Automated surveillance for adverse events in hospitalized patients: back to the future

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Only by studying the true nature and frequency of adverse events through effective surveillance approaches can patient safety interventions be formulated, implemented, and properly evaluated for efficacy.

The goal of patient safety efforts is to reduce the harm we do to our patients while providing them with the care they need, and recognizing the true nature and sources of harm is critical to this endeavor. The paper by Szekendi et al. in this issue of QSHC describes a return to automated methods for detecting adverse events, and provides an opportunity to review the evolution of adverse event detection as well as the challenges associated with different models.

First, however, we must emphasize why some form of surveillance for detection of harm to patients is indispensable to modern patient safety practices: it allows us to overcome the serious defects associated with dependence upon spontaneous reporting as a method for detecting adverse events. While such reporting can play an important role in supporting a culture of safety—for example, encouraging the candid discussion of errors—it is by its nature anecdotal and superficial. In addition to the obvious barriers to reporting (time constraints, fear of retribution, liability concerns), we know that most events causing harm to patients are not even recognized as such by clinicians at the time they occur. Thus, voluntary reporting describes a small—and by no means representative—minority of the universe of harm to our patients. It is useless for the quantitative study of adverse events, and is not reliable (such as hand written progress notes) that are not easily adopted for computerized detection. These tools can therefore increase the sensitivity of event detection relative to automated systems. Szekendi et al. have “reverse engineered” these trigger methodologies—automating the easily computerized manual triggers—showing once again that the use of electronically available flags suggestive of adverse events can effectively identify them.

Clearly, more study and innovation are required in this area, but we can speculate on what the future might hold. Certainly no one strategy will fit all environments. Some hospitals will be able to afford the investment needed to build and operate automated surveillance systems; some will restrict their efforts to chart based methods; others may apply hybrid strategies using automation for some event types or environments and chart review for others. In the area of manual methodologies, investigators with the Institute for Healthcare Improvement are building a series of chart review based trigger tools for detection of adverse events in various care settings including the intensive care unit, labor and delivery, the emergency room, and surgical environments. This work has culminated in the development of a more comprehensive method for detecting adverse events called the global trigger tool. Increasing computerization of care processes—for example, the growing use of systems for electronic clinical documentation, medication administration documentation, and others—should improve the yield of automated surveillance by offering new data sources for event detection.

Vendors of electronic medical record systems are under pressure to build...
systems with better decision support mechanisms, which should lower the barriers to implementation of rules based detection systems. As hospitals learn more about the costs and risks associated with adverse events, and as regulators and other groups demand greater accountability for patient safety, we may see an increased willingness on the part of hospitals to invest in the resources needed to take full advantage of our increasingly sophisticated clinical information systems.

Indeed, in the end, implementing and maintaining adverse event surveillance systems is only useful if there exists an interested and motivated executive audience for the data, and many in healthcare delivery organizations are not interested in knowing their rates of adverse events, at least unless one is immediately able to offer a definitive strategy for their reduction. While this may be understandable, it is only by studying the nature and frequency of these events that effective improvement strategies can be formulated, implemented, and evaluated. Otherwise, hospitals will continue to be limited to the implementation of various generic improvement strategies with which to focus on what we can only guess are the most pressing problems, and with no hope of ever really knowing whether the time and resources committed have made a difference to patient safety.


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