

Healthcare Benchmarks and Quality Improvement

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Study shows disappointing results in many safety indicators

Every 1.7 minutes a Medicare beneficiary has a patient safety event

With all the attention that's been paid to patient safety in recent years, one would have hoped for better results. But as the latest HealthGrades analysis of patient safety among Medicare patients shows, we still have a long way to go.

The survey, which looked at performance in all of the nearly 5,000 U.S. non-federal hospitals based on 15 indicators of patient safety developed by the federal government's Agency for Healthcare Research and Quality (AHRQ), showed that between 2005 and 2007, performance in seven of those indicators actually worsened.

Referring to them as "some of the most common and most serious indicators," Golden, CO-based HealthGrades said they included decubitus ulcer (bed sores), sepsis, respiratory failure, deep vein thrombosis (blood clots in the legs), and pulmonary embolism.

Here are some of the other study highlights:

- **Large safety gaps identified between top- and bottom-performing hospitals.**

Patients treated at top-performing hospitals had, on average, a 43% lower chance of experiencing one or more medical errors compared to the poorest-performing hospitals.

Key Points

- Improved monitoring is key to preventing hospital-acquired conditions.
- Getting patients ambulatory as soon as possible can help prevent bed sores.
- Allowing families to call rapid response teams helped reduce incidents of respiratory failure.

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- **Patient safety events are common at U.S. hospitals.**

Between 2005 and 2007 there were 913,215 total patient safety events among Medicare beneficiaries.

- **Common patient safety events are very costly.**

Between 2005 and 2007 these patient safety events were associated with more than \$6.9 billion of wasted health care cost.

- **Approximately one in 10 Medicare patients with patient safety events died.**

Between 2005 and 2007, 97,755 actual in-hospital deaths occurred among patients who experienced one or more of the 15 patient safety events.

Between 2005 and 2007, according to the study,

913,215 total patient safety events were recorded among Medicare beneficiaries which, HealthGrades said, represents 2.3% of the nearly 38 million Medicare hospitalizations. This, they noted, equates to one reported patient safety event every 1.7 minutes. (A full copy of the report is available at www.healthgrades.com/research.)

Why performance dropped

Why has performance dropped in such “common and serious” areas? “It’s very interesting; we’ve been pondering that a lot,” admits **Rick May**, MD, senior physician consultant at HealthGrades and co-author of the study. “If you delve down into the actual computations, there may be some understanding from a clinical standpoint as to what’s going on.”

May looks to the medical literature to help explain, for example, the findings for decubitus ulcers. “There are two things going on,” May observes. “First, we are seeing more skin problems. The population in general is getting older, and there is more widespread use of steroids for many conditions, and people in nursing homes are living longer. All of those are risk factors for decubitus ulcers. Also — and this is scarier — we’re seeing an increase in the rate of sepsis post-op.”

“Every organization is struggling with this,” adds **David Cooke**, MD, vice president of quality and safety at Central DuPage Hospital in Winfield, IL. Central DuPage was one of the 2009 HealthGrades Patient Safety Excellence Award recipients identified as part of the report. (HealthGrades estimates that if all hospitals had performed at the level of Patient Safety Excellence Award hospitals, about 211,697 patient safety events and 22,771 Medicare deaths could have been avoided while saving the U.S. about \$2 billion from 2005 through 2007.)

However, he says that the fault does not entirely lie with the hospitals. “Some of this is due to the fact that patients, in reality, are just sicker,” he asserts. In addition, he notes, the way some data are reported may present a less than accurate picture.

“The way they were entered into the administrative database, until recently there was no distinguishing a patient who came from a chronic care facility vs. one who developed the ulcers while in the hospital,” he shares. “For example, when I look at the first three quarters of 2008, we

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Editorial Questions

For questions or comments, call **Steve Lewis** at (770) 442-9805.

had 80 cases, but only 14 developed here at the hospital.”

A good deal of discipline is required to be able to separate the two sets of data, he continues. “These things hide and may not be the main medical problem,” he observes. “The nurses have to do a very careful [skin] examination and document what they found, but it doesn’t count unless the physician documents it — and the physician may find it not to be part of the patient’s acute illness. So, you need a nursing staff that’s very good at searching and documenting and has a way of prompting the doctor to document.”

Cooke notes that on Jan. 1, 2008, Medicare began requiring a code under the column present on admission. “HealthGrades has not yet used that ‘present on admission’ data,” he points out. Still, he says, “Even if we had 14 cases in nine months, that’s 14 too many. I want no misunderstandings; you have to make your performance better and better.”

Post-op sepsis and respiratory failure, he says, also are widespread problems — but again, he notes these are complicated issues. “Frankly, our society expects us to take action when surgery could be lifesaving — even in people whose conditions make them a bad risk,” he asserts. “In the past you could more elegantly choose not to do the surgery. So, to some degree, this also speaks to the acuity of the patients.”

What quality managers are doing

Despite these obstacles, top-performing hospitals have developed processes to help reduce the occurrence of these conditions. “For respiratory failure we discovered five years ago we had a significant increase that was sometimes related to simple narcotics use,” notes **Lee Johnson, RN, MSN, CPHQ**, administrative director for quality at Trinity Mother Frances Hospital in Tyler, TX, another 2009 HealthGrades Patient Safety Excellence Award recipient. “We also implemented a rapid response team that has evolved, and we have now put in ‘Condition H,’ which allows patients’ families to call a response. That has been extremely helpful in identifying patients in very early respiratory failure, where years ago they would have gone on to have a full respiratory arrest.”

“We acknowledge that a portion of our patients are at higher risk for bed sores, either because they are nutritionally depleted, bed-

Leapfrog survey also finds shortcomings

At press time, The Leapfrog Group released its own survey showing some disappointing results in terms of hospital quality and safety. According to the 2008 Leapfrog Hospital Survey, only 7% of hospitals fully meet Leapfrog medication error prevention and CPOE standards, and low percentages of hospitals are fully meeting mortality standards.

Among surveyed hospitals, efficiency standards defined as highest quality and lowest resource use are met by only 24% of hospitals for heart bypass surgery, 21% for heart angioplasty, 14% for heart attack care, and 14% for pneumonia care.

Other highlights of the 2008 hospital survey include:

- Relatively low percentages of reporting hospitals are fully meeting volume- and risk-adjusted mortality standards or adhering to nationally endorsed process measures for eight high-risk procedures where following nationally endorsed and evidence-based guidelines is known to save lives:

- 43% for heart bypass surgery;
- 35% for heart angioplasty;
- 32% for high-risk deliveries;
- 23% for pancreatic resection;
- 16% for bariatric surgery;
- 15% for esophagectomy;
- 7% for aortic valve replacement;
- 5% for aortic abdominal aneurysm repair.

- 65% of participating hospitals do not have all recommended policies in place to prevent common hospital-acquired infections.

- 75% do not fully meet the standards for 13 evidence-based safety practices, ranging from hand washing to competency of the nursing staff.

- Only 26% and 34% of reporting hospitals are fully meeting standards for treating two common acute conditions — heart attacks and pneumonia, respectively.

- Only 30% and 25% of hospitals are fully meeting standards to prevent hospital-acquired pressure ulcers or hospital-acquired injuries, respectively.

(Individual hospital results can be viewed and compared with other hospitals at www.leapfroggroup.org.) ■

bound, or because of surgical complications they cannot not get around,” adds **Ralph Carroll**, MBA, hospital patient safety officer at Mother Frances.

“For 15 years our orthopedic and cardiac populations have received very aggressive rehab to keep up and moving, and that’s done a great deal for improving general outcomes. Also, we recently incorporated the concept of hourly rounding. We found that patients were using the call button a lot and when we responded it kept us from treating other patients; so we tried to get ahead of that by rounding, inquiring about pain, about whether the patient needed to go the bathroom, and we also do a very quick assessment of those areas at greatest risk for pressure sores.” This way, Carroll explains, staff can identify areas of redness before they actually become sores.

A few years ago, Carroll continues, the hospital made “a big push” toward more sophisticated wound management — giving doctors and nurses special training with special treatment, and using the Braden scale to assess risk of developing sores. “Also, you can’t underestimate the importance of adequate hydration and nutrition, and we have an active nutritional program throughout the whole hospital,” he says.

Cooke says his facility has created a performance improvement project around every step of bed sore prevention he outlined earlier (i.e., nurse exams, documentation). “We’ve actually done a study of this,” he continues. “One day we will send out a team of wound experts and examine every single patient in the hospital. They determine if they already have decubitus ulcers and compare that to our documentation. It’s a great way of improving documentation.”

Cooke notes that serious pressure ulcers are considered “never events,” for which a hospital cannot be reimbursed. “Two quarters ago we showed a 5% rate of patients with bed sores, which is not as good as we had been doing, but there were none in the severe category,” he reports. This quarter that number was 1%.

May says that more active monitoring can help address sepsis, “but the concerning piece is the ongoing emergence of more resistant bacteria.” Monitoring is also a key to improvement in the area of decubitus ulcers, he notes. “For example, many nursing intake exams now include things like rolling the patient over, so you’ll find more sores on admission,” he says. “What I expect to

see over time is that we are documenting fewer as complications.”

Characteristics of safety

In addition to specific initiatives, says May, top-performing hospitals have several characteristics in common that lead to improvement in all key safety indicators. “They have several characteristics they build into their systems, which make them superior,” he says. “They do not achieve their results by accident; they are very methodical and very deliberate in terms of what they do.”

For example, “They make patient safety a very high priority,” May notes. “Then, they push for full transparency in terms of quality and safety data — both internally and externally. They are willing to look at data and also be completely frank and open talking about data at every level — not just with doctors in a closed, dark room, but with everybody involved with the process — nurses, respiratory technicians, the administration team, and so forth.”

“One of the keys to overall success has to be a culture in the organization for quality and patient safety,” adds **Robin Fabre**, MD, an internal medicine physician and vice president of quality at Mother Frances. “Leadership has to be engaged and have a mentality of excellence towards performance.”

Fabre says that performance improvement “has been part of our overall system of commitment to quality — even before public reporting was required; it’s been hard-wired into accountabilities, from senior management down to directors of departments.” Quality, she continues, is one of the system’s five “pillars” (the others are service, people, finance, and growth). “We have annual evaluations in regards to our performance; right now we are setting goals for the quality pillar this year — things we want to improve upon. If we do not reach our targets, our bonuses would be affected by that.”

May agrees that leadership involvement is critical. “Quality managers are those who are most aware of quality issues and most focused on improving quality and patient safety, but what we find is they absolutely have to have 100% public buy-in and support from upper level management — up to and including the CEO, and even the board of the hospital,” he says. “For many hospitals you’re talking about a big cultural shift, and that can make a lot of people ini-

tially uncomfortable. It's difficult for a quality manager to do that in isolation."

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With 0% surgical infection rate, improvement needed

Some process are identified as 'unreliable'

You might think that with a surgical site infection rate of 0% you could rest on your laurels, but that's not the attitude of the quality professionals and staff members at Hawaii Medical Center East in Honolulu. Despite achieving such a "perfect" score, they decided to dig deeper and find additional ways to improve.

"Our baseline surgical site infection [SSI] rate in 2005 was 0%," recalls **Jennifer Watarai**, director of quality management. "This was attributed to our strong infection control practices. However, when we examined this in detail, we found alarming discrepancies between procedure standards and practice."

What were some of those discrepancies? "Pre-initiative results for administering antibiotics within one hour of incision was only 37%; selecting the recommended antibiotics was 77%; and discontinuing antibiotics within the recommended time frame was only 19%," Watarai says.

"Our medical center chose to work on this initiative since we did not have reliable processes in place to assure that our surgical patients were receiving antibiotic prophylaxis appropriately," she continues. "We wanted to do all that we could to minimize the risks of SSIs in our patient population."

A team approach

An interdisciplinary committee was formed and tasked with leading the improvement efforts,

says Watarai. The team included:

- cardiovascular surgeon (co-chair and physician champion);
- director of quality management (co-chair);
- chief of surgery (physician champion);
- orthopedic surgeons;
- chief of anesthesiology;
- hospital administrator;
- operating room manager;
- ambulatory care services (ACS)/PACU nurse manager;
- med-surg nurse manager;
- cardiac catheter lab nurse;
- infection control nurse;
- pharmacists;
- clinical data analyst;
- health information management manager.

The team referenced a number of resources and tools used by other organizations, including:

- Ohio KePRO SCIP (Surgical Care Improvement Project) pilot package;
- Guidelines for surgical prophylaxis at the University of Louisville Hospital;
- Southwest General Health Center's physicians order for adult pre-operative antibiotic for surgical prophylaxis;
- Mountain Pacific Quality Health Foundation's "time out" checklist form.

"Other resources were found at the Institute for Healthcare Improvement: 100,000 Lives Campaign — Preventing Surgical Site Infections web site," she adds.

The facility adopted a perioperative antibiotic administration process similar to that instituted at Baystate Medical Center in Massachusetts, where it decreased its SSI rate from 3.8% to 1.4%, notes Watarai, who adds that "our objective was to implement reliable processes for appropriate and timely surgical antibiotic prophylaxis to prevent complications of infection from surgery and maintain our 0% surgical site infection rate."

Broad staff education effort

Watarai says a number of different strategies were used to make sure the staff understood what was expected of them. "We provided staff education on the SCIP through our medical center's "JCAHO WATCH" newsletter and posters posted in nursing units that highlight revised forms and orders," she says.

"We also provided education and feedback on the SCIP to physicians through medical staff department meetings, the medical center's medi-

cal staff newsletter, and a poster placed in the OR physician's lounge that highlighted revised forms and orders. Additionally, we developed and implemented SCIP education for surgical residents during their orientation."

The project began with data collection on patients discharged on July 1, 2005, with project initiation in December 2005. Most of the actions were implemented by July 1, 2007, and efforts have been ongoing.

"We revised and implemented a space for systematic documentation of antibiotic administration on every patient chart, as well as revised existing pre-printed orders according to guidelines for the administration of prophylactic antibiotics," says Watarai. "We included the following in the preoperative checklist: prophylactic antibiotic ordered and sent with patient to OR (to be started in OR, except Vanco, Cipro, and Levo)." White boards are used in the OR suites to document prophylactic antibiotic time, as well as to serve as reminders."

The SCIP team oversees and monitors the process and timeliness of surgical antibiotic prophylaxis and analyzes data, says Watarai. Findings are reported to and feedback is solicited from the OR committee, department of surgery, department of anesthesia, department of cardiology, department of EENT, nursing, and the patient safety quality council on a regular basis.

Here are some of the immediate "next steps" included in the process:

- pharmacy will flag SCIP patients on the pharmacy computer system to trigger pharmacists to follow SCIP recommendations;
- pharmacy will implement automated "hard" stops on all surgical prophylactic antibiotics after 24 hours or after 48 hours for CABG and cardiac procedures;
- revised pre-printed pre- & post-op orders will be posted in PACU and ACS;
- revised post-op orders will be placed in an accessible area in PACU;
- the revised post-op orders and pre-op checklist will be bundled with the revised pre-op orders;
- nurse managers will discard outdated orders and place the revised pre- & post-op orders in their units;
- the SCIP education module for surgical residents' orientation will be updated;
- two physician champions will personally hand-deliver to each surgeon a packet containing:
 - surgeon's individual report card;
 - pre-printed ACS pre-op orders;

Key Points

- Even if your results look good, you can still examine your processes for reliability.
- Interdisciplinary team includes members from 14 different areas.
- Resources and tools from other institutions help inform quality initiative.

- pre-printed pre-op orders;
- pre-printed post-op orders;
- information on how to appropriately document infection;
- information that post-op antibiotics are unnecessary;
- educational information on VTE prophylaxis;
- educational information on beta-blockers;
- the chief surgical officer will push to make pre-printed orders mandatory.

"Longer term, a computerized physician order entry system will be implemented with automated options/orders that are in compliance with SCIP guidelines," Watarai adds.

All of the team's goals have been accomplished, she reports. "Dramatic improvements were made in administering antibiotics within one hour of incision from 37% to 81% in the fourth quarter 2006 and 100% in January 2007," Watarai says. "Selecting the recommended antibiotics went from 77% to 89% in the fourth quarter 2006 and 81% in January 2007, and discontinuing antibiotics within the recommended time frame went from 19% to 72% in the fourth quarter 2006 and 63% in January 2007.

"Most importantly," she concludes, "we were successful in maintaining our SSI rate at 0%."

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Break down these barriers to medication safety

Take an in-depth look at your own ED

A patient's chart is unavailable. Verbal orders are not yet written in the patient's chart. The

identification bracelet is not yet on your patient. These are three reasons that an ED nurse may fail to comply with one of The Joint Commission's National Patient Safety Goals (NPSGs): the requirement for use of at least two patient identifiers.

A new survey of 2,200 ED nurses representing 131 EDs reveals that these and other barriers to compliance with the medication-related NPSGs are quite common.¹

Leaders of the Emergency Nurses Association (ENA) chose to study this topic because emergency nurses identified compliance with the medication-related goals as a "particular challenge," according to **Denise King**, RN, MSN, CEN, immediate past president. King says to her knowledge, no other study has examined the NPSGs in this way.

"Emergency nurses should utilize the findings to take an in-depth look at their own ED" to identify barriers to compliance and develop an action plan, she says.

The ED at the University of Kentucky Medical Center in Lexington, like many others, has found compliance with the patient identification and universal protocol goals a particular challenge, says **Mary Rose Bauer**, RN, MSN, one of the study's authors and quality improvement coordinator for emergency/trauma services at the center. "Both of these were shown to have multiple barriers to implementation in this study," she says.

Bauer says the following practice changes were made in her ED to remove barriers to compliance:

- **Additional education on the medication-related goals is given to ED nurses during staff meetings and competency days.** "A monitoring program has been initiated that looks at compliance and provides feedback to the staff," says Bauer.

- **As part of "Patient Safety Days," ED managers take two weeks to retrain staff on one of the medication-related goals.** "This effort is designed to get all staff the same current information and incorporate it into their practice," says Bauer.

At the University of California-San Diego Medical Center ED, the most challenging NPSG was medication reconciliation, says **Tia Moore**, RN, CEN, clinical nurse educator of the ED. "As we have many 'frequent fliers' that present with their large bags of medications, it became increasingly time-consuming to have to re-document all of their medications with each visit," she says. "A simple five-minute triage could turn into a 30-minute ordeal if the patient had a large amount of medications."

To help speed the process of initial triage, nurses rewrote the triage page within the computerized charting system. Now, the patient's

Key Points

- Survey says of 2,200 ED nurses from 131 EDs, barriers to complying with medication-related NPSGs are common.
- Consider additional education of employees.
- One hospital uses computerized charting system to quicken triage process.

medications transfer with their chart for every ED visit. Now all nurses have to do is verify during the initial triage that the patient still takes the same medications, including the dosing and frequency. Then, any additional medications are added, and those no longer taken are deleted.

The new process takes more time for initial entry of the medications if the patient has not been seen in the ED previously, acknowledges Moore. "While it does indeed take more time to do this, we are making sure that any potential medication-related interactions or allergy concerns are documented from the beginning," says Moore. "Once the initial input is made, the speed of reviewing for dose accuracy is significantly improved should the patient again present to the ED."

Likewise, the patient's discharge paperwork interfaces with the triage medication page and automatically prints the name of each medication, rationale for use, proper timing, and any potential side effects. This paperwork gives nurses another chance to review the information with patients before they leave the ED.

Reference

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Is MRSA on the run? CEOs getting on board,

IPs now have friends in high places

A scourge of hospitals for decades, methicillin-resistant *Staphylococcus aureus* (MRSA) may finally be on the run, and it's moving in the right direction: from the bedside to the "C-suite." In

initiatives that speak to both quality and cost-savings, hospital CEOs are putting their considerable clout behind infection prevention efforts against the most highly publicized health care-associated infection (HAI).

What better target than an HAI that has gained national notoriety by infecting people in the hospital and community, spurring consumer demands for change in a litigious, money-crunched health care climate that is increasingly being told by payers to prevent infections or pay for them. Indeed, preventing infections speaks directly to the bottom line by reducing length of stay and extended care that may be targeted for nonreimbursement by the Centers for Medicare & Medicaid Services (CMS).

“Certainly, some of the discussion that has taken place with regard to ‘pay for performance’ has gotten folks interested; but more important, there is a real movement by hospitals throughout the country to really do a better job at focusing on delivering care and service,” says **Steve Lawler**, CEO of Pitt County Memorial Hospital in Greenville, NC. “I think people understand that it creates a difference in the marketplace.”

Lawler and CEO colleagues at the VHA, a national health care alliance based in Irving, TX, have MRSA firmly in their sights. The VHA brought together hospital CEOs from throughout its Central Atlantic region, launching a “board-directed” quality initiative to reduce MRSA infections. Forty-nine participating hospitals have been collecting data since October 2007, and the results are promising. Overall, the hospitals have reduced MRSA by 20%, which equates to nearly \$4 million saved by preventing 151 infections.

So much for infection prevention being a non-revenue-generating department. Infection preventionists who labored in relative obscurity in a protracted battle with this bug now have friends in high places, as CEOs react to the surge of political, regulatory, and financial issues suddenly swirling around MRSA prevention.

“I think people realize that there has to be an investment in [infection prevention],” says Lawler, chairman of the VHA board that created the initiative. “It’s not something that happens by magic. It happens by focus, by accountability, and by making sure you have the right resources.”

Those resources may be used for interventions to stop MRSA transmission by using active screening cultures to detect and isolate colonized or infected patients.

“Our hospital has been involved in that kind

Key Points

- C-suite getting more and more involved with infection prevention measures.
- Education includes employees and patients.
- Hospital reduces its MRSA rates by 77%.

of program for about two years,” Lawler says. “We were the second hospital in the country that actually started doing 100% screening of our patients.”

Money talks — louder than ever — but the high road in this discussion is improving quality, reducing suffering, and saving lives.

“At VHA, when we sit around the table as a board, we talk about how are we are doing in quality — not only in MRSA, but several other areas,” Lawler says. “Eradicating MRSA, reducing device-related infections, or reducing mortality by following bundle compliance are probably things everyone is talking about and paying attention to in the C-suite.”

While the cost-saving aspect is certainly being emphasized in the current recession, the CEOs were focused more on quality improvement when the project began in 2007, says **Terri Bowersox**, FACHE, director of clinical performance improvement at VHA’s Central Atlantic office in Charlotte, NC.

“But in 2008 — especially toward the end of 2008 — we could definitely see our board of directors at VHA Central Atlantic really shifting to more of a financial focus and being interested in how they can reduce their costs,” Bowersox says. “We started putting the economic issues out there, like the CDC estimate of an average cost of \$26,000 per MRSA infection. That has really gotten their interest, because now it is not only a quality-of-care issue — it is a financial issue.”

That initiative is translating to lower rates, even as an unrelated wave of clinical prevention efforts in intensive care units are being credited for dramatic MRSA reductions in Centers for Disease Control and Prevention sentinel hospitals. **(See related story, pg. 70.)**

“Our MRSA infection reduction initiative is clearly working,” Bowersox says. “Sixteen participating hospitals have already reduced their MRSA infection rates by 30% or more. We are on track to reduce MRSA infections in the region by 80% in three years.”

In addition to CEO involvement, the hospitals

are working with nursing units to implement a culture of safety, using monthly data collection and monitoring, best-practice sharing, and customized coaching by VHA clinical improvement consultants, she says.

Another aspect of the program is a web site, the Leading Practices Portal, which enables VHA hospitals to access information about their performance in specific clinical areas and to compare other hospitals regionally and nationally. The site helps hospitals identify gaps in their performance and points the hospitals to resources for improvement, Bowersox says.

IPs say zero is the target

The infection preventionists at the individual hospitals in the project welcome the high-profile support, saying they want to move beyond any benchmark goals and flat-line MRSA infections.

"I don't think ethically or morally you can say, 'We're OK if 10% of our patient population gets MRSA infections,'" says **Robin Carver**, RN, BSN, CIC, director of infection prevention and control at WakeMed Health & Hospitals in Raleigh, NC. "We are excited and we celebrate anytime we prevent one infection. Is zero realistic? I don't know — it might be. In the world of infection prevention, this is our passion. I don't think we are OK with a 5% or 10% infection rate."

Carver and other IPs in the participating hospitals are finding that with CEO support, many — if not all — things are possible. "Hospital infection control has never been as resourced and supported as it is in our hospital," she says. "As long as I can really provide the background and explain to the administrators why I really need it, I have not been denied anything lately."

And Carver is putting those resources to good use. Through the VHA initiative, WakeMed has reduced its hospital-acquired MRSA rates by 51% in one year. "We are continually coming up with new ways to engage, excite, and remind staff to incorporate MRSA infection control efforts into their daily processes, such as hand washing, barrier protection, and active surveillance," Carver says. "Weekly screening of patients, combined with comprehensive and sustained educational activities, have really helped us to improve our rates."

Education doesn't stop at health care workers, but actually starts with admitted patients. They are shown something akin to a "pre-flight" video,

which warns of the risk of infection and advises patients to remind caregivers to wash their hands. In addition, she has deputized "infection control resource nurses" to make hand-washing observations and collect data that will be reported back to staff.

"We also just created what we call the 'hand hygiene ambassador team,'" Carver explains. "We asked managers about any employees that they have on their unit who really want to be change agents. If the employee on that unit can engage their colleagues in fun, nonthreatening ways to remind each other to do hand hygiene, [then it may become] the social norm in that unit."

Such things are possible when a program comes as a directive from the CEO, as workers can hardly blame the infection prevention "police" for being overzealous when they are enforcing an institutional priority.

"Our CEO's endorsement and support of this program has made it clear that this is an important initiative," says **Wanda Lamm**, RN, BSN, CIC, infection prevention coordinator at Nash Health Care Systems, Rocky Mount, NC. "Hand hygiene continues to be a key to our success."

Nash Health Care Systems has been participating in various VHA infection control initiatives and saw this effort as another opportunity to tackle MRSA and other multidrug-resistant organisms. To date, the VHA initiative has helped the hospital to reduce its MRSA infection rates by 77%.

Lamm calls her hand hygiene observers "secret shoppers," but the main point is that health care workers are well aware that their patient encounters may be monitored and are on board with the program.

"It's actually been very positive," Lamm says. "I think the tone has been set that we expect this to be done as part of our patient safety initiative. I really don't hear about any 'push-back' from staff. One of the things that has helped me the most is that our patient safety officer is a physician who has been a huge supporter and works with the medical staff to get help from their side as well."

Every month, Lamm compiles the data on hand hygiene compliance by departments and disciplines. She doesn't exactly put the report on a shelf for later perusal.

"I send it out as a global e-mail so everybody can see how everybody is doing," she says. "Nobody wants to be the low man on the totem

pole. We decided we were not going to hold back. We are just going to let everybody know how everybody is doing.”

Lamm also has a patient education component in her program, but the VHA initiative does not require every hospital to adopt the same strategies.

“By Joint Commission standards, we are required to do a risk assessment,” Carver notes. “We look at where the issues in our hospital are: Where are the potential risks for transmission? Through that risk assessment, every hospital decides what works best for them.”

For example, while Lamm has been using active surveillance for years, Carver’s program is relatively new to the practice.

Ultimately, as IPs are well aware, improving hand hygiene rates and other interventions will yield benefits beyond MRSA prevention. “An initiative like this is going to impact any organisms that are spread through this route,” Lamm says.

Carver concurs, noting, “in conjunction with our decrease in MRSA, we have also seen a decrease in our overall VRE rate. If you combine the interventions with environmental decontamination — we know a lot of gram negatives are environmental organisms — you are going to see a decrease in those gram negatives, too.” ■

MRSA drops in ICUs, but BSI battle awaits in wards

IP interventions credited for declining infections

Infection prevention efforts appear to be making a dramatic difference in hospital intensive care units, which are reporting declining rates of methicillin-resistant *Staphylococcus aureus* (MRSA) central line-associated bloodstream infections (BSIs), the Centers for Disease Control and Prevention (CDC) reports.

The CDC reported that MRSA central line-associated BSI incidence has declined in recent years in all major adult ICU types and has remained stable in pediatric ICUs.¹ Overall, 33,587 central line-associated BSIs were reported from 1684 ICUs. Declines in MRSA central line-associated BSI incidence ranged from 51.5% in nonteaching-affiliated medical-surgical ICUs to 69.2% in surgical ICUs. Although the overall proportion of *S. aureus* central line-associated BSIs

due to MRSA increased 25.8% in the 1997-2007 period, overall MRSA central line-associated BSI incidence decreased 49.6% over the period, the CDC reported.

“The overall decline in incidence stands in sharp contrast to trends in percent MRSA, which give an incomplete picture of changes in the magnitude of the MRSA problem over time and may have led to a misperception that the MRSA central line-associated BSI problem in ICUs has been increasing,” the authors noted. It’s a bit of an “apples-and-oranges” comparison, but essentially, the researchers are saying that looking at the rising percent of MRSA among all staph infections does not tell the whole story.

“The incidence measure of MRSA, which we focused on for this analysis is a measure of actual risk — meaning the rate of disease for a certain number of patients who are exposed to central lines for a certain amount of time,” explains lead author **Deron C. Burton**, MD, JD, MPH, a medical epidemiologist in the CDC division of healthcare quality promotion. “The percent of MRSA is really answering a different question, which is: If you have a health care-associated infection that is caused by *Staph aureus*, what is the likelihood that the particular staph will be MRSA? In our study, we saw that the proportion of staph bloodstream infections that are in fact caused by MRSA has actually [increased] over the study period. That is the percent MRSA [measure]. But in fact, the numbers — the risk, the rate of infections — has gone down dramatically for all *Staph aureus* infection, including both MRSA and methicillin-susceptible *S. aureus* [MSSA].”

No specifics, but IP efforts credited

Indeed, declines in the incidence rates of MSSA and total central line-associated BSIs in all major non-neonatal ICU types studied suggest that general central line-associated BSI prevention efforts are succeeding and may have contributed to the observed MRSA trends, Burton and colleagues concluded. Such prevention efforts include a checklist for central line insertion that has virtually eliminated catheter-related bloodstream infections in some participating sites. Originally developed at Johns Hopkins, could we be seeing the bountiful results of this expanding program and similar prevention efforts in ICUs?

“We were not able to assess specifically which

interventions are having the most impact or being used most commonly," Burton says. "That information isn't reported to us through our surveillance system."

Still, the CDC arrived at the general conclusion that infection prevention efforts must be playing a key role, though the study includes a few caveats about the findings. "In the literature, there have been reports of success on the local scale or among groups of hospitals in [reducing] these infections using these prevention strategies," Burton says. "Taking all of that together, it seems most plausible to us that some of these interventions — or perhaps all of them — are having in the aggregate a substantial impact and causing these declines."

In an interesting caveat, the CDC noted that reports of high rates of MRSA have prompted calls for mandatory screening or reporting in efforts to reduce MRSA infections in health care. "Concerns have been raised that the enactment of state laws requiring health care facilities to report rates of health care-associated infections to state agencies, the public, or both provides a disincentive for facilities to conduct thorough [HAI] surveillance and to accurately report health care-associated infections that are identified," the CDC investigators observed. "The trend analysis presented in this article was not designed to examine the potential impact of public reporting laws on [HAIs], but it is unlikely that the observed trends in central line-associated BSI incidence can be explained by such impacts."

Nevertheless, as increasing numbers of states implement mandatory public reporting requirements for HAIs, evaluating the impact of such requirements on health care-associated infection surveillance practices and reporting to the CDC will be critical, the researchers concluded.

"We are confident that the results that we demonstrated in this analysis aren't being driven by mandatory public reporting laws, primarily because the majority of the time period covered preceded implementation of public reporting

laws nationally," Burton says. "We believe that declines were happening prior to implementation of those strategies. But it may be — and other evidence may show — that those additional measures are continuing to accelerate the decline — or perhaps not."

In raising the issue of infection rate disclosure laws, the CDC seems to beg the question of whether such measures are really needed if ICUs are reporting these declines in their absence. Burton declined comment on that aspect, saying the paper is not an attempt to establish CDC "policy." An infection preventionist who looked at the findings was less diplomatic.

"The reduction of MRSA in ICUs didn't come about because of legislation," says **Susan Kraska**, RN, CIC, an IP at Memorial Hospital of South Bend, IN. "It came about because IPs have been working their tails off. Because things are being looked at more closely, many IPs who didn't have support from their organizations have begun to get opportunities for resources and training to implement a lot of the strategies we know work."

William Jarvis, MD, a former leading CDC hospital outbreak investigator now in private consulting, agreed that the results reflect improved infection prevention in ICUs. "I think it shows we are making tremendous progress — which is wonderful — in controlling CVC BSIs," he says. "It shows that more and more pressure is being exerted on intensive care units to include an insertion bundle, a maintenance [protocol], the use of checklists — standardized practices of what we know work."

That said, Jarvis provides a reality check on the findings: Most MRSA infections do not occur in ICUs. "We are making a big deal out of controlling MRSA in the ICU when in fact, MRSA BSIs in the ICU are a drop in the bucket for MRSA," he says. "To say we are controlling MRSA because we are controlling it in the ICU, where we have [applied] interventions such as active surveillance testing, it's easier to do contact isolation and monitor [compliance] and we have had those [aforementioned] BSI interven-

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tions. The fact remains — and CDC can't address it because they don't have the data — 70% of BSIs occur outside the ICU. What are we doing with those?"

Burton concedes the point, but says the study still focused on a very important subset of patients. "A relatively small portion — something probably substantially less than half — are in this category of bloodstream infections specifically, associated with central lines specifically, and in ICUs specifically," he says. "So, those three sort of narrowing factors that were key in this analysis do wind up representing a relatively small portion of the overall MRSA problem. However, we think this is a very important subset, even if it is a relatively small one, because intensive care unit patients are particularly vulnerable. They are at particular high risk for infection and for severe complications of those infections."

CDC surveillance is expanding to other areas and, "in the future, we'll be able to look more broadly [at MRSA]," Burton adds.

There appears to be plenty left to find, despite the gains in the ICUs. Jarvis conducted an MRSA prevalence study in 2007 for the Association for Professionals in Infection Control and Epidemiology. The one-day "snapshot" study found that 46

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out of every 1,000 patients in participating facilities of all stripes and sizes were colonized or infected with MRSA. Thus, the real challenge to reduce MRSA BSIs remains on the hospital wards, not the ICUs, he says.

"Obviously, if CMS and insurance companies stop paying for them we are going to have to address them," Jarvis says. "It's a much bigger problem than addressing them in the ICU where you have a small number of staff that you have to train and monitor. Now you have a huge hospital staff you have to train and monitor [on the wards]."

As a result, hospitals may end up forming IV teams specifically trained to insert and handle central lines on the wards. "Outside the ICU, I think we are going to see a reversal of what happened over the last 10 to 15 years," Jarvis says. "I know as I go around the country and talk at meetings, I hear that IV teams are being cut. I think that is going to be reversed, because I just don't see how we are going to be able to apply the checklist and the education and the process and outcome monitoring hospitalwide."

Reference

1. Burton DC, Edwards JR, Horan TC, et al. Methicillin-resistant *Staphylococcus aureus* central line-associated bloodstream infections in U.S. intensive care units, 1997-2007. *JAMA* 2009; 301(7):727-736. ■