

# Getting results in patient safety.

A new era of event reporting

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A deep understanding of clinical patterns is required to reduce medical error. A revolution in event reporting will provide the data and root-cause analysis to power that change.

Patient safety has been front and center since the Institute of Medicine released its landmark report “Too Err Is Human: Building a Safer Health System” in 1999.

Progress since then, while in some cases substantial, has often failed to match the level of urgency. There are two basic reasons. First, the root causes of patient safety events have been difficult to isolate. Second, improving patient safety generally means fixing broken processes and changing cultures — always a major challenge.

The urgency of improving safety is only increasing, especially since the Centers for Medicare and Medicaid Services in October 2008 stopped reimbursement for care resulting from several “never events” and hospital-acquired illnesses.

Today, GE Healthcare, in collaboration with MERS International, offers a systematic approach to patient safety that holds out the promise of delivering substantial and consistent results. At the heart of this approach is a sophisticated event reporting system used to record adverse events, no-harm events, and near misses, and then analyze them to find patterns.

This technology is wedded to proven, data-driven process improvement methodologies and change management techniques that allow hospital staff to adapt to the culture of event reporting and drive improvements that reduce adverse events and near misses. In essence, the approach combines incisive analysis with effective action. It enables users to move from monitoring and reporting events to analyzing and actually preventing them.

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Barbara Rabin Fastman  
Assistant Professor of Health Policy  
The Mount Sinai School of Medicine

Aside from the obvious benefits to patients and their families, fewer adverse events mean reduced reimbursement losses, increased bed capacity, greater revenue, and more satisfying work conditions for physicians and staff.

## Counting the costs.

The basic facts on patient safety need little introduction. Adverse drug events annually cost U.S. hospitals \$3.5 billion,<sup>1</sup> and patient falls, \$1 billion.<sup>2</sup> As many as 780,000 surgical site infections occur in the United States each year, up to 60 percent of them preventable.<sup>3</sup> Ventilator-associated pneumonia (VAP) accounts for up to 18 percent of all hospital-acquired infections, affecting some 250,000 patients per year and causing 1.75 million excess hospital days.<sup>4</sup>

The list could easily go on. Among their effects, adverse events often require patients to stay in the hospital longer than they would otherwise. That means bed capacity is constrained and revenue is lost.

Even aside from adverse events, longer hospital stays can result from process-of-care errors, such as rescheduling patient procedures or the need to perform additional diagnostic tests to monitor patient status, say Annetine C. Gelijns, Ph.D., and Alan Moskowitz, M.D., both professors and co-chairs in the Department of Health Policy at The Mount Sinai School of Medicine.

“Such errors result in insidious costs to the institution that are not financially compensated for by upweighted reimbursement and, therefore, are an important target for hospital administrators,” Moskowitz says.

The critical objective, of course, is to find out why adverse events and process-of-care errors happen and install good practices to prevent them.

That process starts with effective event reporting. Simply stated, “If you don’t know what’s going wrong with your systems, you can’t fix your problem,” observes Barbara Rabin Fastman, Assistant Professor of health policy with The Mount Sinai School of Medicine and a patient safety consultant.

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Historically, hospitals have recorded adverse events and near misses manually on paper or in computer programs such as spreadsheets. Either way, the data is difficult to share and analyze, so it is not put to optimum use.

More significant, staff members often do not report events consistently. They may not have been told to make reporting a priority, they may not know how to report an event, or they may keep quiet about events rather than risk discipline for making mistakes.

“Event reporting supports patient safety by getting people directly involved. The right processes, technology and change management helps create an environment where the staff is mindful of patient safety and engaged in making improvements.”

Harold S. Kaplan, M.D.  
Professor, College of Physicians and Surgeons  
Columbia University Medical Center

## Reporting breakthrough.

The best approach to event reporting that is advocated by GE Healthcare uses sophisticated web-based technology that simplifies reporting and enhances the sharing and analysis of information on adverse events and near misses.

One such technology is the Medical Event Reporting System (MERS), developed by the International Center for Health Outcomes and Innovation Research, supported by a grant from the Agency for Healthcare Research and Quality (AHRQ). It has been deployed at more than 30 acute-care hospitals and ambulatory clinics.

“According to a recently released study, 68% of hospitals do not have established environments that support reporting.”

Farley, D.O., Haviland, A., Champagne, S., et al. Adverse-event-reporting practices by US hospitals: results of a national survey. *Qual Saf Health Care*, 17(6):416-23, December 2008.

The technology supports continuous improvement in patient safety through the systematic collection, investigation, classification, interpretation and monitoring of information about near-miss and actual patient-harm events occurring anywhere in a hospital or an entire healthcare network. GE Healthcare believes an effective event reporting system must provide:

**Simplicity** Staff members should be able to enter events quickly and easily into a secure, web-based database using standard forms. Managers and administrators should have the ability to sort, analyze and track actual and near-miss events.

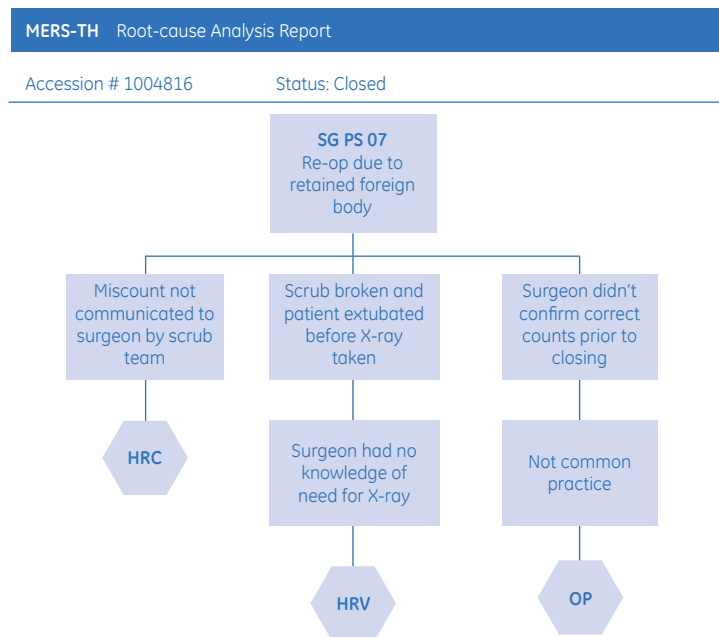
**Notification** The system should provide real-time and automatic notifications to alert managers and administrative users to newly reported events in their areas.

## Root-cause analysis

to events (see Figure 1 below).

The system should include tools such as causal tree analysis to identify root causes and vulnerabilities that have led

Harold S. Kaplan, M.D., Professor, College of Physicians and Surgeons, Columbia University Medical Center, and a thought leader in patient safety, observes that analytical tools of this type “help people easily extract the information they need, even if they don’t have a great deal of expertise in data manipulation.”



**Figure 1.** Here is an example of causal tree analysis, taken from the Medical Event Reporting System (MERS), developed by the International Center for Health Outcomes and Innovation Research, supported by a grant from the Agency for Healthcare Research and Quality.

## Query tools

Users should be able to search easily for events and filter event lists based on criteria such as type, harm, risk level, dates, and causal categories, or based on any combination of criteria associated with an event. This makes patterns and trends readily apparent, so instead of saying “We have a problem with falls across our 350-bed institution,” a hospital can say “We have a high incidence of falls on Saturdays on floors with high numbers of orthopedic patients.”

Users should be able to search easily for events and filter event lists based

Especially helpful is the capability to use a “fuzzy matching” algorithm to search for events that are not exact matches but are similar. “You may encounter an event that has potential to cause harm, but it’s so unusual that you don’t think you will ever see it again,” Rabin Fastman says. “Then you use the ‘fuzzy matching’ tool and find that something similar has happened three times in the past year.”

## Putting data to work.

Event reporting provides a strong basis for implementing patient safety improvement projects. However, the first step in this journey is to establish a baseline of current performance and to build a business case for change. GE Healthcare’s approach to a comprehensive patient safety assessment includes the following components:

- **Quality structure.** Is change being sustained with the right support systems?
- **Measurement.** What is being measured and how does the organization compare with common benchmarks?
- **Technology solutions.** What solutions are available to remove or reduce human error and improve care?
- **Processes.** How does observed practice compare with stated policies?
- **Linkage to results.** Are results tracked, and are priorities and impacts clearly communicated?

The next step is to implement the event reporting technology and begin capturing data on safety-related events. This period is the time to improve the hospital’s event-reporting processes and change the culture to encourage complete and timely reporting.

Often, hospitals’ existing reporting systems are largely retrospective. For example, staff in the quality department or the utilization review committee may check patient charts for errors at the end of the week or month and prepare reports manually. By contrast, under the new system, nurses and other front-line staff will enter events on the computer at the time they occur.

“The best way to start improving quality and lowering costs is to study the stats.”

Beane, B., Gingrich, N., and Kerry, J. How to Take American Health Care From Worst to First. The New York Times. October 24, 2008.

Processes, roles and responsibilities under this new workflow need to be redefined and practiced. In addition, staff must become accustomed to reporting events accurately and consistently. An important component in this change is recognizing that event reporting is critical to improving patient safety and that those who make mistakes or report events need not fear reprisal. Therefore, effective communication tools are required to promote such acceptance and adoption of the new reporting processes.

Change Acceleration Process (CAP), a proven change management approach delivered by GE Healthcare, provides the structured approach on which such successful adoption usually depends. The program consists of a series of tools used to evaluate each group's concerns and builds momentum for change. During the process, cross-functional teams define the goals of change and identify issues that may stand in the way. In particular, CAP helps leaders:

- Explain why change is necessary.
- Understand and deal with resistance.
- Build effective strategies to communicate change and influence behavior.

"Event reporting supports patient safety by getting people directly involved," Dr. Kaplan observes. "The right processes, technology and change management tools help create an environment where the staff is mindful of patient safety and engaged in making improvements."

When the event reporting system has been in place long enough to capture robust data on adverse events and near misses, staff have an evidenced-based method of finding opportunities for improvement and setting priorities.

Process improvement experts, such as consultants for GE Healthcare's Performance Solutions team, then can use the data to target and drive improvements in care processes that minimize risks and lead to measurable gains in patient safety. Here, data-driven and Lean process improvement methods are applied to specific improvement initiatives.

## Generating results.

The arrival of this comprehensive approach to patient safety improvement could not be more timely. It can help hospitals respond to challenges posed by CMS reimbursement and reporting changes and address other current safety initiatives, such as the IHI's 5 Million Lives campaign and AHRQ's PSO initiative. GE Healthcare is confident that this approach will help hospitals focus on patient safety more intensely than ever and with greater results.

### Breaking the barrier.

"Event reporting works best in a culture in which physicians and staff understand the value of reporting correctly and consistently," notes Barbara Rabin Fastman, Assistant Professor of health policy with The Mount Sinai School of Medicine and a patient safety consultant.

"It's important to work with the staff and especially senior management to get their buy-in and let them know the system will only work if reporting of mistakes is encouraged," she says. "It is also helpful to show people how you are using the data to help not only patients but the staff as well. Staff should see that if they report events or dangerous situations, problems get fixed."

## Authors



**Jeff Terry**, Managing Principal, directs the Clinical Excellence team within Performance Solutions, which builds solutions to address some of the most pressing needs of clients: Patient Flow, Patient Safety and and Service Line Innovation. Each engagement is customized to match GE's proprietary solution with the unique needs of that hospital. The solutions are built upon Lean technology, the Change Acceleration Process, deep clinical expertise, and sophisticated simulation technology developed at GE's Global Research Center.

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<sup>1</sup>Committee on Identifying and Preventing Medication Errors, Preventing Medication Errors, Quality Chasm Series, Free Executive Summary, National Academy of Sciences, 2004, p.6.

<sup>2</sup>Rizzo, J., Friedkin, R., Williams, C., Nabors, J., Acampora, D., and Tinetti, M. Health care utilization and costs in a Medicare population by falls status. *Medical Care* 36: 1174-1188, August 1998. Also, ECRI reported an estimated 30% of hospital-based falls result in serious injuries, representing \$1.08 billion per year spent by hospitals just to treat those falls resulting in serious injury. *Falls Prevention Strategies*, ECRI, 2006.

<sup>3</sup>Surgical Site Infections, Institute for Healthcare Improvement (IHI) website, <http://www.ihl.org/IHI/Topics/PatientSafety/SurgicalSiteInfections/Changes/>.

<sup>4</sup>Hixon, Shelby, et al., Nursing Strategies to Prevent Ventilator-Associated Pneumonia, *AACN Clinical Issues*, Vol. 9, No.1, February 1998.

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