

PROFESSION



Illustration by Jef Capaldi / amednews staff

Top 10 ways to improve patient safety now

■ A comprehensive evidence review narrows the field of targets to prevent harm. These are things hospitals should be doing to protect patients.

By KEVIN B. O'REILLY ([HTTP://WWW.AMEDNEWS.COM/APPS/PBCS.DLL/PERSONALIA?ID=KOREILLY](http://www.amednews.com/apps/pbcs.dll/personalia?id=koreilly)) amednews staff — Posted April 15, 2013

Since the landmark 1999 Institute of Medicine report, “To Err Is Human,” made national headlines, the pressure has been on physicians and hospital officials to reduce the toll of preventable medical harm. Yet with so many competing pressures and studies that often offer contradictory conclusions, it is not always clear which problems to target and which safety strategies to pursue first.

A panel of experts, several of whom spoke with *American Medical News*, worked for more than three years to produce a 955-page Agency for Healthcare Research and Quality report that for the first time in a decade comprehensively reviews the effectiveness of more than 100 patient safety interventions. The panel identified 10 strategies that are “strongly encouraged.”

The report, published in March, recommends that most health care organizations implement these interventions within the next three years. Current use of these practices varies widely depending on the safety strategy, but the report's authors say it is clear that implementation is far from universal.

1. Improve hand hygiene compliance.

The link between dirty hands and the transmission of health care-associated infections has strong backing in epidemiological literature, and the importance of hand hygiene has been touted by the World Health Organization, the Joint Commission and the Centers for Disease Control and Prevention. Yet rates of hand washing are low, averaging 39%, with many doctors and nurses underestimating the activity's safety value.

Research shows that effective hand hygiene initiatives improve knowledge of when to clean and how to clean, require demonstration of the knowledge, ensure that alcohol-based rub and gloves are available at the bedside, and guarantee that compliance is monitored continuously.

For Robert Wachter, MD, a health care organization's hand hygiene compliance rate is a proxy for its overall commitment to patient safety. "I see it as a marker of an organization's ability to change practices in an area where it does take some work," says Dr. Wachter, chief of the medical service at the University of California, San Francisco, Medical Center. "If you can't get hand hygiene right, I'm skeptical of your ability to get other things right that are harder to do."

2. Use barrier precautions to stop the spread of infections.

Along with hand hygiene, barrier precautions are key to reducing the 1.7 million health care-associated infections that occur in the U.S. each year, which the CDC says kill about 99,000 patients annually.

When a patient has a serious nosocomial infection such as vancomycin-resistant *Enterococcus*, health workers should wear gowns and gloves when providing care. They should use dedicated disposable equipment and follow the encounter with immediate hand hygiene. A care bundle including barrier precautions has been shown to cut the spread of VRE from 21% to 9% in intensive care units.

3. Implement care bundles to prevent central line-associated bloodstream infections.

Using barrier precautions also is an element in the steps that dramatically can cut the rate of central line-associated bloodstream infections. When placing central venous catheters or peripherally inserted central catheters, health professionals should wear caps, masks, sterile gowns and gloves, and a full body drape should be placed on the patient.

About 250,000 bloodstream infections occur each year in the U.S., and these infections can triple hospital stays from seven to 21 days. Bloodstream infection rates in ICUs fell by nearly 60% between 2001 and 2009 thanks to wider use of a prevention protocol bundle first implemented statewide in Michigan. In addition to barrier precautions, the care bundle calls for hand hygiene, cleaning the patient skin with chlorhexidine, avoiding the femoral site for catheter insertion and removing unnecessary catheters.

"The evidence is so clear that this is the shining example of the patient safety field right now," says Dr. Wachter, author of the 2012 medical textbook *Understanding Patient Safety*.

4. Use real-time ultrasonography when placing central lines.

Another patient harm linked to central venous catheters is difficulty with inserting the lines correctly. Relying on the anatomic "landmark" approach to determine where the underlying vein is located, health professionals often need multiple attempts to place the catheter successfully. The frustrating process leads to complications and higher infection rates.

Using portable ultrasound machines to get a real-time, two-dimensional view while placing the catheter has been shown in randomized trials to lower infection rates and improve other outcomes. For every 1,000 patients, ultrasonography-guided central-line placement helps avoid 90 complications, research shows.

5. Use protocols to reduce catheter-associated urinary tract infections.

Catheter-related urinary tract infections are the most common type of health care-associated infection, with 1 million cases in the U.S. each year. The most important step in preventing catheter-associated UTIs is to reduce use of indwelling urinary catheters. At least 21% of catheters are placed in patients inappropriately — for example, as a substitute for extra nursing care — and they often are left in long after they are needed.

"We need a systems-based approach to this problem, because physicians often just forget that their patients have a urinary catheter," says Sanjay Saint, MD, MPH, professor of medicine at the University of Michigan Medical School and associate chief of medicine at the Veterans Affairs Ann Arbor Healthcare System in Michigan.

Physicians and nurses should be reminded daily about catheter placements through electronic systems, sticker reminders or other methods. Another intervention is an automated stop order issued 24 or 48 hours after admission or surgery. Letting nurses use electronic systems to suggest removal to physicians also can help. These interventions can cut the catheter-related UTI rate by more than half, research shows.



**Sanjay Saint, MD,
MPH**

6. Employ preoperative checklists to reduce surgical complications.

The estimated death rate directly due to inpatient surgery in industrialized countries ranges from 0.4% to 0.8%, with major complications occurring as often as 17% of the time. The most well-known surgical safety checklist is one devised in 2008 by WHO, which cut mortality rates from 1.5% to 0.8% at sites in industrialized nations and developing countries. The checklist also helped reduce the surgical complications rate from 11% to 7% over six months involving nearly 4,000 procedures.

The checklist prompts communication among members of the surgical team to confirm elements such as the patient's identity, the surgical site and type of procedure, anticipated problems, administration of antibiotic prophylaxis and the correct sponge count upon completion.

A checklist developed in the Netherlands — the SURgical PATient Safety System, dubbed SURPASS — tracks nearly every element of surgery from before the patient's admission to after discharge, and has delivered impressive results. About seven in 10 surgery errors are related to mistakes outside the operating room.

**DID YOU KNOW:
Pulmonary embolisms kill
nearly 100,000 people
each year.**

7. Improve venous thromboembolisms prophylaxis.

Between 350,000 and 600,000 Americans develop deep vein thrombosis each year. The condition, which commonly affects the legs, can lead to pulmonary embolisms that kill more than 100,000 Americans annually. DVT and PE together comprise venous thromboembolism, or VTE.

“VTE is a huge killer,” says Elliot R. Haut, MD, associate professor of surgery, anesthesiology and critical care medicine at the Johns Hopkins University School of Medicine in Baltimore. “It blows car crashes out of the water. ... It beats AIDS. All these things that people think of as huge killers and get all this press and energy, VTE beats them.”

Medical and mechanical interventions can prevent VTE, Dr. Haut says. Low-dose unfractionated heparin and low-molecular weight heparins such as enoxaparin and warfarin are effective. So are compression stockings and pneumatic compressing devices. One key to improving use of these prophylactic interventions is health information technology that helps identify patients at higher risk for VTE. Automated alerts for patients with documented risks can help increase VTE prophylaxis ordering rates from 20% to 80%, research shows.

8. Use preventive intervention care bundles to cut rates of ventilator-associated pneumonia.

Pneumonia linked to endotracheal intubation accounts for 25% of ICU infections and is responsible for half of intensive care antibiotic use.

“It's common, costly and it's perhaps among the most lethal health care-associated infections that we know of,” says Sean M. Berenholtz, MD, associate professor of anesthesiology and critical care medicine at Johns Hopkins.

Research shows that preventive intervention care bundles can cut rates of ventilator-associated pneumonia by as much as 40% among adults and children.

These steps include elevating the head of the patient's bed by more than 30 degrees, putting holds on sedation — called “sedation vacations” — to help wean patients off mechanical ventilation, cleaning the mouth with chlorhexidine, and using subglottic suctioning endotracheal tubes to reduce the pool of secretions in the tube cuff.

9. Avoid hazardous drug abbreviations.

About 15,000 medication errors a year have been linked to using abbreviations such as “u” for “unit” and “q.d.” instead of “once daily.” Starting in April 2004, the Joint Commission required hospitals to ban these and other commonly used abbreviations that jeopardize medication safety.

Studies done around the time the ban went into effect found that hospitals were able to cut use of hazardous medication abbreviations from about 20% to 3% through education and follow-up with doctors who used the shorthand prescription lingo. Implementation of computerized physician order entry systems also can help eliminate the vestiges of this problem.

10. Use multicomponent interventions to prevent pressure ulcers.

About 2.5 million Americans develop bedsores each year, and about 60,000 patients will die from complications related to pressure ulcers acquired in U.S. hospitals.

One bundle of preventive care measures has reduced pressure ulcers by 90% at a large health system, from a rate of 5.7% of patients to less than 0.5%. The bundle, dubbed SKIN, calls for continual assessment of the skin of at-risk patients, regular turning of these patients, management of incontinence to prevent soiling that can contribute to bedsores, and nutritional assessment for malnourishment that can enable the ulcers.

Pressure ulcers are “a cause of a tremendous amount of suffering,” says Karen Schoelles, MD, who directs the Evidence-Based Practice Center at ECRI Institute, a patient safety think tank in Plymouth Meeting, Pa. “They’re really miserable, degrading things to have and miserable things to die from.”

Dr. Schoelles’ father developed a pressure ulcer in a hospital and died from complications about five years ago. “It’s still hard to talk about,” she says.

“Every single one of these things is a very important topic,” adds Dr. Schoelles, who says commitment from health care executives is essential to implementing proven interventions. “For a lot of this work, attitude seems to make such a big difference. You need leadership that conveys that the extra effort is worth it.”

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ADDITIONAL INFORMATION

12 suggested patient safety practices

If the Agency for Healthcare Research and Quality’s list of top 10 patient safety strategies represents a gold standard of what U.S. hospitals should be doing, these 12 expert-backed practices are the up-and-coming silver and bronze medalists.

- 1 Use multicomponent interventions to reduce in-hospital falls.
- 2 Use clinical pharmacists to reduce adverse drug events.
- 3 Reconcile medications during care transitions.
- 4 Implement computerized physician order entry systems with clinical decision support to alert doctors about drug interactions and other medication issues.
- 5 Use surgical outcome measurements and report cards such as the American College of Surgeons’ National Surgical Quality Improvement Program.
- 6 Obtain informed consent to improve patients’ understanding of the potential risks of procedures.
- 7 Use rapid response systems to provide quick treatment when hospital patients deteriorate outside the ICU.
- 8 Reduce radiation exposure from fluoroscopy and computed tomography scans.

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- 9 Document patient preferences for life-sustaining treatment.
 - 10 Use teamwork training to optimize communication among health professionals.
 - 11 Use simulation exercises to enhance medical and patient safety training while sparing patients from risk.
 - 12 Utilize complementary methods such as chart reviews, incident reporting systems and electronic health records to track medical errors and adverse events.
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Source: "Making Health Care Safer II: An Updated Critical Analysis of the Evidence for Patient Safety Practices," Agency for Healthcare Research and Quality, March ([link](#))

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EXTERNAL LINKS

Links to detailed implementation information on the top 22 patient safety strategies, Agency for Healthcare Research and Quality, March ([link: http://www.ahrq.gov/research/findings/evidence-based-reports/makinghcsafer.html](http://www.ahrq.gov/research/findings/evidence-based-reports/makinghcsafer.html))

"The Top Patient Safety Strategies That Can Be Encouraged for Adoption Now," *Annals of Internal Medicine*, March 5 ([link: http://www.ncbi.nlm.nih.gov/pubmed/23460091](http://www.ncbi.nlm.nih.gov/pubmed/23460091))

"Making Health Care Safer II: An Updated Critical Analysis of the Evidence for Patient Safety Practices," Agency for Healthcare Research and Quality, March ([link: http://www.ahrq.gov/research/findings/evidence-based-reports/ptsafetyuptp.html](http://www.ahrq.gov/research/findings/evidence-based-reports/ptsafetyuptp.html))

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