for other equipment as well, including patient-controlled analgesia pumps, and to incorporate the necessary infrastructure to install the system in a new 72-bed inpatient pavilion scheduled to open in spring 2009.

Freedom reigns

The system frees nurses from a pencil-and-paper or data-entry obligation and affords them more time for the critical task of direct patient care, according to Nancy Korom, R.N., vice president for patient care services and chief nursing officer. A busy nursing staff whose primary focus is attending to the complex needs of very sick children requires as much liberation from time-consuming, less non-patient-oriented tasks as it can get, Korom says. "Anytime we can enable nurses to spend more time at the bedside, and anytime we can automate the less critical portions of their jobs, we're interested in exploring the opportunities," she says.

"A manual system is extremely labor intensive," adds Tom Lausten, director of pharmacy and distribution services. And as the ongoing audits revealed, manual systems also can be quite vulnerable to human error.

"This system automates the billing function [for infusion and syringe pumps] and keeps nurses at the bedside," he says. "It also allows us to know where the equipment is and when it needs to be cleaned,

A CLOSER look

Real results from real-time charge capture software

Numbers depicted both below and in the charts are averages for hospitals across the country.

RECOVERED CHARGES

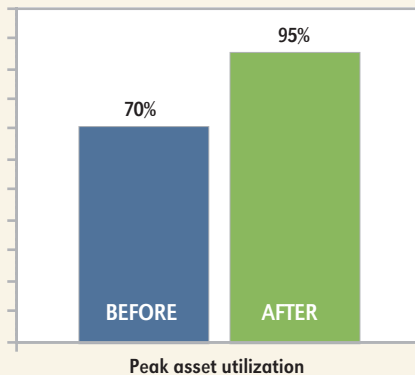
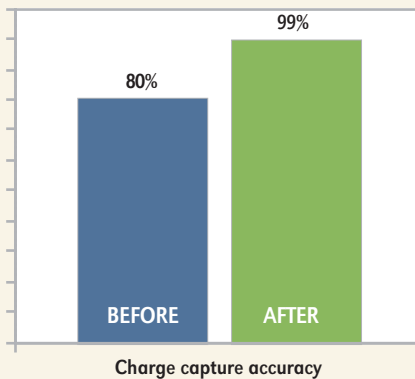
Charge capture accuracy rates can increase from an average of 80 percent to greater than 99 percent.

- Recovered annual charges
—\$832,000 annually
- Recovered profit
—\$416,000 annually (at 50 percent reimbursement)

PEAK ASSET UTILIZATION

Asset utilization for IV and syringe pumps can be enhanced from 70 percent to more than 95 percent through the use of wireless tracking.

- Saved rental expenses
—\$328,500 annually



Source: Jex Technologies Inc., 2007



Tom Lausten, director of pharmacy and distribution services, and Nancy Korom, R.N., vice president for patient care services and chief nursing officer, Children's Hospital of Wisconsin, Milwaukee, stand in a patient room equipped with the NurseSaver system.

which helps us keep the equipment in patient rooms, where it's needed."

While sparing nurses the burden of manual entry, efficiencies gained with the hospitalwide system have improved charge capture accuracy by approximately 20 percent. Charge captures have climbed to about 95 percent to 98 percent since installation, Lausten says.

The system's basic building blocks are the NurseSaver, a small device mounted on the wall in every inpatient room, and infrared sensors strategically located in every inpatient room and utility room that have been programmed to detect a pump's entrance and exit.

Tag, you're it

Each pump is equipped with a battery-operated identification tag or badge. The system captures the identifying information. NurseSaver functions much like an unobtrusive cash register in the room, according to Aleks Nickolich, president of Jex Technologies, Milwaukee, the product's developer. A nurse rolls the equipment into the room, a sensor detects the badge, and NurseSaver prompts the nurse with an unassuming series of beeps so that she can acknowledge the system by pushing a button on a touch pad. If two patients are in the room, the nurse links the pump with the appropriate patient.

Patients' names appear on the screen; the nurse selects button A or B to indicate which patient will be receiving infusion therapy.

The process requires no additional paperwork or electronic data-entry time on the nurse's part for the duration of the patient's hospital stay.

The system automatically submits charges to the hospital's billing system on a daily basis until the patient is discharged or a nurse or other staff member removes the pump from the room.

When the pump is taken from the room and into a utility room, an infrared sensor triggers another set of instructions to

Photo by Mark Avery

CASE IN POINT

stop charges for the patient.

“It also indicates to us [via central computer in distribution] that there’s a piece of equipment that needs to be cleaned and put back into stock,” Lausten says.

Access to that kind of information has enabled the hospital to enhance the efficiency of pump cleaning and distribution, he says. In addition to its demonstrated value as a charge capture and equipment location tool, NurseSaver works hand-in-hand with the hospital’s smart pump technology. Blending the two capabilities has allowed the hospital to troubleshoot and track historical information with greater accuracy and reliability, Lausten says.

Before infusion can begin, pump software tests the nurse’s programming of medication dosages and other variables to ensure that it is functional and acceptable.

In addition to minimizing the risk of potentially serious medication errors, the pump stores data on medications administered, dosages, when therapy begins and other key parameters.

The pump saves and houses the information, but the Jex system makes it possible to find the pump.

NurseSaver stores data on which pump was used for which patient and when, and indicates the pump’s current location within the hospital. “The two technologies together give us a valuable tool in terms of tracking issues related to infusion devices,” Lausten says. “If we have a [patient care] issue that we need to follow up on and need to find a pump, the best way to do it is with NurseSaver. We can go back and find out what pump was used on which patient and on what days.”

“After we find the pump, we can down-

load the information from the pump and see what was actually given to the patient, how the pump was programmed and how [infusion therapy] was started,” he says.



The NurseSaver system ensures that nursing staff know exactly where equipment such as IV pumps are located. Time that otherwise would be spent searching for equipment can be used to care for patients.

The cost to implement NurseSaver was \$377,000, and adding the system resulted in a 75 percent reduction in infusion pump rental expenses, according to Korom. “It has been difficult to quantify true savings because of our significant growth,” she states.

“If you look at gross charges and improved charge capture, it took a year-and-a-half to two years for us to recoup our investment. That’s pretty good for a medical equipment ROI,” Lausten says.

Implementing an answer

According to Nickolich, “The total cost of implementation for a 200-bed hospital is approximately \$500,000, which gives the hospital the ability to capture all charges in the patient room and track equipment throughout the hospital. Of this, \$400,000 goes toward the wall units in each of the patient rooms and utility

closets, tracking equipment (sensors and badges) and software. Installation, system configuration and training are contained in the remaining \$100,000.”

Installation and implementation take approximately three months, he says.

Since implementing NurseSaver, Children’s Hospital has looked at other potential charge capture and equipment location solutions.

“There are new technologies that will give this product some competition,” Lausten says. “But as we go into our new pavilion, we feel that this technology is going to lead us through the next five-plus years.”

Those other technologies include radio-frequency devices that also can pinpoint a device’s location. However, “that equipment bleeds through walls and ceilings, so you might think a piece of medical equip-

ment is on the third floor when it is actually on the fourth floor right above it,” Lausten says.

Lausten notes that emerging ultrawide bandwidth technology shows potential to minimize problems such as these, “but the cost to install it would be astronomical for us right now.”

The hospital plans to use infrared technology for the foreseeable future and to fine-tune infrastructure in the new pavilion and the existing building (incorporating more sensors, for example) to produce a system capable of locating pumps with greater accuracy.

The hospital also plans to expand the system to accommodate more than infusion and syringe pumps.

“The capital budget for 2008 includes funds to tag almost every piece of medical equipment that comes out of distribution services,” Lausten says. **MMHC**

Photo supplied by Jex Technologies

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