

# Performance Improvement Advisor

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## *Event reporting system decreases medication errors* **Intensive training, IT tools are hallmarks of safety improvement program**

The practice of medicine is based on the duty to "above all, do no harm." But doctors and hospitals are well aware of the tragic fact that there are thousands of patient deaths and injuries each year because of errors that could have prevented. In the past, medical errors have been the purview of the risk manager whose job is to limit the legal exposure by decreasing the errors through quality improvement initiatives.

But that approach is simply not enough, says **George Blike**, MD, director of the office of patient safety at Dartmouth Hitchcock Medical Center, Lebanon, NH. Blike says patient safety -- like airline safety and that of other critical industries -- must be grounded in a science that is consistent with safety and reliability. It must be process-based, he maintains.

Blike is spearheading a program to dramatically improve performance of all systems at the medical center and decrease medical errors. Key elements of the program include an intensive focus on staff training and the use of an event reporting management system that has decreased the number of errors due to faulty patient identification and sound-alike and look-alike medications.

Since the program began two years ago the medical center has spent nearly half a million dollars on technology support to enhance the patient safety efforts. Outcomes show a number of improvements across the system including a reduction in medication errors as well as infection rates and surgery/practice errors. For example, the infection rate for central line contamination among bone marrow transplant patients before the safety initiative was 20%. It is now at zero. In the last 30 patients there have been no infections.

### **Safety starts with prevention**

Dartmouth Hitchcock converged performance improvement efforts with patient safety in 2003. Three sentinel events lined up to create a force for change there and at other medical institutions across the country. First, the medical malpractice environment was literally out of control at the same time an internal review of claims data showed that even though institutional lead-

ers had measured quality improvement in different areas, there was still an inability to change systemwide, says Blike, who was then the director of quality assurance. Then, in November 2003, the Institute of Medicine (IOM) issued its landmark report on medical errors that called for a universal information system in health care and a strategic change aimed primarily at prevention.

Using the four pillars of safety he was familiar with from anesthesiology, Blike initiated the DHMC performance improvement program for patient safety. In addition to creating a culture of safety, the pillars include:

**1. Staff training and education.** Organized learning involves identifying care delivery problems that are known or suspected to cause accidents and errors and countering them before they happen. DHMC formed the office of patient safety and a hospitalwide, monthly patient safety forum. The forum is led by nurse project managers and the directors of quality improvement and risk management. "We look at all previous cases of errors resulting in harm to patients with a goal toward process intervention," says Blike.

The monthly forum features a success story. The presenter illustrates how a potential system problem was discovered, analyzed and prioritized. The intervention must be validated before it is implemented. Results are outlined at the forum.

This training is open to all DHMC staff and also highlights the local context of the intervention, says Blike. "We want to encourage communication and collaboration among all staff and apply successful interventions whenever and wherever we can. But they do not always work universally," he cautions. For example, Dartmouth uses a protocol for reducing errors in surgery that includes a checklist. The protocol works well in orthopedics but is not transferable to cardiac catheterization. "You can mark the right leg vs. the left leg but you can't mark the coronary artery," he points out.

The forum offers an opportunity for shared communication and problem solving among different teams. Interdisciplinary discussion brings out coordination failures, says Blike.

Dartmouth currently has 20 safety teams in areas

that have been identified as high hazard for patient safety. These areas include all intensive care units, operating and recovery rooms, the emergency department, obstetrics, and newborn and neonatal nurseries. Safety teams are comprised of staff who generally perform specific treatments and procedures and/or respond in emergency situations. Examples include a team for emergency c-sections, for resuscitation of newborns, and for CPR in the ER and ICU.

Intensive patient safety education is mandatory for all Dartmouth nurses. All new nurses go through the five-day-a-week, three-month training that demonstrates safe and effective clinical practice with the assistance of a simulator. The nursing department initially received a grant to pay for the simulator, which Blike characterizes as invaluable to staff training. These are the same as flight simulators used in pilot training, he says. They show staff exactly how to perform a procedure safely and practice it over and over again.

"The simulator is a key to safety and reliability training in other industries and should be used in health care," he says. Blike cautions that funding shouldn't keep a hospital from purchasing this or other patient safety tools. "Safety isn't free and there is not usually a financial return on investment. You spend the money in order to assure patient safety," he stresses.

### **Necessary investments**

**2. Structural and environmental tools.** Information technology is one of several elements in this pillar of safety. Examples of others are standard operating procedures, physician orders, storage and availability of central supplies. In 2003, DHMC purchased an event reporting management system developed by Quantros. The system is web-based and automates the collection of incident information, follow-up, root analysis and regulatory reporting.

"The beauty of this tool is that it shows up on every hospital computer, and anyone including staff, patients, family members or other visitors can report an incident anonymously," says Blike. The system classifies the incident by type and sends alerts to occurrence managers, who then route it to local safety team leaders. The system identifies over 30 types of adverse events and near misses. It also analyzes trends in the data to identify potential root causes of the problem for DHMC's safety teams. The Dartmouth data is kept confidential in the system along with more than 250,000 total adverse events that have been reported by other user institutions. The aggregate information allows for benchmark comparisons with other health care institutions.

Blike says the adverse event reporting system is an asset because it creates mechanisms to turn surveillance into action. For instance, DHMC has implemented a new medication ordering and labeling system.

Other system improvements include better storage of intubation equipment and standard procedures for quick restocking. In the past it routinely took 10 minutes to get an airway in a patient. Improving the system to a benchmark of less than 5 minutes by improving process

defects has translated into a 75% increase in survival at discharge for intubated patients. "Patient safety starts with all of these little measures. It is like the ground crew and maintenance in aviation," says Blike.

Internal review showed room for improvement in CPR efforts at Dartmouth. The problem identified was an outdated communication system that used the hospital's overhead paging system to issue a general alert such as, "Stat airway in OB." DHMC earmarked funds in its budget to pay for new pagers with alpha numeric paging capacity. For \$100 a pager, the staff now gets a clear and concise coded text message for each page, and the appropriate staff are the first to respond to the emergency.

### **Attitudes about safety**

**3. Capacity for organizational learning.** Once a problem is identified the goal of Dartmouth's patient safety program is to reach out to every place in the institution that it might occur and fix it. Blike says in order to effect systemwide change -- and the cultural change that is the final overarching goal of patient safety initiatives -- trust and transparency among staff must be encouraged.

"We wanted to understand how staff felt about patient safety and their own personal involvement in it," says Blike. DHMC developed a survey on hospital safety. Questions were both general and directed to specific staff groups. All staff members were asked if they felt it was "safe" to their career to personally report a safety incident. Medical residents were asked if they thought they could stay awake for 24 hours and work without a break. The questionnaire revealed that areas that had experienced a loss of experienced personnel had more potential safety problems.

The survey results also showed that certain key professionals (e.g. certified nurse anesthetists) had been inadvertently left off of safety teams.

Overall, Dartmouth has made a number of positive improvements in the past two years, but Blike says the commitment to patient safety must be ongoing. "Safety changes in other industries are always incremental," he cautions. "There are so many threats to safety that you cannot fix them all at once."

The performance improvement efforts at DHMC show the power of creating a process and engaging all staff in that process, says Blike. "Many people think what is needed is a carrot and a stick. But motivation is always better," he adds. "You have to change the meaning of 'leadership'," he says. "Leadership in patient safety means taking action despite personal risk and being part of a team effort," says Blike. "Transparency equals trust equals corrective action."

He advises other institutions to focus on creating a patient safety environment first and budgeting for resources. Be creative in developing education and learning experiences. If your institution cannot afford a simulator, he recommends videotaping procedures and using mannequins for practice drills.

*Editor's Note: Contact George Blike at (603) 653-0642. ♦*