The vast majority of hospitals rely on incident reporting to identify internal threats to patient safety. Yet, incident reporting suffers from major limitations. It detects only a small percentage of serious incidents, reported incidents are often minor or represent inappropriate targets for detailed investigation, and the frequency of data generated cannot track changes in safety over time because variations more likely reflect changes in reporting patterns than alterations in underlying hazards.

These well-known problems with incident reporting have given rise to two avenues of improvement: enhancing traditional reporting systems and implementing alternative approaches to identifying patient safety problems. Enhancements to incident reporting have included stimulating greater reporting from frontline staff, facilitating the reporting process, improving unit or organizational culture related to incident reporting, and broadening target incidents to include near misses (which staff may feel more comfortable in reporting and analyzing). Each of these enhancements can increase reporting through greater engagement of staff. However, this increased engagement also raises the stakes because improvements in unit culture and engagement will quickly disappear (or worse, lead to staff demoralization) if reporting efforts produce no change.

Alternatives to incident reporting include strategies such as trigger tools and executive walk rounds, which, despite their recent vintage, have disseminated into routine use at many hospitals, as well as application of a modern patient safety framework to traditional methods of quality assurance such as morbidity and mortality rounds. A number of other strategies exist, such as data warehouses, systematic monitoring of discrepancies in pathologic diagnoses, and use of interactive voice response systems to contact patients after episodes of care, although these strategies likely find application only in small numbers of hospitals with specialized interests, expertise, and infrastructure (Table 1, available in online article).

Previous research has suggested that regardless of the advantages and disadvantages of these various detection methods (Table 1, online), each method identifies fairly distinct problems. However, the article by Levtzion-Korach et al. in this issue of the Journal provides the most impressive empirical demonstration of the lack of overlap between methods for detecting patient safety problems. The authors systematically classified the problems detected at their hospital using a Web-based voluntary incident reporting system, the hospital risk management database, patient complaints, medical malpractice claims, and executive walk rounds.

Consistently applying a single taxonomy to each of the approximately 15,000 problems captured by these disparate data sources undoubtedly involved a prodigious amount of work, but the results can be summarized quite simply: Each method identified important problems that were generally not captured by any of the other methods.

Simply looking at the most frequent categories of problems identified by each incident reporting method illustrates this main finding of the study. The three most commonly identified categories (four—in cases of a tie) for each of the methods are listed below:

- Spontaneous reporting: patient identification issues, falls, and medication problems
- Malpractice claims: clinical judgment related to diagnosis and treatment, communication, technical skills, and problems with medical records (incomplete, illegible, or missing)
- Patient complaints: communication, ancillary services (for example, patient transport, kitchen, housekeeping), administrative issues (admission and discharge processes, scheduling)
- Risk management: technical skills, patient and family behavior (compliance issues, unusual behavior by patient or family members), administrative issues, and clinical judgment
- Executive walk rounds: equipment problems, electronic medical record and other such technologies, infrastructure

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The Elephant of Patient Safety: What You See Depends on How You Look

Kaveh G. Shojania, M.D.
The extent of variation across these five methods is emphasized by the fact that, for example, clinical judgment accounted for 25% of malpractice claims but only 1% of incident reports and none of the executive walk-rounds data. Conversely, identification issues accounted for 25% of incident reports but rarely appeared among the other systems. Even where overlap appears to have occurred, I suspect that substantial differences in fact existed. The communication problems identified by patient complaints likely focused on deficient interactions between providers and patients, whereas malpractice claims likely involved failure of providers to communicate with each other.

In a famous Indian fable, five blind men walk away with a drastically different picture of an elephant, likening it to a wall, spear, snake, tree, or fan, depending on the body part with which each came in contact. Similarly, it appears that a hospital’s picture of patient safety will depend on the method used to generate it. The hospital that relies on incident reporting will perceive patient safety as identifying the right patient and making sure that he or she does not fall. By contrast, a hospital focusing on malpractice claims will see patient safety as the pursuit of appropriate diagnosis and treatment, a subject of no apparent relevance to executives who participate in walk rounds and regard patient safety as a series of broken sinks, dysfunctional information systems, and problematic work environments.

The finding that no single method provides anything close to a complete picture of the range of threats to patient safety at a given hospital corroborates the views of many experts. As part of a larger study of problems typically encountered by hospitals in their efforts to identify and address patient safety problems, we interviewed 15 internationally recognized patient safety experts (from the United States, England, Australia, and Canada). Each expert stated that the choice of specific method by any given hospital is not as important as the decision to use more than one method.

Adopting multiple methods for detecting patient safety problems will, in addition to better characterizing the full range of patient safety problems, force hospitals to better manage the information they acquire. This problem already exists: Faced with various incidents and limited resources, how does a hospital choose which incidents to pursue? Most hospitals get away with ignoring this problem because they conduct relatively few high-quality incident investigations each year and develop superficial solutions—typically, staff education and new policies—when they do. When hospitals pursue certain incidents more intensively, this decision usually reflects the magnitude of harm to the patient and/or publicity around the incident rather than an explicit management framework.

The potential for volume overload provides a clear motivation for a framework to prioritize information from patient safety monitoring systems, but so do two other common problems. First, most monitoring systems do not provide event rates (Table 1, online), so the overall magnitude of harm (whether from falls, medications, clinical decision making, procedural performance, or communication, for example) will remain unclear. Moreover, harm that occurs in individual cases often distracts hospitals into swatting at mosquitoes instead of draining the swamp of underlying system problems. The goal becomes preventing another incident just like the one that harmed a patient, not addressing the underlying system problems waiting to cause multiple other types of incidents in the future. Second, the likelihood of successfully addressing patient safety problems varies, depending on the degree to which known solutions exist in the literature, the cost and complexity of potential solutions, and local factors, ranging from existing infrastructure to aspects of organizational culture.

The Agency for Healthcare Research and Quality’s evidence report on patient safety used a framework for prioritizing interventions on the basis of the scope of the target problem, effectiveness of the intervention, and implementation issues, including costs, complexity, and the possibility of introducing new problems. One might also add consideration of the degree to which a given intervention is synergistic with other interests or improvement activities at the hospital. This type of framework can assist organizations in analyzing data from patient safety monitoring systems.

Some problems may be amenable to solutions that do not require complex decisions—a flagrantly disorganized medication room, a specialist on-call schedule with frequent gaps, or a piece of equipment with clear usability issues. In general, however, hospitals will be faced with a list of problems—misidentified patients, narcotic overdoses, falls, procedural complications, misdiagnoses, patients understandably upset over poor communication regarding key aspects of their care, and so on—each of which requires investigation to characterize adequately and to develop solutions. Hospitals must therefore prioritize the problems they identify on the basis of the burden of harm and costs associated with different types of events, the availability of effective prevention strategies, and the likelihood of local success in implementing such strategies.

Another advantage of adopting a decision-making framework is that it will enable hospitals to better recognize when
they have enough information to temporarily “turn off” measurement of certain problems to invest proportionately more resources in solutions. For example, does the hospital really need to continue capturing data on falls? Falls occur frequently, and a large literature describes risk factors and potential interventions. Most hospitals should not need to identify more individual falls to make a decision about whether or not to pursue specific prevention strategies. Patient identification incidents are likely more heterogeneous, so hospitals may not want to suspend capture of these incidents. Nevertheless, many hospitals already have enough information about misidentification that they can make rational decisions about changes to protocols involving patient identification or can invest in technological solutions, such as bar coding, which although expensive and labor intensive, solves other problems as well.14

Many hospital personnel charged with safety improvement already feel overwhelmed with data from incident reports,15 so may find little appeal in adding other methods for capturing safety problems. Paradoxically, however, the greater influx of information may force hospitals to adopt more rational approaches to how they manage and act on patient safety data. Moreover, once aware of the problem highlighted by Levitzon-Korach et al.,14 who would not prefer to recognize the entire “elephant” of patient safety rather than blindly grappling with a misperceived wall or a fan?

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Online-Only Content
See the online version of this article for Table 1. Methods for Hospitals to Monitor for Internal Patient Safety Problems

References
<table>
<thead>
<tr>
<th>Method*</th>
<th>Advantages</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td>Traditional incident reporting</td>
<td>• Process already ubiquitous</td>
<td>• Underreporting of serious incidents</td>
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<td></td>
<td>• Can identify latent errors (“system problems”)</td>
<td>• Frequent reporting of events not suited to individual analysis (e.g., falls†)</td>
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<td></td>
<td></td>
<td>• Can be demoralizing when staff do not perceive meaningful improvements resulting from incidents they have reported</td>
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<td></td>
<td></td>
<td>• Cannot assess changes in safety (over time)</td>
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<tr>
<td>Stimulated/facilitated incident</td>
<td>• Builds on an existing process</td>
<td>• More labor intensive than traditional incident reporting</td>
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<td>reporting zdashed</td>
<td>• Improves frequency of events and broadens range of events</td>
<td>• Greater engagement of staff increases importance of making meaningful improvements (i.e., even more demoralizing than usual if improvements not made)</td>
</tr>
<tr>
<td></td>
<td>• Can contribute to improvements in culture</td>
<td>• Cannot assess changes in safety</td>
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<tr>
<td>Patient complaints</td>
<td>• Process/data already exist</td>
<td>• May be dismissed by clinicians as “service problems”</td>
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<td></td>
<td>• Highlights important problems about patient experience often not captured elsewhere</td>
<td>• May require more up-front work (compared with incident reporting) to identify incidents worth analyzing in detail for potential safety improvements</td>
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<tr>
<td></td>
<td></td>
<td>• Cannot assess changes in safety</td>
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<tr>
<td>Malpractice claims</td>
<td>• Process/data already exist</td>
<td>• Heavily biased toward detecting diagnostic issues and procedural complication (though these are usually not detected by other systems)</td>
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<td></td>
<td>• Details about causes of the event and its impact on the patient usually collected as part of medicolegal process</td>
<td>• Cannot assess changes in safety</td>
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<td></td>
<td>• Complements incident reporting for capturing rare but serious events (e.g., wrong-site surgery)</td>
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<td>Risk management reports</td>
<td>• Probably similar to malpractice claims, but not clear</td>
<td>• Probably similar to malpractice claims, but not clear</td>
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<td>Executive walk rounds</td>
<td>• Engages frontline staff without requiring much work for them</td>
<td>• Demoralizing to frontline staff if management focuses only on improved public relations (“management cares”) and does not seriously address the problems identified</td>
</tr>
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<td></td>
<td>• Provides a human face to problems management usually learns about through impersonal pie charts and time trends</td>
<td>• Tempting for management to focus on easy fixes (e.g., related to equipment) not deeper problems or those requiring substantial investments of resources (e.g., staffing, skill mix, or work-load problems)</td>
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<td></td>
<td>• Alerts management to problems faced daily by frontline staff</td>
<td></td>
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<tr>
<td>Chart audits (commonly</td>
<td>• Types of events captured may be more likely to engage frontline clinicians (especially physicians)</td>
<td>Requires willing clinicians to participate</td>
</tr>
<tr>
<td>operationalized with “trigger tools”</td>
<td>• Produce rates that can be monitored over time, not just counts or frequencies susceptible to changes in reporting biases</td>
<td>• Many important events not documented in charts and contributing factors for documented events typically unclear</td>
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<td></td>
<td></td>
<td>• Many triggers have low specificity</td>
</tr>
<tr>
<td>Electronic triggers zdashed</td>
<td>• Very efficient</td>
<td>• Captures only certain types of events (small subset of events involving medications or laboratory tests)</td>
</tr>
<tr>
<td>(e.g., drug-lab combinations, use of “antidotes” suggestive of medication errors)</td>
<td>• Potentially high sensitivity capture for the events captured</td>
<td>• Trade-offs between sensitivity and specificity (continued)</td>
</tr>
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### Table 1. Methods for Hospitals to Monitor for Internal Patient Safety Problems (continued)

<table>
<thead>
<tr>
<th>Method*</th>
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<th>Disadvantages</th>
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</table>
| **Performance indicators derived from administrative data**<sup>20,21</sup> | • Data easily available  
• In principle, event rates can be tracked over time, but in practice probably applies only for frequent event types in large health care systems<sup>22</sup> | • Low signal-to-noise ratio  
• Various methodologic problems<sup>23</sup> leading to misleading characterizations of performance  
• Managers and clinicians tend to distrust these data (often with good reason)  
• Requires intensive effort to investigate if poor performance is real and further effort to determine causes |
| **Data warehouses**<sup>24,25</sup> | • Richness of detail (e.g., from medications data, laboratory results, time stamps) addresses many of the limitations of administrative data  
• Can generate data that will engage both managers and clinicians  
• Event rates can be followed over time | • Requires substantial up-front investments and appropriate clinical and methodological expertise<sup>26</sup>  
• Requires organizational culture and management structures conducive to driving change on the basis of these novel data |
| **Modifying traditional morbidity and mortality rounds with modern patient safety framework**<sup>9</sup> | • Builds on format familiar to clinicians  
• Types of events captured and richness of detail more likely to engage physicians | • Care required to avoid traditional focus on individual errors and blaming other departments<sup>27</sup>  
• New processes required to follow-up systematically on issues identified (traditional rounds heavy on discussion, with follow-up occurring only haphazardly)  
• Addressing problems identified often requires host department to engage and collaborate with other departments—departures from traditional norm |
| **Discrepancies between clinical and autopsy diagnoses**<sup>28</sup> | • Builds on a traditional process of improvement  
• Detects problems likely to engage clinicians | • Likely to succeed only in select hospitals because of low autopsy rates and decreased interest in autopsies among clinicians and pathologists at most hospitals<sup>29</sup> |
| **Monitoring pathologic discrepancies (e.g., between cytology and histology**<sup>10</sup> or antemortem biopsies and autopsies**<sup>30</sup>) | • Relatively efficient  
• Can identify patterns of problems amenable to substantial improvement projects<sup>30</sup>  
• Event rates can be followed over time | • Requires interest on the part of pathologists to undertake this nontraditional form of quality assurance and willingness of clinical departments to collaborate in improvement projects |
| **Corrected laboratory results/reports**<sup>31</sup> | • Relatively efficient  
• Event rates can probably be followed over time | • Fairly narrow focus  
• Requires interested laboratory medicine personnel |
| **Natural language screening of electronic portions of medical records**<sup>32</sup> | • Relatively efficient once implemented  
• Reasonable sensitivity and specificity for certain types of events | • Requires appropriate technical expertise and initial investment of time to develop and refine combinations of search terms with acceptable sensitivity and specificity for safety problems |
| **Direct observation (e.g., audits of hand hygiene compliance, medication administration,**<sup>33</sup> operating room procedures,<sup>34,35</sup> daily rounds**<sup>36</sup>) | • Richer, more accurate data than by many other methods  
• Identifies problems particularly difficult to detect by other means  
• Event rates can be followed over time | • Somewhat labor intensive (but short periods of measurement may provide ample data)  
• Requires appropriately trained observers  
• Care must be taken not to create mistrust among frontline staff |

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Table 1. Methods for Hospitals to Monitor for Internal Patient Safety Problems* (continued)

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<tr>
<th>Method*</th>
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<tbody>
<tr>
<td>Active surveillance† (combination of chart-based trigger tool applied in quasi-real time, stimulated reporting, and other interactions with frontline staff)</td>
<td>• Rich data that are more likely to include information about causal factors than review record alone • Process can engage frontline staff and stimulate them to participate in subsequent improvement efforts • Event rates can be followed over time</td>
<td>• Somewhat labor intensive (but short periods of measurement may provide ample data) • Requires appropriately trained observers • Care must be taken not to create mistrust among frontline staff</td>
</tr>
<tr>
<td>Telephone calls to patients† (can be automated†)</td>
<td>• Identifies problems typically not captured by other methods (e.g., postdischarge adverse events and problems occurring between ambulatory visits†)</td>
<td>• Requires appropriate technology and, even with automation, still requires investment of personnel time (e.g., at least one nurse case manager and a physician) to respond in real-time to clinical problems</td>
</tr>
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</table>

* References are not provided for the first five methods because they were among those evaluated in the study by Leviton-Korach et al.†

† Falls occur with such frequency that they require epidemiologic study of the main contributing factors in order to identify effective methods of prevention (akin to infection control), not case-by-case root cause analyses.

References