

FACT SHEET

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Patient Safety Surveillance & Clinical Decision Support in Healthcare

A Torrent of Medical Information

- Healthcare organizations and providers are facing unprecedented challenges, including the increasing complexity of medical care, explosion of medical information, growing array of clinical practice guidelines and mandatory reporting requirements, and critical patient safety issues such as healthcare-acquired infections (HAIs) and antibiotic-resistant infectious diseases.
- Just keeping up with medical literature is impossible for providers—one study of primary care literature identified 341 active journals with more than 7,200 articles monthly. It would take a physician more than 627 hours per month to evaluate these articles.¹
- Clinical practice guidelines and requirements also are proliferating. The Centers for Disease Control and Prevention (CDC) has 13 guidelines for hospitals on infection control and prevention alone, which contain almost 1,200 recommended practices.² Other guidelines cover almost every area of clinical medicine.
- Mandatory reporting of health information is growing as well. For example, 25 states now require public reporting of HAIs, and many others are considering such legislation.³
- Health information technology is playing a role in this information explosion. For example, as electronic health records (EHRs) become more widely used—spurred on by \$20 billion of economic stimulus funds—hospitals and clinicians can be overwhelmed with the mountain of data gathered about each patient, and actionable information may be hidden among hundreds of normal findings, potentially leading to medicolegal problems.
- According to a physician author of a recent *BusinessWeek* article, his EHR contains 77 pages, with a mix of administrative and clinical data, numeric information, and text—and he is healthy. The author estimated that it would take a physician one hour to review the record.⁴
- Increasing demand for healthcare services is anticipated based on factors such as the aging population, government efforts to increase health insurance coverage, and pending healthcare reform initiatives—magnifying the challenges for healthcare organizations and providers.

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Healthcare Quality & Patient Safety Challenges

- Improving patient safety is one of the country's most critical healthcare priorities. The Institute of Medicine shined a spotlight on this issue with its 1999 report, "To Err Is Human," outlining the enormous incidence and impact of preventable medical errors.⁵
- Preventable medical errors and other patient safety issues in hospitals today include HAIs, adverse drug events, procedural errors, and antimicrobial resistance, among others.
- Approximately 2 million patients each year, or 6 percent of admissions, develop an infection in the hospital, and 90,000 die as a result of the infection.^{6,7} These HAIs also significantly increase costs.⁶
- Patient injuries resulting from drug therapy are among the most common types of adverse events that occur in U.S. hospitals,⁸ and the Institute of Medicine estimates that medication errors harm more than 1.5 million people every year.⁹ Adverse drug events result in increased lengths of stay and cost up to \$5.6 million annually per hospital.⁸
- Suboptimal use of antimicrobial drugs has contributed to an alarming rise in resistant infectious diseases and bacteria. Studies have shown that antibiotic use is unnecessary or inappropriate in up to 50 percent of cases in the United States.¹⁰ As a result, the CDC estimates that more than 70 percent of bacteria that cause HAIs are resistant to at least one of the drugs most commonly used to treat the infection.¹¹
- In light of these ongoing patient care challenges, healthcare providers, patient safety advocates, policy makers, and legislators continue to push for improved patient safety and healthcare quality. Their efforts include numerous best practices, reporting requirements, Joint Commission "core measures," and a variety of safety initiatives.
- Beyond patient care initiatives, financial incentives also are coming into play to help providers focus on preventing medical errors and improving the quality of care. Beginning Oct. 1, 2008, Medicare and many private insurers no longer pay for additional costs of treating numerous conditions acquired while patients are hospitalized.¹²
- Healthcare opinion leaders also see information technology, including EHRs combined with patient safety surveillance and clinical decision support, as critical for improving the quality, safety, and efficiency of patient care.¹³

Clinical Informatics & Decision Support

- Studies show that advanced health information systems that provide clinicians with decision support tools and enable them to better assess and monitor care improve patient outcomes, reduce the chance for medical errors, and improve efficiency.¹³ A key part of this process is helping hospitals and providers filter vast sums of data so that they become usable information that positively impact patient care and safety.

- Clinical decision support is defined as “a clinical system, application, or process that helps health professionals make clinical decisions to enhance patient care. Clinical knowledge of interest could range from simple facts and relationships to best practices for managing patients with specific disease states, new medical knowledge from clinical research, and other types of information.”¹⁴
- Basic clinical decision support, such as may be included with some EHR systems, consists of alerts that look at a limited number of variables to warn clinicians about such things as potential adverse drug events. In contrast, advanced decision support takes into account hundreds of data elements to guide optimal care delivery and prevent patient harm.
- Research indicates that if evidence was properly filtered and combined with patient data at the time of clinical decision making, 30-60 percent of decisions would be different.⁶
- A 2009 study found that hospitals with automated notes and records, order entry, and clinical decision support had fewer complications, lower mortality rates, and lower costs. Higher scores in decision support were associated with a 16 percent decrease in complications, as well as \$538 lower costs for all hospital admissions.¹⁵
- Usability and design are paramount to the acceptance and adoption of any technology. Research has identified design features of clinical informatics systems that lead to successful adoption in hospitals, including:
 - Software that makes the clinician’s job easier
 - Education to foster user acceptance
 - Patient-specific consultation, with intelligent filtering of knowledge and patient data
 - Real-time operation at the point of care
 - Online feedback and documentation within the application
 - Evidence-based clinical choices
 - Mandatory adherence to standards for messaging and clinical terminology⁶
- The clinical decision support field is poised to benefit from the infusion of funds into hospital and physician technology in general, and EHRs in particular, as part of the federal economic stimulus package. As more hospitals and physicians adopt EHRs, clinical decision support capabilities will be an important next step in the pursuit of improved efficiency, evidenced-based medicine, and patient care quality.

TheraDoc Technology Solution

- TheraDoc patient safety surveillance and clinical decision support products incorporate these critical design features and are being used successfully to address top patient safety problems in healthcare today—healthcare-associated infections, adverse drug events, procedural events, and postoperative events—while helping hospitals and providers manage the torrent of medical information.
- TheraDoc’s software products answer five key questions for clinicians:
 - Who they need to look at
 - What they need to look at
 - What they need to do
 - Why they should do it
 - What they need to document
- The company’s core technology is its patented Expert System Platform[®], which receives and standardizes patient data from multiple hospital information sources. The system combines this patient data with clinical knowledge and guidelines to provide real-time surveillance and clinical decision support.
- The Expert System Platform contains a core set of clinical tools that improve workflow and enhance care. The Rounds Assistant[®] facilitates personalized clinical rounds reports, the Intervention Assistant[®] documents clinical interventions, and the EZ Alerts Assistant[®] allows the creation of custom alerts.
- With the Expert System Platform as the “engine,” TheraDoc offers a range of “Knowledge Modules” that integrate patient data with clinical guidelines, providing actionable best practice recommendations with supporting references. TheraDoc Knowledge Modules include:
 - Infection Control Assistant[®]—hospital-wide infection surveillance and reporting
 - Antibiotic Assistant[®]—individual patient-based infection management
 - ADE Assistant[®]—adverse drug events
 - Clinical Alerts Assistant[®]—non-drug adverse events
- Founded in 1999, TheraDoc is a clinical informatics company dedicated to improving the quality, efficiency, and safety of patient care through enhanced clinical decision making.
- TheraDoc provides innovative products that improve clinical and financial outcomes for a range of provider and payer organizations, including some of the most respected healthcare institutions in the country such as Johns Hopkins, the National Institutes of Health, and Emory Healthcare.

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- These and other institutions are using TheraDoc's critical decision support tools as a foundation of their patient safety and quality efforts focused on the key areas of detection (surveillance), intervention (consultation), documentation, and reporting (measurement).
- TheraDoc's founders and core medical informatics team are internationally recognized for their pioneering and continuing work in clinical decision support design and development, which spans two decades. The company's leadership in medical informatics standards enables interoperability with disparate health information systems.
- For more information, visit www.theradoc.com.

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