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## The High Cost of MD Turnover

By Marcia Faller, RN, and Kurt Mosley

Despite the introduction of high-tech surgical and diagnostic equipment in recent years, the physician's pen remains the most powerful tool in health care. Without physicians, patients cannot be admitted or discharged, procedures cannot be performed, and tests cannot be ordered.

Some hospitals may be able to absorb the loss of a physician without feeling much pain, but others cannot. In particular, the cost to small hospitals of physician attrition can be devastating. To maintain both quality of care and financial viability, hospitals must commit to a serious and sustained program of physician retention. A brief look at a few figures shows why.

**Physicians Bring in Significant Revenue**

In a 2007 survey, Merritt, Hawkins & Associates asked hospital CFOs to indicate the amount of annual revenue physicians in various specialties generate on behalf of their facilities (see the exhibit on page 2) Surgeons tend to bring in the most revenue, with invasive cardiac surgeons generating more than \$2.5 million for their affiliated hospitals each year.

These numbers demonstrate why physician turnover can send shock waves

through hospitals with a limited number of primary care physicians and specialists.

The financial impact of physicians on hospitals also was calculated in a 2005 study by the Health Care Advisory Board. This study looked at average patient income contribution per day by various medical specialties:

- > Cardiac surgery: \$1,489
- > General surgery: \$936
- > Orthopedics: \$760
- > General medicine: \$453

Clearly, when physician turnover causes even one day of staff time to go unfilled, the result can be costly. When turnover creates gaps that last weeks or months, the "opportunity cost" of lost revenue and income can quickly reach into the hundreds of thousands of dollars.

**The Recruiting Challenge**

Turnover among newly recruited physicians can be particularly distressing based

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### COMING IN JUNE

- A successful CNO-CFO partnership**
- How are hospitals becoming "patient-centered" without breaking the bank?**

**Conflict resolution strategies**

## The ABCs of RFID

*Radiofrequency identification is a hot technology that's gaining momentum across the healthcare community. An increasing number of hospitals are using RFID to improve patient flow, achieve process improvements, and have a positive impact on patient safety and satisfaction. The ability to track equipment and people in real time in the hospital setting provides tremendous value, and RFID—particularly active RFID—holds the promise of becoming a transformational technology with far-reaching impact.*

### RFID Defined

RFID is a term for technologies that use radio waves to automatically identify and track the movement of people or items. The basic hardware consists of an RFID tag (made up of a microchip with an antenna) and a reader or receiver.

There are two types of RFID: active and passive. Often considered together, active and passive RFID are fundamentally distinct technologies with different capabilities:

- > Passive RFID uses small RFID tags that transmit information when passed within a one-meter range of a reader. Passive RFID systems cannot locate a person or item once it moves past an antenna, making it impossible to track continuously. However, passive RFID may be a good choice for inventory management and other “passive” items that need to be tracked.
- > Active RFID tags transmit at higher power levels than passive tags, making them more effective in “radiofrequency challenged” environments such as water (including humans, which are mostly water) and metal (for example, carts), as well as at longer distances. Many active tags have practical ranges of 30 feet and a battery life of up to 10 years.

The ability to *continuously* track people and items throughout the hospital is the source of the recent surge of interest in RFID.

Because active RFID tags transmit a consistent signal, they are effective for identifying and locating items and people that move frequently and over large distances indoors—a concept also known as “indoor positioning.”

### Other Identification and Location Tools

Healthcare has pitched an artificial battle between RFID and other identification and location technologies, including bar coding and WiFi network systems. In reality, each of these systems has its strengths and weaknesses.

**Bar coding.** Bar coding is similar to RFID. Both technologies involve tagging an item or patient, which quickly provides

identification information. An older technology, bar coding is inexpensive and a good solution for basic identification and tracking tasks, such as ensuring patients are getting correct medications. However, bar codes are line-of-sight only, meaning they need to be scanned in short range. For example, if a patient is sleeping and her bar-coded wristband is turned, the nurse would have to disturb her to scan the bar code—a limitation that RFID tags have overcome because radio waves can be read from a distance and through barriers, such as opaque materials and walls.

**WiFi.** Current WiFi systems (802.11) are sufficient for tracking infusion pumps and other equipment on a broad scale throughout the hospital. These systems are attractive to many hospitals because some use standard (but many) access points. However, because WiFi signals are absorbed by the body, tracking people with the appropriate level of accuracy may be a source of concern.

Health leaders should consult IT experts to determine the technology that can best meet their business objectives. These objectives should drive the selection of technology, not the other way around.

### Active RFID in the Hospital Setting

Hospitals deploy active RFID for four primary reasons:

**To improve patient flow.** A disposable active RFID tag can attach to a patient wristband and stay with the patient from admission

### An Active RFID Example



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through discharge. The signal from the tag combines with location analysis software and hospital information systems to provide immediate information on patients:

- > Locate patients in real time.
- > Inform nursing when a laboratory result is available.
- > Inform nursing when an order has been initiated.
- > Alert environmental services the instant a room is ready to clean.
- > Alert bed management the instant a room becomes ready for the next patient.
- > Provide real-time metrics for management on length of stay, turnover rate, and occupancy.

**To optimize equipment management.** Active RFID allows staff members to more easily find equipment and supplies, thus reducing time spent “hunting and gathering,” a frustrating activity for any nurse. Nurses can easily find the closest pulse oximeter, wheelchair, or thermometer with just a glance at a computer screen. An active RFID indoor positioning system can also be used to automatically page a head nurse when a telemetry transmitter has entered the laundry room or an area outside clinical boundaries.

**To augment patient safety initiatives.** Because an active RFID indoor positioning system tracks patients, “wander alerts” can be set up to notify a clinician if a high-risk patient leaves a predefined area. All staff can immediately tell when a patient with fall precautions leaves or enters a room, or whether a patient is in the wrong procedure room or surgical suite. Active RFID can also alert staff if adult medical equipment is wrongly placed in a pediatric room. And patients benefit overall from better communication and coordination among caregivers.

**To streamline hospital operations.** Because RFID tags are attached to patients and staff, the system can track select activities,

## **RFID systems vary widely in cost, which is determined by factors such as a hospital’s architectural footprint, the items or people who will be tracked, and the level of granularity required. Early investment returns are promising, revealing that a system can pay for itself in approximately 18 months.**

such as when a patient enters a surgical area, what OR staff has seen him, how long ago. Data collection is automatic and easy, creating baseline measurements in advance of any improvement intervention and facilitating reporting and compliance with quality standards.

All of these benefits return time to nurses, which has a positive impact on professional nursing practice, the role of the nurse, and the safety and quality of patient care.

### **Determining Impact**

Understanding the business case for using

active RFID for indoor positioning is essential to any healthcare leader considering the technology. RFID systems vary widely in cost, which is determined by factors such as a hospital’s architectural footprint, the items or people who will be tracked, and the level of granularity required. Early investment returns are promising, revealing that a system can pay for itself in approximately 18 months. ☞

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### **Providence’s RFID Experience**

Providence Health Center in Waco, Texas, is an extremely busy facility. Staff in the 25-bed emergency department see 58,000 patients a year. As a major cardiac hospital, Providence constantly receives patient transfers from other facilities. Understanding where bottlenecks were occurring and how best to head them off was a priority.

“A hospital is a continuum, and no area is more important than another when you start thinking about improving patient throughput,” says Annette Ayers, RN, vice president of patient services at Providence. “We decided that we couldn’t just implement a solution in one area, because if we did we would be missing a huge part of the overall picture of how patients move through our hospital.”

The active RFID indoor position system that Providence implemented can:

- > Pinpoint bottlenecks the moment they occur (for example, the transport team is behind schedule).

- > See the status of patients even when they have left the unit (for example, for a procedure).

- > Help staff know exactly what they should do next and for which patient.

With just a glance at a large display screen, staff can see how many patients are at fall risk, whether a patient has new orders or test results, where the nearest wheelchair is, and whether a room is clean and ready for a new patient.

“Nurses are getting information faster, which means they are able to act on it faster—in fact we’re even using the solution to help in recruiting because it shows how dedicated Providence is to improving care and making nurses’ lives easier. Physicians have noticed the change as well, commenting on how nice it is to be able to know where their patients are without having to ask,” says Ayers.

Providence’s active RFID system was installed this past winter. To measure the success of the system, staff collected baseline data on 68 performance measures, and will recollect this summer.