F A C T S H E E T

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Top Issues for Patient Safety in 2009

Introduction

- Patient safety is one of the country's most critical healthcare challenges. The Institute of Medicine shined a spotlight on this issue with its 1999 report, "To Err Is Human," which outlined the enormous incidence and impact of preventable medical errors.[1]
- Preventable medical errors and other patient safety issues in hospitals today include healthcare-associated infections (HAIs), adverse drug events, and antimicrobial resistance, among others.
- A landmark study of the quality of healthcare in the United States found that American adults receive the appropriate healthcare only about 55 percent of the time.[2]
- Efforts are underway to improve the quality, safety, and consistency of patient care, including initiatives directed by the Agency for Healthcare Research and Quality, Centers for Disease Control and Prevention (CDC), Joint Commission, Institute for Healthcare Improvement, National Quality Forum, and professional and advocacy organizations.
- Solutions for meeting these challenges include implementing clinical guidelines and performance improvement methods, and adopting healthcare information technologies that provide patient safety surveillance and clinical decision support.
- A recent study published in *Archives of Internal Medicine* found that hospitals using information technology systems for patient medial records, test results, physician order entry, and clinical decision support achieved a 15 percent lower mortality rate, fewer patient complications, and lower costs compared with facilities without such systems.

Healthcare-Associated Infections

- HAIs are infections patients acquire during the course of receiving treatment for other conditions within a healthcare setting.
- The CDC estimates that 2 million patients each year, or 6 percent of admissions, develop an HAI, and 90,000 die as a result.[3]
- According to the Government Accountability Office, HAIs are one of the top 10 causes of death in the United States.[4]

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- HAIs are staggeringly expensive for U.S. hospitals and society:
    - The CDC estimates that HAIs add $20 billion to healthcare costs each year.[5]
    - A large 2000 study found that HAIs were associated with an average of 9.58 extra hospital days, $38,656 in extra charges per patient, and 4.31 percent mortality.[6]
    - Infections acquired during cardiac surgery can increase costs by $8,200–42,000.[7]
    - Surgical site infections have been shown to increase length of stay by 14 days and costs by nearly $18,000.[8]
- Efforts to improve overall healthcare by reducing HAIs include public reporting of HAIs so that consumers can make informed choices about healthcare. To date, 25 states require public reporting of HAIs, and most other states are considering such legislation.
- The CDC has established 13 guidelines for hospitals about infection control and prevention, which contain almost 1,200 recommended practices.[4]
- Traditional methods of infection surveillance require manually collecting and reviewing vast amounts of clinical data—a labor-intensive process that prevents hospitals from monitoring for all types of infections in all areas of the facility and limits the ability of infection prevention staff to perform vital educational and intervention activities.
- Only about one-third of U.S. hospitals utilize a computerized infection control tool.

Adverse Drug Events

- Medicines cure infectious diseases, treat numerous diseases and health conditions, and alleviate pain and suffering for millions every day. However, they also can cause harm. When someone has been harmed by a medicine, they have had an adverse drug event.
- Patient injuries resulting from drug therapy are among the most common types of adverse events that occur in U.S. hospitals.[9]
- According to the Institute of Medicine, about half of adverse reactions to medicines are the result of medical errors.[10]
- A 2006 Institute of Medicine report, "Preventing Medication Errors," estimated that medication errors harm at least 1.5 million people every year but said the number could be much higher.[11]
- Adverse drug events can result in a range of physical consequences—from allergic reactions to death—and one study estimated that nearly 10 percent of adverse drug events caused permanent disability.[9]
- Another study estimated that adverse drug events double the risk of patient death.[9]
- Patients who experience adverse drug events are hospitalized 8–12 days longer and incur $16,000–24,000 more in hospital costs than patients who do not suffer an event.[9]

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- Depending on hospital size, adverse drug events cost up to $5.6 million annually per hospital.[9]
- Hospital expenses to treat patients who suffer adverse drug events during hospitalization are estimated at $1.56–5.6 billion annually in the U.S.[9]
- According to the Agency for Healthcare Research and Quality, anticipating who will suffer an adverse drug event is difficult. Medication type is not a predictor—adverse drug events have been associated with numerous classes of medications, including antibiotics, analgesics (pain medications), electrolytes, cardiovascular drugs, sedatives, and anticoagulants (blood-thinners), among many others.[9]
- Computerized surveillance systems that link pharmacy, lab, and other hospital information systems have been shown to improve the identification of adverse drug events and facilitate the implementation of prescribing practices to reduce their incidence.[9]

Antibiotic Resistance & Antimicrobial Stewardship

- Antibiotic resistance is the ability of bacteria to withstand the effects of antibiotics. Antibiotic resistance has increased dramatically in the past 15 years and presents a threat to the successful treatment of infections. Antimicrobial resistance increases morbidity, mortality, length of hospital stay, and healthcare costs.
- Suboptimal use of antimicrobial drugs has contributed to an alarming rise in resistant infectious diseases and bacteria, including methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant Enterococcus (VRE), and multi-drug-resistant *Mycobacterium tuberculosis* (MDR-TB).
- Antibiotic use is unnecessary or inappropriate in up to 50 percent of cases in the U.S.[12]
- Studies examining surgical antibiotic prophylaxis have found rates of inappropriate drug selection and delivery of up to 74 percent.[13]
- According to the CDC, 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.[14]
- Antimicrobial drugs are a leading cause of adverse drug events and thus are targets of patient safety efforts in improving drug use.
- Antimicrobial stewardship plays an important role in combating antimicrobial resistance. It involves appropriate drug selection, dosing, and duration to cure infections while minimizing toxicity and conditions for emergence of resistant bacterial strains.
- Because of the potentially destabilizing economic consequences of antimicrobial resistance, both the Central Intelligence Agency and the World Bank have declared antimicrobial resistance a national security risk for the United States.[15]
- The CDC has launched a 12-step campaign to combat emerging resistance.[14]
- Clinical decision support systems have been shown to improve the therapeutic and surgical prophylactic use of antimicrobials.[16]

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TheraDoc® Technology Solution

- Healthcare opinion leaders see health information technology as the most promising vehicle for improving the quality and safety of patient care.[17]
- Information technology systems that provide clinicians with real-time decision support tools and enable them to assess and monitor care can improve patient outcomes and foster more innovative, efficient use of resources.[17]
- Products from TheraDoc, a clinical informatics pioneer, address key patient safety problems in healthcare—HAIs, adverse drug events, and antimicrobial resistance—while helping hospitals meet the growing array of clinical practice and reporting requirements.
- The company's patented Expert System Platform® automatically receives and standardizes patient data from multiple hospital information sources. The unique system combines patient data with clinical knowledge and practice guidelines to provide real-time surveillance and clinical decision support.
- With the Expert System Platform as the "engine," TheraDoc offers a suite of Knowledge Modules that integrate patient data with clinical guidelines, providing actionable best practice recommendations with supporting references. Modules include:
  - Infection Control Assistant®—hospital-wide infection surveillance and reporting
  - Antibiotic Assistant®—individual patient-based infection management and antimicrobial stewardship
  - ADE Assistant®—adverse drug event surveillance, prevention, detection, and reporting
- The Expert System Platform also includes other clinical tools that improve workflow and enhance patient care, such as the Rounds Assistant® for personalized clinical rounds reports, the Intervention Assistant® to document clinical interventions, and the Clinical Alerts Assistant® and EZ Alerts Assistant®, which identify important changes in patients' conditions and alert physicians.
- Founded in 1999, TheraDoc is dedicated to improving the quality, safety, and efficiency of patient care through enhanced clinical decision making.
- TheraDoc provides innovative products that improve clinical and financial outcomes for a range of provider and payor organizations, including some of the most respected healthcare institutions in the country, such as Johns Hopkins, the National Institutes of Health, and Emory Healthcare.
- The company'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.
- For more information, visit www.theradoc.com.

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