



Agency for Healthcare Research and Quality

Advancing Excellence in Health Care

www.ahrq.gov

Why Is Patient Safety Important?

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Diagnosing the Problem is One Challenge...

“The fundamental problem with the quality of American medicine is that we’ve failed to view delivery of health care as a science. ... That’s a mistake, a huge mistake.”

*Peter Pronovost, M.D., PhD,
Johns Hopkins Hospital*





... Applying Evidence-Based Approaches to Patient Safety Issues is Another

Or, how do we get from here to there?





Evidence-Based Safety Practices Every Medical Student Should Know About

- AHRQ's Survey of Patient Safety Culture (SOPS)
- TeamSTEPPS™
- TeamSTEPPS™ and Simulation Training
- Measures to improve performance and prevent prevent healthcare-acquired conditions (HACs)



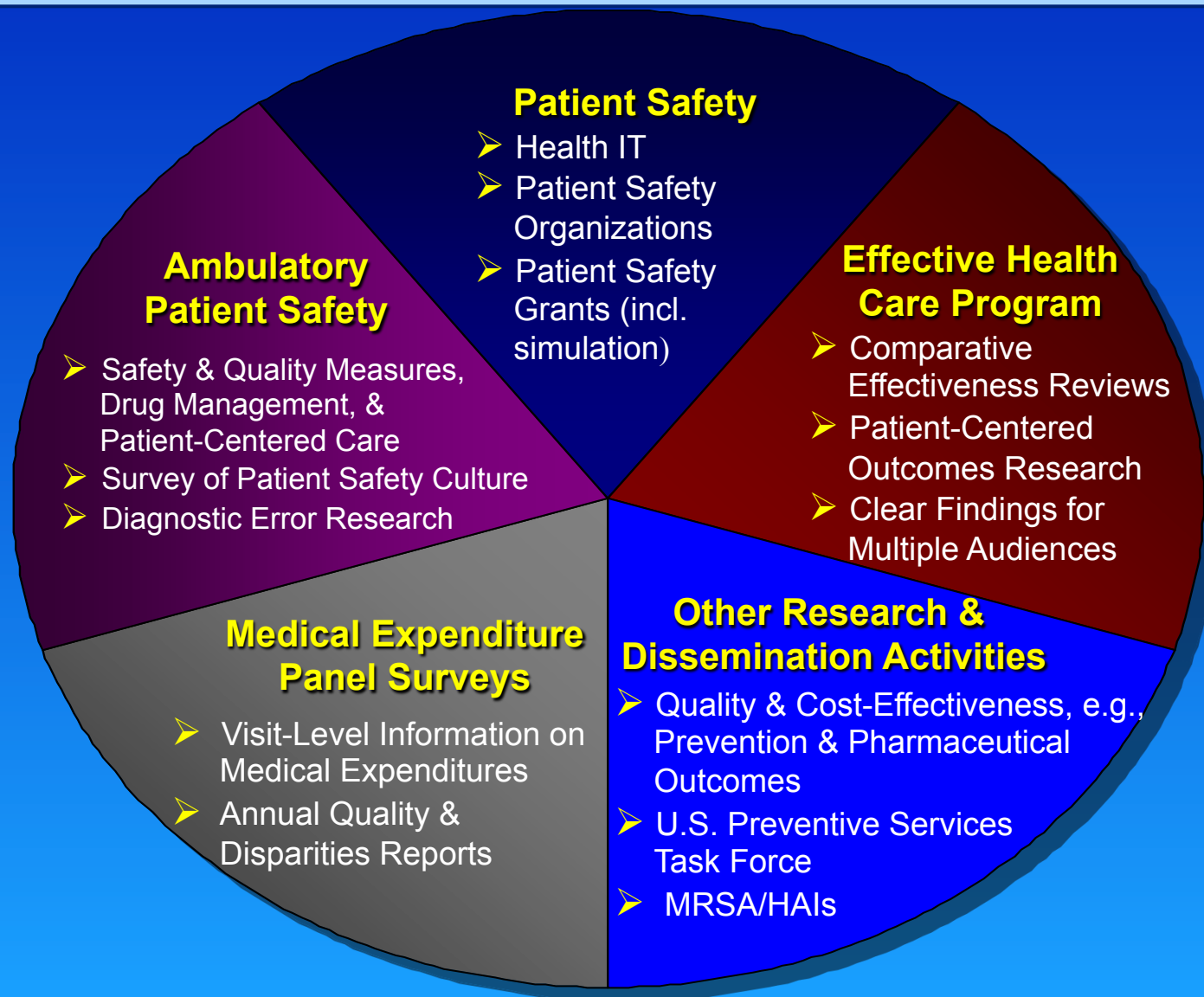


Why is Patient Safety Important?



- Support for Patient Safety Research
- Evidence-Based Tools To Help You Recognize and Provide Safer Care
- Building a Safer, Patient-Centric Health Care System

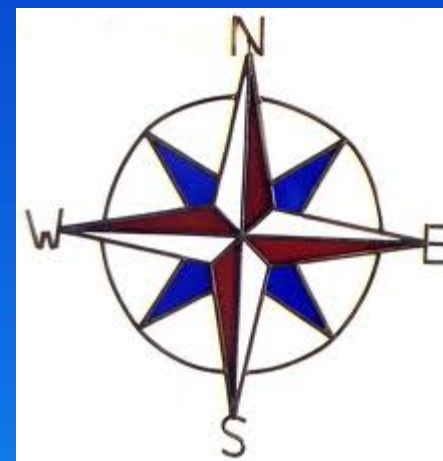
AHRQ Priorities





AHRQ's Focus and Strategic Goals

- **Quality**: Deliver the right care at the right time to the right patient
- **Safety**: Reduce the risk of harm by promoting delivery of the best possible health care
- **Efficiency**: Enhance access to effective health care services and reduce unnecessary costs
- **Effectiveness**: Improve health care outcomes by encouraging the use of evidence to make more informed health care decisions





Patient-Centered Outcomes Research and the Recovery Act

- The American Recovery and Reinvestment Act of 2009 included \$1.1 billion for patient-centered outcomes research:
 - To improve health outcomes by developing and disseminating evidence-based information to patients, providers and decision-makers
 - Investments in systems and infrastructure to inform everyday clinical decision-making
 - More opportunities to evaluate patient-centered outcomes research among diverse populations and patient subgroups





Patient Safety and the Affordable Care Act

- Quality Improvement for Hospitals with High Readmission Rates
 - New Federal policy reduces hospital payment for high readmission rates for AMI, heart failure, pneumonia
 - Hospitals to work with Patient Safety Organizations, other community-based groups to learn, address readmissions
 - Project RED, Project BOOST shown to reduce readmissions





AHRQ Medical Liability and Patient Safety Initiative

- \$25 million initiative to help States and health care systems to test models that:
 - Put patient safety first and work to reduce preventable injuries;
 - Foster better communication between doctors and their patients;
 - Ensure that patients are compensated in a fair and timely manner for medical injuries, while also reducing the incidence of frivolous lawsuits; and
 - Reduce liability premiums.
- Makes critical link between reducing harm to reduce medical liability



Partnership for Patients: HHS Public-Private Initiative

By end of 2013:

- 40% decrease in instances of hospital patients acquiring preventable conditions, including:
 - Central line-associated bloodstream infections
 - Catheter-associated urinary tract infections
 - Surgical site infections
 - Ventilator-associated pneumonia
 - Pressure ulcers
 - Adverse drug events
 - Venous thromboembolisms
 - Injuries from falls
 - Injuries from obstetrical adverse events
- 20% decrease in preventable readmissions due to complications during a transition from one care setting to another



*Funded by the
Affordable Care Act*

www.healthcare.gov/center/programs/partnership/index.html



National Quality Strategy: Three Broad Aims

Created Under the Affordable Care Act

Better Care

Improve the overall quality, by making health care more patient-centered, reliable, accessible and safe

Healthy People/ Healthy Communities

Improve the health of the U.S. population by supporting proven interventions to address behavioral, social and environmental determinants of health, in addition to delivering higher-quality care

Affordable Care

Reduce the cost of quality health care for individuals, families, employers and government

www.healthcare.gov/center/reports/quality03212011a.html



AHRQ's Surveys of Patient Safety Culture

- **What:** Surveys to assess safety culture in hospitals, nursing homes, ambulatory medical offices (Pharmacy service survey in development)
- **Why?**
 - Raise staff awareness about patient safety
 - Diagnose and assess current status of patient safety culture; identify strengths and weaknesses
 - Examine trends in patient safety culture over time
 - Evaluate impact of patient safety initiatives and interventions
- **Findings:** The 2012 hospital comparative report shows change over time for 650 of the 1,128 hospitals that have submitted data more than once



Surveys on Patient Culture Survey: Questions

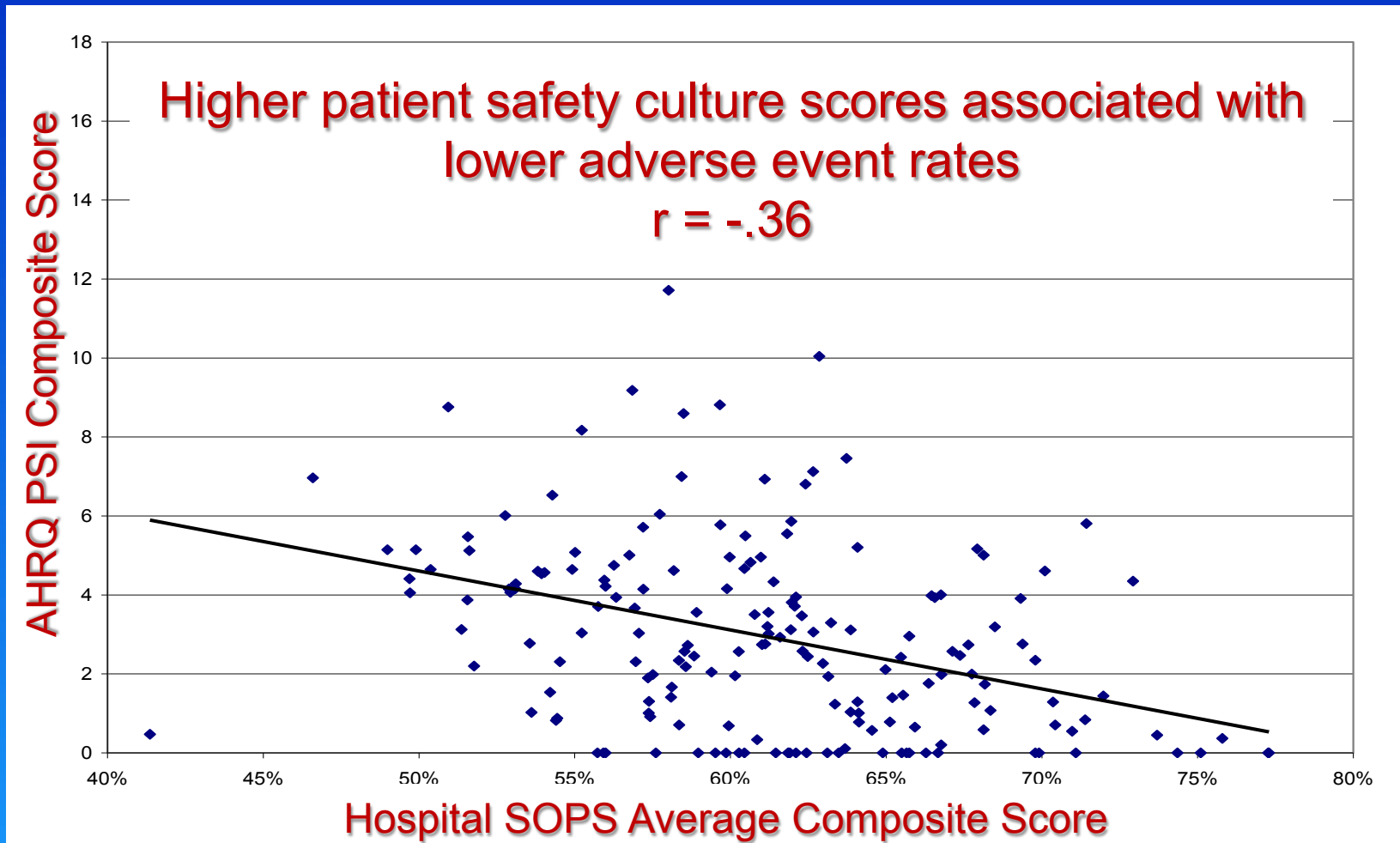


- **Outcome Measures:**
 - When a mistake is made but is caught and corrected before affecting the patient, how often is this reported?
 - Please give your unit in this hospital an overall grade on patient safety
 - In the past 12 months, how many event reports have you filled out and submitted?

www.ahrq.gov/qual/patientsafetyculture/hospdim/htm



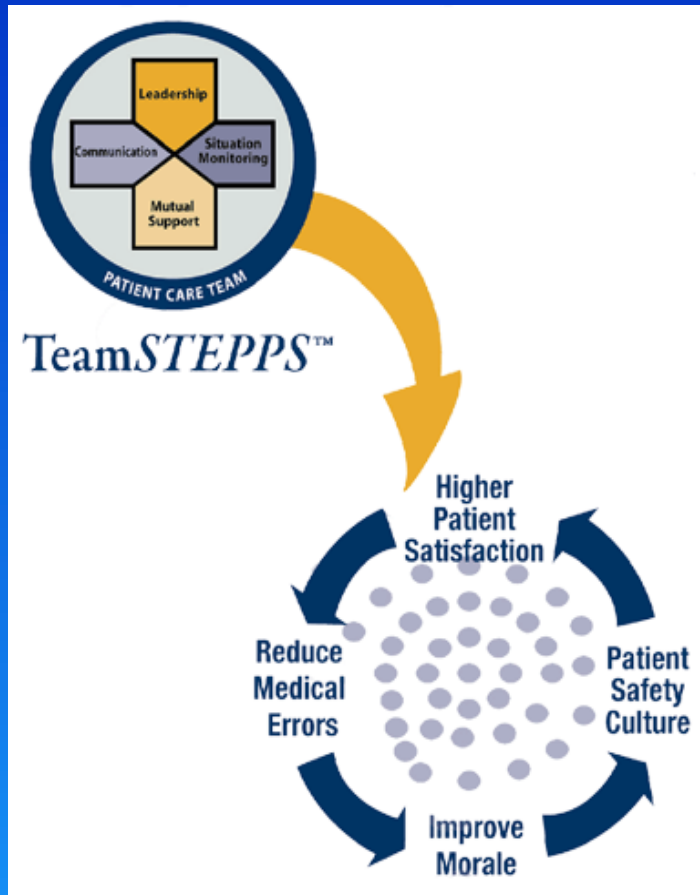
Relationship Between Patient Culture Survey and Patient Safety Indicator Composite Score



Mardon, Khanna, Sorra, et al. Dec. 2010. Exploring Relationships Between Hospital Patient Safety Culture and Adverse Events. *Jrnl of Pt Safety*, Vol 6 (4), pp. 226-232.



TeamSTEPPS™: A Patient Safety Improvement Tool



- Evidence-based system to improve communication and teamwork among health care professionals
- Rooted in more than 20 years of research and lessons from application of teamwork principles
- Developed by Department of Defense's Patient Safety Program in collaboration with AHRQ



TeamSTEPPS™ National Implementation Plan



Texas Center for Quality and Patient Safety

- AHRQ and DoD have teamed with American Institutes for Research to build national training and support network
- Five resource centers: Duke Medical Center (NC), Carillion Clinic (VA), U-Minn-Fairview Medical Center (MN), Creighton University Medical Center (NE) and U-Wash-Seattle (WA)



Team Training and Improved Surgical Outcomes

- The best outcomes data so far come from the Veterans Health Administration (VHA) Medical Team Training Program
- VHA training is 2 months of preparation, a 1-day conference, 1 year of quarterly coaching
- 74 sites experienced an 18% reduction in annual surgical mortality compared with a 7% decrease among the 34 non-training sites
- Dose-response relationship demonstrated: for every quarter of team training, reduction of 0.5 deaths per 1000 procedures occurred

Neily J, Mills PD, Young-Xu Y, et al. *Association between implementation of a medical team training program and surgical mortality.* JAMA. 2010; 304:1693-1700



Simulation and Teamwork: A Powerful Combination

TeamSTEPPS®: Training Guide

- Provides instruction using simulation-based training when teaching TeamSTEPPS™
- Guide integrates critical teamwork, interpersonal and communication skills into simulation-based training.
- Intended as “train-the-trainer” program; key personnel train other local health care teams

www.ahrq.gov/teamstepptools/simulation/index.html



Simulation Training in CVC Insertion: Impact on Resident Performance

- **Purpose:** To determine whether simulation training of ultrasound (US)-guided central venous catheter (CVC) insertion on partial task trainer improves cannulation and insertion success rates
- **Methods:** Randomized controlled study of first- and second-year residents at Yale University School of Medicine. Intervention group received training course in US-guided CVC insertion. Control group received traditional bedside apprenticeship training
- **Outcomes:** Success at first cannulation and successful CVC insertion (primary); reduction in technical errors and decreased mechanical complication (secondary)

Evans LV et al. "Simulation Training in Central Venous Catheter Insertion: Improved Performance in Clinical Practice." Acad Med. 2010; 85:1100-1106



Simulation Training in CVC Insertion: Results

- **Results:** 495 CVC insertions by 115 residents over 21-month period. Successful first cannulation in 51% of intervention group vs. 37% of control group. CVC insertion success for 78% of intervention v. 67% of control group
- **Conclusion:** Simulation training associated with improved performance of CVC insertion; improved residents' skills; more effective than traditional training





Simulation Training for AMI Management for Rural Providers

- On-site training with physicians from University of Colorado-Denver
- Formal curricula using simulation, guideline-based treatment of AMI
- Use of SimMan™, with 4 AMI scenarios
- Team training with 3-5 staff/ (MD, RN, EMS)
- Pre- and post-training assessment



University of Colorado at Denver
Health Sciences Center



Performance on Case-Based Questions

AMI Scenarios	Overall Percent Correct	Range
Case 1	95%	75-100
Case 2	79%	40-100
Case 3	90%	50-100
Case 4	100%	100

Scores from 18 groups at 5 hospitals. Following each clinical scenario, 4 or 5 multiple choice questions were posed. Teams could answer as a group.

Simulation Training to Improve Heart Attack Care for Rural Hospitals. John C. Messenger, M.D., F.A.C.C. Associate Professor of Medicine, Division of Cardiology, Director, Cardiac Catheterization Laboratories, University of Colorado Denver. 2008 AHRQ Annual Meeting



Challenges and Conclusions

Challenges

- Development time longer than expected, even with commercially available simulator
- Chart abstraction component of project limited due to staff resources
- Tailoring evidence-based guidelines to all levels more difficult than expected

Conclusions

- Use of simulation-based training for AMI care in rural hospitals was realistic/engaging, required critical thinking skills, useful for on-site training
- Easily delivered to large number of participants
- Evaluation of impact of simulation on guideline-based AMI care is ongoing




Evidence-Based Tools to Reduce Healthcare-Acquired Infections

- Majority of ICUs stopped central line-associated bloodstream infections (CLABSI) for up to 2 years after using AHRQ-funded quality initiative
- Comprehensive Unit-based Safety Program (CUSP) implemented through Keystone ICU project in Michigan hospitals (large and small)
- 60% of 80 ICUs evaluated went 1 year w/o infection; 26% went 2 years or longer
- Keystone tools include:
 - Promoting a culture of safety
 - Improving communications among ICU staff
 - Using checklist to promote practice of CDC guidelines

Lipitz-Snyderman A, Needham DM, Colantuoni E, et al. “*The Ability of Intensive Care Units to Maintain Zero Central Line-Associated Bloodstream Infections.*” *Arch Intern Med* 2011; 171(9): 856-858.



Nationwide Implementation of CUSP for CLABSI

- Following on Michigan Keystone success, an AHRQ project with AHA's Hospital Research & Educational Trust and Johns Hopkins University has recruited:
 - 46 State hospital associations
 - 1,055 hospitals
 - 1,775 hospital units
- First-year results – 750 hospitals
Average CLABSI rate/1000 central line days:
 - Baseline 1.87
 - CUSP for CLABSI 1.25



Putting Knowledge into Practice

■ Takeaways:

- HACs are not an ‘unfortunate consequence of care’
- They can be prevented (and even eliminated) with training, protocols and teamwork
- New AHRQ toolkit to debut on 9/10/12



www.onthecuspstophai.org



Project MATCH for Medication Reconciliation

- Effective process can detect and avert most medication discrepancies
- Developed at Northwestern, supported by AHRQ and Joint Commission
- Toolkit incorporates experiences of facilities that have used MATCH



www.ahrq.gov/qual/match



Patient Safety Web Sites

AHRQ's PSNet

Patient Safety Network

Powerful searching and browsing capability and MY PSNet features

AHRQ's Web M&M

Morbidity & mortality rounds on the Web

Interactive learning modules and CME and CEU credit

U.S. Department of Health & Human Services | www.hhs.gov

AHRQ Agency for Healthcare Research and Quality | www.ahrq.gov

AHRQ PSNet patient safety network

SEARCH [input] **web M&M** Visit Now morbidity & mortality rounds on the web

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The latest annotated links to patient safety literature, news, and more.

JOURNAL ARTICLE
Statewide NICU central-line-associated bloodstream infection rates decline after bundles and checklists. Schulman J, Stricof R, Stevens TP, et al; New York State Regional Perinatal Care Centers. Pediatrics. 2011;127:436-444.

The impact of computerized provider order entry systems on medical-imaging services: a systematic review. Georgiou A, Prigmet M, Markewycz A, Adams E, Westbrook JI. J Am Med Inform Assoc. 2011 Mar 8; [Epub ahead of print].

Inaccuracies in assignment of clinical stage for localized prostate cancer. Reese AC, Sadetsky N, Carroll PR, Cooperberg MR. Cancer. 2011;117:283-289.

Using prospective clinical surveillance to identify adverse events in hospital. Forster AJ, Worthington JR, Hawken S, et al. BMJ Qual Saf. 2011 Mar 1; [Epub ahead of print].

To what extent are adverse events found in patient records reported by patients and healthcare professionals via complaints, claims and incident reports? Christaans-Dingelhoff I, Smits M, Zwaan L, Lubberding S, van der Wal G, Wagner C. BMC Health Serv Res. 2011;11:49.

Critical phase distractions in anaesthesia and the sterile cockpit concept. Broom MA, Capek AL, Carachi P, Akeroyd MA, Hilditch G. Anaesthesia. 2011;66:175-179.

BOOK/REPORT
Keeping the Commitment: A Progress Report on Four Early Leaders in Patient Safety Improvement. McCarthy D, Klein S. New York, NY: The Commonwealth Fund; March 15, 2011.

Engaging Minority Communities in Safer Healthcare. Kurz M, Tobin WN. Chestnut Hill, MA: Medically Induced Trauma Support Services Inc.; 2011.

SPECIAL OR THEME ISSUE
eMedication Monitoring. AHRQ Health Care Innovations Exchange. March 16, 2011.

AUDIOVISUAL
Early Warning Systems: The Next Level of David Rappaport. Institute for Healthcare

An Introduction to AHRQ PSNet

PLAY VIDEO

Robert M. Wachter, MD
Editor, AHRQ PSNet

Patient Safety Primers

Learn about key concepts in patient safety with our primers

- Never Events
- Medication Reconciliation
- Handoffs and Signouts

[View more primers](#)

The Collection

The world's most robust collection of patient safety information: annotated links to journal articles, news, reports, tools, Web sites, and more—tagged for easy searching and browsing.

[Browse The Collection](#)

From the Collection:
Classics

U.S. Department of Health & Human Services | www.hhs.gov

AHRQ Agency for Healthcare Research and Quality | www.ahrq.gov

web M&M morbidity & mortality rounds on the web

SEARCH [input] **PSNet** Visit Now patient safety network

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MARCH 2011 [Sign up for monthly email newsletter](#)

Cases & Commentaries

SPOTLIGHT CASE

Volume Too Low: In and Out

Providers caring for an infant admitted with a viral infection and history of congenital heart disease failed to appreciate the significance of his low intake and output. The infant developed severe hypoglycemia and dehydration, and wound up in the pediatric intensive care unit.
 Commentary by **Marlene Miller, MD, MSc**
 CME/CEU credit available for this case

Perspectives on Safety

Handoffs and Patient Safety

INTERVIEW

In Conversation with...Vineet Arora, MD, MA

An Associate Professor at the University of Chicago, her research focuses on resident duty hours, handoffs, and professionalism.

Listen to an audio excerpt of the interview (.MP3 | 11.6 MB)

PERSPECTIVE

What Have We Learned About Safe Inpatient Handovers?

by Sunil Kripalani, MD, MSc

This piece discusses how medical centers can improve handover quality and patient safety.

Are We Pushing Graduate Nurses Too Fast?

While caring for a complex patient in the surgical intensive care unit, a nurse incorrectly set up the continuous renal replacement therapy (CRRT) machine, raising questions about how new nurses should be trained in high-risk procedures.
 Commentary by **Nancy Spector, PhD, RN**

Submit a Case

Do you know of a case that highlights medical errors? All submissions are anonymous.
[Submit a Case/Learn More](#)

Find Cases & Commentaries...

Safety Targets **Approach to Improving Safety**

- Device-related Complications (17)
- Diagnostic Errors(62)
- Discontinuities, Gaps, and Hand-Off Problems (73)
- Fatigue and Sleep Deprivation(1)
- Identification Errors (16)
- Medical Complications(38)
- Medication Safety (83)
- Nonsurgical Procedural Complications(21)
- Psychological and Social Complications(21)
- Surgical Complications(37)
- Transfusion Complications(2)

You may also browse cases using Clinical Area, Target Audience or Setting of Care...

Did You Know?

Critical care nurses identified 4183 potentially lethal medical errors.

Medical errors were identified as:



A Patient-Centric Vision of a Safer Health Care System

When evidence-based quality improvements become the standard of care ...



... a patient-centric health care system can flourish





Thank You



AHRQ Mission

To improve the quality, safety, efficiency, and effectiveness of health care for all Americans

AHRQ Vision

As a result of AHRQ's efforts, American health care will provide services of the highest quality, with the best possible outcomes, at the lowest cost

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