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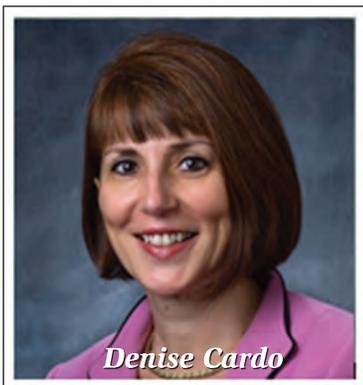
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Infection preventionists, take a (brief) bow: Key HAIs falling, major challenges remain

C. diff, MDR gram negatives still a major concern

By **Gary Evans**, Executive Editor



Denise Cardo

The needle is beginning to move. Four key healthcare associated infections (HAIs) are declining nationally as the result of unprecedented interest and action that includes everything from sweeping state and federal collaboratives to the outrage of individual patients.

No matter who gets the credit, this is a victory for infection prevention.

"I want to especially congratulate the infection preventionists," said **Denise**

Cardo, MD, director of the Division of Healthcare Quality Promotion at the Centers for Disease Control and Prevention. "I want them to share this information with their institutions because this is a reflection of successes that are happening in their hospitals. I really want them to use the data to show the progress."



Don Wright

Don Wright, MD, MPH, deputy assistant secretary for Healthcare Quality at the HHS, went even farther, essentially calling for hospitals to free up IPs to get out on the wards and prevent more infections.

"These are talented individuals and the less time that they can spend in actually recording the data, the more time they have to work with providers and units within the hospital to teach them the appropriate practices

to reduce these infections," he said. "Just the burden of [HAI] reporting is a huge challenge for infection preventionists. We are hoping as we see the increase in electronic health records that much of the data

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that is needed for surveillance will be ascertained through [these systems]."

Cardo and Wright discussed the HAI data at a recent summit and panel discussion in Washington, DC to mark the 2011 International Infection Prevention Week. CDC surveillance data for 2010 show reductions in four critical HAIs:

- A 33% reduction in central line-associated bloodstream infections. This included a 35% reduction among critical care patients and a 26% reduction among non-critical care patients.
- A 7% reduction in catheter-associated urinary tract infections throughout hospitals
- A 10% reduction in surgical site infections
- An 18% reduction in the number of people developing healthcare-associated invasive methicillin resistant *Staphylococcus aureus* (MRSA) infections

The data were submitted by hospitals to the CDC's National Healthcare Safety Network. The number of infections reported was compared to a national baseline. All of the infections reported have national prevention target goals in the HHS "Action Plan to Prevent Healthcare-Associated Infections."

"For surgical site infections, the goal by 2013 is 25%, and right now we have a 10% decrease nationally," Cardo said. "And for catheter-associated urinary tract infections the goal is also 25% by 2013 and we have a 7% decrease."

C. diff going in other direction

In a separately released summary of the plan, the HHS listed the current progress achieving the nine 5-year goals by Dec.31, 2013. (See chart p. 122.) In addition to the HAI reductions reported by the CDC, the HHS cited improvement in compliance with all five surgical care improvement project process measures to reduce the risk of surgical site infections. However, the HHS reported "a slight increase in the rate of hospitalizations with *Clostridium difficile*. More work is needed to reduce the rate to meet the 2013 goal."

C. diff remains a formidable problem, particularly due to inappropriate and overuse of antibiotics, Cardo said. However, a pilot project in New York state is showing a 30% decrease in infections and the United Kingdom has also been reporting success against *C. diff*, she added. "There are ways that we can prevent it," she said.

A potential greater threat is the rapid emergence of multidrug resistant gram negative rods like carbapenem-resistant *Klebsiella pneumoniae* and *Acinetobacter baumannii*. They are capable of pan-resistance, can transfer resistance plasmids between species, and cause mortality rates in the 40% range in vulnerable patient populations. (See related story, p. 129).

In addition, the HAI success story was tempered by Wright's simple, sobering assessment

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Summary of Progress Toward the Nine National Targets for Elimination of Healthcare-Associated Infections, 2011

| Metric | Source | National 5-year Prevention Target | On Track to Meet 2013 Targets? |
|---|--------|-----------------------------------|--------------------------------|
| Bloodstream infections | NHSN | 50% reduction | Yes |
| Adherence to central-line insertion practices | NHSN | 100% adherence | Yes |
| <i>Clostridium difficile</i> (hospitalizations) | HCUP | 30% reduction | No |
| <i>Clostridium difficile</i> infections | NHSN | 30% reduction | Data not yet available* |
| Urinary tract infections | NHSN | 25% reduction | Yes |
| MRSA invasive infections (population) | EIP | 50% reduction | Yes |
| MRSA bacteremia (hospital) | NHSN | 25% reduction | Data not yet available* |
| Surgical site infections | NHSN | 25% reduction | Yes |
| Surgical Care Improvement Project Measures | SCIP | 95% adherence | Yes |

* 2009 or 2009-2010 is the baseline period.

EIP is the CDC's Emerging Infections Program; HCUP is AHRQ's Healthcare Cost and Utilization Project; NHSN is the CDC's National Healthcare Safety Network; SCIP is Surgical Care Improvement project.

SOURCE: Department of Health and Human Services

of the scale of the continuing problem. "One out of every 20 hospitalized patients will acquire an HAI," he said. Cardo added a further caveat, noting that "we are seeing progress for many infections, but these are just in hospitals. We are not talking about outside of acute care. But this is very impressive progress — it is going in the right direction."

Success has many fathers

It was strangely fitting that the positive results were reported much like a typical infection control project, where there are usually so many simultaneous interventions it's difficult to credit a single one as solely efficacious. Issues credited for the HAI declines by various panel members included infection rate reporting laws, reimbursement changes, increased transparency, health-care reform and consumer activism that includes patient empowerment.

"Ten years ago nobody was really talking about infections except the infection control people and the CDC," said **Jean Rexford**, executive director of the Connecticut Center for Patient Safety. "I'm sure everybody in this room knows someone who has had an HAI."

And perhaps more importantly, everybody in

the hospital does too.

"It's not just giving a rate to a care provider, but a name and a face to that infection," said



Linda Greene

Linda Greene, RN, MPS, CIC, director of infection prevention at Rochester (NY) General Health System. "That makes everyone own it. It's a little different than saying to a housekeeper, 'We had an MRSA rate of 1.0,' when you say, 'Mrs. [Smith] got MRSA.

How can you help us in preventing this?' That makes a huge difference. That is part of the leadership and the education. Finally, it is having the skill set to go to your administrator and make the business case. Good infection prevention is also good economics."

Wright also made a compelling case for HAI prevention as an integral part of healthcare reform, citing humanitarian reasons while also emphasizing it makes absolute business sense.

"It's the right thing to do in economic terms,"

he said. "Healthcare dollars are becoming increasingly precious and there is a cost of treating each healthcare associated infection. It is estimated that the additional costs are \$28 to \$32 billion [for HAIs annually]. Many, if not most of those, are preventable."

The HHS is mandated under the federal Affordable Care Act to reduce HAIs, he said. Though there is latitude in some quality areas, there are "prescriptive" requirements to tie "reduction of HAIs through financial incentives," he said. Enter the Centers for Medicare and Medicaid Services (CMS), which is becoming increasingly reluctant to reimburse hospitals for infections considered preventable.

"From the standpoint of CMS, we have worked with market driven and financial incentives to encourage hospitals to adopt practices to prevent these infections," Wright said. "Certainly, the financial incentives have provided a lot of energy at the hospital level to reduce these infections. Likewise, publishing infection rates of each and every hospital is also very productive. No hospital wants a bad report card, and consequently they are going to do what they can to lower their rates."

A new mindset

While the new regulatory and fiscal aspects of HAI prevention are certainly driving change, something less tangible is also happening.

Perceptions, attitudes and expectations about infections have changed, said **Jonathan Perlin**, MD, PhD, chief medical officer for the Hospital Corporation of America.



Jonathan Perlin

"If you start with the idea that infections don't just occur but they are preventable, there is a mindset shift," he said. "It starts with the communication that infectious diseases acquired in hospitals or other healthcare settings are largely preventable. You have a tension between two contrasting points of view. One view is all infections

"You have a tension between two contrasting points of view. One view is all infections are not preventable. But from a patient's perspective, all preventable harm should be prevented. The only acceptable number of preventable harm events is zero."

Jonathan Perlin, MD, PhD.

are not preventable. But from a patient's perspective, all preventable harm should be prevented. The only acceptable number of preventable harm events is zero."

Noting that such perceptions are not mutually incompatible, Perlin said the twin imperatives of patient safety and economic reality make HAI prevention a critical component of healthcare reform.

"Look, we have real concerns about the costs of healthcare," he said "Infection prevention doesn't

cost — it saves money. There are 1.7 to 1.9 million HAIs — on average some [cost] between \$4,700 and \$7,000 according to the literature. Central line infection [can cause] excess resource use of somewhere between \$44,000 and

\$98,000. That's nothing compared to what the patient pays — perhaps the ultimate price. The irony is that not only is this about patient safety and preventing harm, but we can't afford to pay these additional costs."

And much as the patient safety movement had a defining moment — the publication of the Institute of Medicine's "To Err is Human" report in 1999 — modern HAI prevention may have had its galvanizing moment on April 16, 2008.¹ That day the U.S. Government Accountability Office (GAO) submitted a scathing report to Congress that placed much of the onus of the "needless suffering and death" caused by HAIs to a failure of leadership by the HHS.²

"Without such leadership, the department is unlikely to be able to effectively leverage its various methods to have a significant effect on the suffering and death caused by HAIs," the GAO stated.

The HHS' ambitious action plan to prevent HAIs was a direct result of that report, and now we are seeing some of the first results.

"That GAO report was critical for all of us to really work together to align what we are doing," Cardo said.

The Oct. 19th National Journal policy summit was sponsored by the Association for Professionals in Infection Control and Epidemiology.

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Do you know where your flagged MDRO pts are?

Hint: They may not be in isolation



With the increasing reliance on computer tools and electronic records, infection preventionists may reasonably assume patients flagged for isolation on admission end up under the appropriate precautions.

For example, a patient admitted with a history of methicillin-resistant *Staphylococcus aureus* (MRSA) or some other multidrug resistant organism (MDRO) has their electronic record red flagged, contact isolation is instituted upon admission to a private room, other patients are protected from cross transmission and all is right with the world. Let us pause for a moment to return somewhat jarringly to reality, courtesy of **Emily Landon Mawdsley**, MD, hospital epidemiologist at the University of Chicago Medical Center.

"When I was a resident in infectious diseases it struck me that many times when I was seeing a patient who had been admitted to a semiprivate, double-patient room with no isolation precautions, I looked at their medical record and it looked like they had MRSA or something like that during a previous admission," she tells *Hospital Infection Control & Prevention*.

This was odd because the patient admission had been electronically red flagged signaling placement under contact isolation. But the message did not compute at the "bed desk" level, where the flags were ignored or overridden by staff. "[Some of] the nurses were not aware of

the meaning of the electronic isolation flag that was showing up on their census report," Mawdsley discovered. "So there was an educational problem and a systems issue that needed to be fixed."

Infection preventionists need look no further than hand hygiene to realize a seemingly simple directive can suffer such a major breakdown. Moreover, as Mawdsley began resolving the situation and talking to colleagues at other hospitals it became clear that such gaps are all too common.

"They say, 'We have an electronic system so all that is taken care of,'" she says, describing a typical exchange. "I say, 'Did you go check the patients?' and they say, 'No, why would we do that. We have a flag.' A flag may not be enough, so other hospitals may have problems. I think it's pretty common. People in infection control have been doing performance improvement for a long time, but sometimes we skip circling back and move on to our next priority."

Worth time to do, time to check

This lesson could apply to all manner of interventions, as IPs try to "sustain the gain" of their various and sundry efforts.

"We keep this long list of projects that we have started in the past. We periodically do surveillance to make sure they are still happening," she says. "Because if it was worth your time to do it originally, it is worth your time to make sure it is still happening. Otherwise, you will find yourself having to do a new initiative later on."

In this particular case, the infection control team at the medical center attacked the problem, breaking down the process and ensuring from the onset that they were reviewing daily microbiology laboratory reports, and electronically flagging medical records of MDRO patients. Upon investigation, infection control personnel learned that bed desk attendants often removed electronic isolation flags if the physician's orders did not request isolation. To address this issue, they held a brief meeting with admissions staff to educate them about the importance of isolation and explain that the system would be changed to prevent overrides. Some nurses did not know how to find the flag on the patient census, while others did not realize that they could order isolation themselves — without a physician order. (*See key interventions, p. 126*).

"Education as a tool only goes so far — it still relies on an individual who has multiple competing responsibilities and priorities to remember

something," Mawdsley says. "And there's always new information coming out about what they need to remember. So systems based solutions often work better. In this case, however, we felt like we already had a good systems based solution with this flag — and it wasn't working. We wanted to figure out a way to make this happen."

To ensure compliance, hospital IPs began doing weekly surveillance rounds to see if contact precautions are indeed in place for each flagged patient. If not, they ask nurses to arrange such precautions and provide education to improve

future adherence.

"So it was targeted education whenever there was an error," she says. "It took about 20 minutes per IP per week, which ended being about 2 hours total for our 600-bed hospital."

The program led to a significant, sustained increase in adherence to contact precautions, with the percentage of flagged patients appropriately in isolation rising from 58% to 90% 16 weeks after program launch. The project was recently recognized and recommended by the Agency for Healthcare Research and Quality. ■

Getting pts in isolation, and keeping them there

Key program elements of a patient isolation program at the University of Chicago Medical Center include the following:

- **Electronic flagging of infected patients:**

Each day, the microbiology laboratory sends a report to the hospital's infection control team listing patients with a positive culture for a multidrug resistant organism. Infection control practitioners enter an "isolation flag" into each patient's electronic medical record (EMR) indicating the need for contact precautions (assignment to a private room, placement of a contact isolation sign on the door, and use of a gown/gloves when entering the room). The system also identifies patients who tested positive during previous admissions and automatically flags their charts, thus eliminating the need for a physician order for isolation.

- **Institution of contact precautions by anyone:** Hospital policy allows any staff member (such as infection control practitioners and nurses) to initiate contact precautions based on the isolation flag, even without a physician's order. The typical process for implementing contact precautions is outlined below:

- ◆ *Private room assignment:* Admissions personnel responsible for patient room assignments (called bed desk attendants) assign flagged patients to a private room. The EMR does not allow the attendants to override an isolation flag, even if a physician's written orders do not include an isolation order. Patients whose subsequent cultures become positive during their hospital stay are moved to a private room if they are in a shared room.

- ◆ *Nurse notification of isolation orders:* When bed desk attendants telephone the unit charge nurse to inform him or her of the new

admission or transfer, they also indicate the patient's need for contact precautions.

- ◆ *Door sign placement:* Nurses retrieve a preprinted green sign from a folder at the nursing station and place it on the patient's door. The sign indicates that all staff and visitors entering the room must wear a protective gown and gloves. The sign also reminds staff and visitors to remove their gown and gloves before exiting the room.

- **Weekly rounding by infection control staff:** Infection control staff conduct surveillance rounds on flagged patients every Tuesday (the same day they conduct their usual rounds) to make sure that they have been placed in a private room with the sign on the door. To assist with this task, infection control staff print a patient census that includes notes on the need for contact precautions (typically only a few patients on each unit require isolation). If a patient needing contact precautions has not been placed in a private room with the sign on the door, the rounding staff member talks with the patient's nurse to ensure such precautions are taken immediately, and provides general education about the importance of such precautions and how to find the isolation flag in the system.

- **Educational posters to increase awareness:** Posters explaining the importance of contact precautions and how to find the isolation flags hang on the walls of each hospital unit.

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Part II: ‘The Just One More Thing Strategy’

By **Patti Grant**, RN, BSN, MS, CIC,
Infection Preventionist, Dallas



Patti Grant

[Editor’s note: In this issue we continue with the second part of Patti Grant’s IP Newbie column that was featured in our September issue. As you may recall, she described an all too common situation: How various profes-

sionals in healthcare are expected to participate in activities beyond their original area of expertise. This expectation does not seem so much a direct consequence of the struggling economy as a reflection of the attempt by various specialties to move from “silos” to a team approach to problem solving, Grant noted, observing that “Patient safety will most likely be less precarious in this multi-disciplinary improvement environment, but it can come with hefty growing pains.” Of course, as an IP Newbie, you’re often the one growing.]

As a novice infection preventionist you have already discovered that your initial skillset centers around the field of epidemiology. Aside from all the “must-need-to-knows” — such as sterilization, disinfection, infectious diseases and isolation — you’ll soon discover something else: Your investigative, problem-solving and data analysis/presentation skills can be applied to almost any untoward healthcare prevention project.

As you mature in your IP career those in your employment milieu are sure to notice these valuable qualities also. For example, it will not be a far stretch for you to be recruited as an active member of a medication error or fall prevention

team, simply because you are going to be exceptional at data analysis and interventional epidemiology. Yet as stated in Part I of this series: Just because you are often the best choice for these non-infectious prevention event teams, it does not necessarily make you the correct person. Your primary responsibility is the long-range and multi-faceted challenge of helping others prevent infections.

Based on this reality you should have the “Just One More Thing Strategy” in your team-player stash of coping mechanisms. After sharing with your immediate supervisor concerns about project management conflicts — based on adding another prevention initiative — consider the following actions:

- Prepare a short (no more than six slides) PowerPoint to illustrate the bare minimum infection prevention responsibilities for state/federal reporting, The Joint Commission, all forms of surveillance, etc.
- Lead a discussion with your C-Suite on what can be ‘eliminated’ from IP&C so the new initiative can be absorbed properly to maintain patient safety. Stop following CLABSI? No longer report to the local health authority? Eliminate VAP surveillance? Who else will do these functions when this new non-infectious prevention responsibility is added?
- Depending on your organizational structure share that this IP&C plan alteration will be reported to the IP&C Committee, Executive Committee, and Hospital Board of Directors.

You might have a “win-win” environment regardless of the new responsibility query at hand. The goal here is to help others “see” your hesitation based on a true inability to inherit the project in the here and now. Even if the answer is ‘you will do this as part of your basic job expansion’ you have presented that IP&C in general, and not you as a person, has reached maximum capacity for productivity. More importantly, you’ve had the opportunity to share your role and that is always a good thing for patient safety. ■

Nominate a Newbie!

Do you know someone relatively new to infection prevention that would be a good candidate for one of our IP Newbie profiles? Drop us a line and tell us why you think their story may be of interest to *HIC* readers. Send nominations to gary.evans@ahcmedia.com.

Honesty with infected pt irks colleague

A surgical site infection, an antibiotic question

Doing the right thing doesn't guarantee that everyone is going to be pleased, says **Frederick S. Southwick**, MD, professor of medicine in the Division of Infectious Diseases and quality projects manager for the senior vice president for health affairs at the University of Florida Shands Health in Gainesville.

Shands has a policy of transparency when it comes to medical errors, Southwick explains. When an error occurs, the policy is to immediately inform the patient and offer restitution. The result has been a marked reduction in malpractice insurance premiums, Southwick says.

"Legal fees have plummeted, and the money they spend goes to the people who deserve remuneration: the injured patient and their family," he says. "Under the standard approach, over 60% of malpractice funds go to the lawyers."

Southwick once encountered a situation in which he had to disclose to a patient that an error had occurred under previous care by another physician, and he says the experience shows how difficult that can be.

"As an infectious disease consultant, I was asked to see a patient who had a severe post-operative infection after a prolonged delay in the initiation of antibiotics. The patient asked me if he should have been treated earlier, and in the spirit of honesty and openness, I told him, yes he should have been treated earlier," Southwick says. "I then informed the physician who had consulted me about the patient's concerns, and we together contacted our risk management team. They in turn discussed in detail the patient's concerns with him, and they forgave his hospital bills and provided him with compensation for his lost time at work."

The patient was satisfied, he says, but the other physician's initial reaction was not positive. "The physician who inadvertently delayed the initiation of antibiotics was unhappy with my response, but after I explained that this strategy would greatly reduce the likelihood of a malpractice suit, he understood my approach, and we remained friends and close colleagues," he says. ■

Many HCWs don't know correct PPE sequence

Train on selecting, removing PPE

Your annual training in the use of personal protective equipment may not be good enough. According to a study of PPE use during the H1N1 pandemic in Canada, most health care workers don't know how to choose the right items or how to put them on or take them off correctly.

In observations of 110 health care workers, only 6 (6%) performed all the steps correctly in a study by the Public Health Agency of Canada in Ottawa, which was presented at the spring conference of the Society for Healthcare Epidemiology of America (SHEA). The researchers observed health care workers at seven hospitals in Ontario and Manitoba during the second wave of H1N1, between February and April of 2010.

Only 29% of the health care workers selected the appropriate PPE and 29% removed it in the correct sequence. (*See sequence box, p.129.*) The performance varied by unit. Fewer people removed their PPE correctly in the intensive care unit and emergency department than in pediatrics.

These findings, which have not yet been published, raise questions about the effectiveness of the training that health care workers receive. In the United States, the Occupational Safety and Health Administration requires annual training along with respirator fit-testing.

Training isn't sufficient, says **David Weissman**, MD, director of the Division of Respiratory Disease Studies at the National Institute for Occupational Safety and Health (NIOSH) in Morgantown, WV.

"To get high levels of adherence requires real dedication to develop a safety climate," he says. "You have to develop an atmosphere of adherence. It's a challenge and it requires continuous effort. It isn't something you can fix and then it's fixed permanently. You achieve high levels by exerting a lot of energy and then maintaining it over time."

The Centers for Disease Control and Prevention provides posters to remind health care workers how to don and doff PPE. (<http://1.usa.gov/99V4Ci>)

Health care workers may not realize why the order of removing PPE is so important, says Weissman. "If equipment isn't removed prop-

erly and in the proper sequence with attention to detail, the worker could potentially contaminate their hands and create the risk of infecting themselves or infecting or colonizing others," he says. ■

Transferring more than patients

Resistant gram negatives on the move

Emerging multidrug resistant gram negative bacteria continue to spread across the health care continuum, becoming entrenched in non-acute and long term care settings and threatening vulnerable hospital patients with untreatable infections. A recent report of reductions in several key healthcare-associated infections was tempered by rising concern about these pathogens, which include carbapenem-resistant *Klebsiella pneumoniae* and multidrug resistant *Acinetobacter baumannii* (MDR-Ab). (See related story, cover.)

"I am concerned about the multidrug resistant gram negatives that we have no antibiotics to treat," says **Denise Cardo**, MD, director of the Division of Healthcare Quality Promotion at the Centers for Disease Control and Prevention. "We are seeing that as a big problem in outbreak investigations in several places. Again, patients are moving from one place to another like long-term care, acute care."

The CDC is currently investigating outbreaks in Illinois and Florida that involve colonized and infected patients and residents moving back and forth between various types of facilities. "This calls for a more regional approach — good data, good labs — but it is a challenge," Cardo says.

That challenge is all too clear to **Nancy Johnson**, MSN, RN, PHN, CIC

Infection Prevention Manager, Santa Clara Valley (CA) Medical Center.

"We had an unusual occurrence of a particularly resistant *Acinetobacter baumannii*," she tells *Hospital Infection Control & Prevention*. "We had three cases at that time that we were investigating as an outbreak. The antibiograms looked similar."

Looking at the patient charts, Johnson and fellow investigators found all three patients had been admitted to the hospital from an area skilled nursing facility.

"At that point we alerted the county that we were receiving patients from an acute care skilled nursing facility [SNF] that had very resistant [MDR-Ab strains]," she said. "We noted that there were additional ones when we started digging — we found that there was a cluster in our facility."

The investigation initially revealed eight patients infected with MDR-Ab, four of whom died. Four of the 8 patients had been admitted from the same SNF. The MDR-Ab strain was resistant to aztreonam, ceftriaxone, cefepime, ciprofloxacin, nitrofurantoin, and trimethoprim/sulfa.

Sequence for donning PPE

1. Gown: Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back. Fasten in back of neck and waist.

2. Mask or respirator: Secure ties or elastic bands at middle of head and neck. Fit flexible band to nose bridge. Fit snug to face and below chin. Fit-check respirator.

3. Goggles or face shield: Place over face and eyes and adjust to fit.

4. Gloves: Extend to cover wrist of isolation gown.

Sequence for removing PPE

1. Gloves: Outside of gloves is contaminated! Grasp outside of glove with opposite gloved hand; peel off. Hold removed glove in gloved hand. Slide fingers of ungloved hand

under remaining glove at wrist. Peel glove off over first glove. Discard gloves in waste container.

2. Goggles or face shield: Outside of goggles or face shield is contaminated! To remove, handle by head band or ear pieces. Place in designated receptacle for reprocessing or in waste container.

3. Gown: Gown front and sleeves are contaminated! Unfasten ties. Pull away from neck and shoulders, touching inside of gown only. Turn gown inside out. Fold or roll into a bundle and discard.

4. Mask or respirator: Front of mask/respirator is contaminated — DO NOT TOUCH! Grasp bottom, then top ties or elastics and remove. Discard in waste container.

Source: Centers for Disease Control and Prevention: <http://1.usa.gov/oL84bY> ■

This pattern with or without other antibiotic resistance occurred in 59% of *A. baumannii* isolates, making it a clearly identifiable subset of MDR-Ab and linking it to SNF-associated cases, Johnson reported this year in Baltimore at the annual conference of the Association for Professionals in Infection Control & Epidemiology.¹

As the outbreak unfolded, 43 cases of MDR-Ab were identified between Dec 2009 and Dec. 2010. Nineteen (44%) of the cases were associated with the identified SNF. Thirteen (30%) had been in other SNFs, a dialysis center, or another acute care hospital in the past 30 days. Ten (23%) cases (colonization or infection) were acquired in the Santa Clara hospital and one (2%) was community acquired. The community acquired isolate was from a patient with a chronic leg ulcer.

"We continue to watch it," Johnson says. "It usually comes from another facility of some kind. It's emerging in other health care systems, not right from the home."

Johnson tracked MDR-Ab patient locations and found contact patterns of the admitted and hospital acquired cases. The hospital cases were clustered in the intensive care units, burn center, and rehabilitation units, she notes. The hospital acquired and healthcare-associated isolates were from endotracheal aspirates and urine cultures. Interventions included isolating and screening patients admitted from the SNF, taking environmental cultures, and enhancing cleaning. Infection control measures included contact precautions, staff education, reinforcement of hand hygiene and aseptic respiratory techniques, she adds. The measures quelled the outbreak, but the hospital continues to institute contact precautions for admissions from the SNF until MDR-Ab is ruled out.

"If the physician wants to remove them from contact precautions they have to clear them, which according to our policy is a urine culture, ET aspirate if they have a trach, and a rectal swab," she says. "If they come back negative they can come out of isolation."

Meanwhile, a public health investigation revealed MDR-Ab was endemic in the skilled nursing facility, which focused on improving hand hygiene.

"It wasn't just our hospital that was seeing it," she says. "We called other hospitals that share patients with us and alerted them to it, and in fact they were seeing an increase in the same organism with the same antibiogram — from this same SNF. It is definitely out there in the community."

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Counterintuitive: Move To EHR spikes rates?

Be on alert during implementation phase

Your move to an electronic health record (EHR) system will save you time and money while increasing your ... infection rates? How could this happen?

If you said increased use of electronic equipment like computer keyboards, you are on to something.

"Well in advance of EHR implementation, educate and assign responsibility to clean keyboards and other patient care equipment," says **Virginia Bren**, MPH, RN, CIC, infection control coordinator at Altru Health System, Grand Forks ND.

Reporting the unusual outbreak this year in Baltimore at the annual conference of the Association for Professionals in Infection Control and Epidemiology, Bren concluded electronic health record systems — which are designed to improve the quality and safety of care — may ironically be associated with increased transmission of infections during implementation.¹

In preparation for an EHR system, which went live in the hospital on April 1, 2010, computers and keyboards were installed at multiple locations. During this time, information was issued about how to clean keyboards and mice, but this message had to compete with many EHR learning priorities, she reports. After the new records system was implemented, hospital onset methicillin-resistant *Staphylococcus aureus* (MRSA) in a medical ICU (MICU) rose from zero to 2.2 per 1000 census days, and the surgical ICU (SICU) rate rose from 1.3 to 2.0 per 1000 census days. Overall, hospital department rates rose from 0.2 to 0.4 per 1000 census days. Compliance to hand hygiene and to isolation precautions prior to and after EHR implementation was more than 90%, she reported, but noted that hand hygiene surrounding keyboarding activity was not audited. In addition, staffing turnover occurred in the MICU in conjunction with implementation of the new records system, with nine inexperienced nurses

coming on board, Bren reported. Patient census was not significantly different prior to or after EHR implementation.

In July 2010 as MRSA increased, the infection prevention informed leadership, distributed educational tools and met directly with staff. Interventions focused on environmental cleaning and hand hygiene. Responsibility was assigned to clean patient care equipment regularly, including keyboards, computer mice, and barcode scanners. Environmental Services introduced a room cleaning checklist and microfiber cloths. By October 2010, the MICU's MRSA rate regained zero, but

the SICU and the combined hospital rates were not less than prior to EHR implementation.

"One of the lessons learned was that analyzing MRSA data more frequently during an EHR transition could have identified rate increases earlier," Bren concluded. "Observing hand hygiene behavior before and after using keyboards, mice or equipment that goes between patients may strengthen cleaning and hand hygiene practices."

CNE/CME Questions

1. The Centers for Disease Control and Prevention recently reported reductions in healthcare-associated infections (HAIs) that included:
 - A. A 7% reduction in catheter-associated urinary tract infections throughout hospitals
 - B. A 10% reduction in surgical site infections
 - C. 18% reduction in the number of people developing health care-associated invasive methicillin resistant *Staphylococcus aureus* (MRSA) infections
 - D. All of the above
2. In reporting the reductions, the HHS also noted "a slight increase" in *Clostridium difficile*.
 - A. True
 - B. False
3. Which agency released a scathing report to Congress that cited the lack of leadership and cooperation to reduce HAIs.
 - A. Institute of Medicine
 - B. Centers for Disease Control and Prevention
 - C. Food and Drug Administration
 - D. Government Accountability Office
4. Emerging multidrug resistant gram negative bacteria continue to spread across the health care continuum, including which of the following?
 - A. MRSA
 - B. carbapenem-resistant *Klebsiella pneumoniae*
 - C. multidrug resistant *Acinetobacter baumannii*
 - D. B and C

REFERENCE

1. Bren VR, Hansen SG, Hargreaves J. Increased hospital onset MRSA after transition to electronic health record system. Abstract 11-111. Association for Professionals in Infection Control and Epidemiology. June 27-29, 2011. Baltimore, MD. ■

CNE/CME Instructions

To earn credit for this activity, please follow these instructions.

1. Read and study the activity, using the provided references for further research.
2. Log on to www.cmecity.com to take a post-test; tests can be taken after each issue or collectively at the end of the semester. First-time users will have to register on the site using the 8-digit subscriber number printed on their mailing label, invoice or renewal notice.
3. Pass the online tests with a score of 100%; you will be allowed to answer the questions as many times as needed to achieve a score of 100%.
4. After successfully completing the last test of the semester, your browser will be automatically directed to the activity evaluation form, which you will submit online.
5. Once the completed evaluation is received, a credit letter will be e-mailed to you instantly. ■

CNE/CME Objectives

Upon completion of this educational activity, participants should be able to:

- Identify the clinical, legal, or educational issues encountered by infection preventionists and epidemiologists;
- Describe the effect of infection control and prevention issues on nurses, hospitals, or the health care industry in general;
- Cite solutions to the problems encountered by infection preventionists based on guidelines from the relevant regulatory authorities, and/or independent recommendations from clinicians at individual institutions. ■

COMING IN FUTURE MONTHS

■ Call in the consultants: What biz experts say about HH problems

■ IP certification: Why not add the CIC?

■ Time to take the CLABSI fight beyond the ICU

■ Get ready for more Joint Commission requirements

■ CMS and CDC infection rate reporting: Can this marriage be saved?

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The Joint Commission Update for Infection Control

News you can use to stay in compliance

Joint Commission: New year will usher in new CAUTI prevention requirements

Phase in pt safety goal now, be up to full speed by 2013

The Joint Commission's new National Patient Safety Goal (NPSG) on preventing indwelling catheter-associated urinary tract infections — which emphasizes prompt removal of unnecessary devices and surveillance for CAUTIs — is effective January 1, 2012 for hospitals.

Though there has been some historical tendency to dismiss these as relatively low priority infections, the Centers for Disease Control and Prevention cited a staggering annual mortality figure in a recently posted surveillance document, stating that “more than 13,000 deaths are associated with UTIs.”^{1,2}

“The urinary tract is the most common site of healthcare-associated infection, accounting for more than 30% of infections reported by acute care hospitals,” the CDC reports. “Virtually all healthcare-associated urinary tract infections are caused by instrumentation of the urinary tract. CAUTI can lead to such complications as cystitis, pyelonephritis, gram-negative bacteremia, prostatitis, epididymitis, and orchitis in males and, less commonly, endocarditis, vertebral osteomyelitis, septic arthritis, endophthalmitis, and meningitis in all patients. Complications associated with CAUTI cause discomfort to the patient, prolonged hospital stay, and increased cost and mortality.”

Indeed catheter use in and of itself is associated with negative outcomes other than infection, including nonbacterial urethral inflammation, urethral strictures and mechanical trauma, the Joint Commission notes. “The length of time that a catheter is in place contributes to

infection, so limiting catheter use and duration are important to preventing infection,” the Joint Commission recently stressed.³

More than a quarter of the patients with an indwelling urinary catheter for two to 10 days will develop bacteriuria, and a quarter of these will develop a CAUTI. Approximately 450,000 CAUTIs occur annually in hospitals, the Joint Commission reported, citing estimates of the excess cost per case of \$1,200 to more than \$2,700 and a total annual cost of some \$400 million.⁴⁻⁸ Moreover, the Centers for Medicare & Medicaid Services (CMS) lists CAUTIs among the healthcare associated infections targeted for non-reimbursement.

“The healthcare-associated conditions that CMS will not cover are high cost or high volume or both; result in the assignment of a case to a diagnosis-related group (DRG) that has a higher payment when present as a secondary diagnosis; and could reasonably have been prevented through the application of evidence-based guidelines,” the Joint Commission states.

CAUTI surveillance may be targeted to areas with a high volume of patients using indwelling catheters, the Joint Commission states. High-volume areas should be identified through the hospital's risk assessment as required in IC.01.03.01. In that regard, what if your risk assessment reveals CAUTIs are not an issue at your hospital? The Joint Commission recently answered that question (*see Q&A, p. 2*) providing clarification that included this statement:

“This new NPSG has a phase-in period during 2012, during which surveyors will be

ensuring that hospitals are planning and preparing for full implementation in 2013. Starting in January 2013, a hospital that has decided, based on its risk assessment, that CAUTI surveillance is not indicated should be prepared to discuss this decision with its survey team and provide a clear rationale. Even if surveillance is not performed, the insertion and management requirements of the goal must still be implemented.”

According to the Joint Commission, NPSG.07.06.01 requires hospital infection control programs to “implement evidence-based practices to prevent indwelling catheter-associated urinary tract infections. (Evidence-based guidelines for CAUTI include the “Compendium of Strategies to Prevent Healthcare-Associated Infections in Acute Care

Hospitals”: <http://ow.ly/70gaN> The CAUTI patient safety goal is not applicable to pediatric populations. “Research resulting in evidence-based practices was conducted with adults, and there is not consensus that these practices apply to children,” the Joint Commission notes. ■

Follow the fab four

The elements of performance for the CAUTI prevention safety goal are as follows:

1. During 2012, plan for the full implementation of this NPSG by January 1, 2013.

Note: Planning may include a number of different activities, such as assigning responsibility for implementation activities, creating timelines, identifying resources, and pilot testing.

JC Q&A: What if CAUTI a low risk?

The Joint Commission recently posted the following answer to a frequent asked question on catheter-associated urinary tract infections (CAUTIs).

Q: My facility performs a risk assessment every year as required by IC.01.03.01. We consider a wide range of infection risks, and we rank them per IC.01.03.01 EP 5. Our risk assessment shows CAUTI is a very low patient risk; there are many other higher priorities. Must I perform surveillance for CAUTI because of the new NPSG.07.06.01 even though my risk assessment does not identify it as a priority?

A: NPSG.07.06.01 is a new goal on catheter-associated urinary tract infection (CAUTI) that was published in the July 2011 edition of Perspectives.

Reasons for this goal are captured in the following quote from the Perspectives article: “The Joint Commission’s Patient Safety Advisory Group, a group of external national experts on patient safety issues, recommended that NPSG.07.06.01 for CAUTIs be considered for adoption. CAUTI is the most frequent type of health care-acquired infection (HAI), and represents as much as 80% of HAIs in hospitals. The frequency of CAUTIs creates a patient safety and quality concern.”

The Joint Commission recognizes that a variety of surveillance approaches are appropriate for various types of infections. For example, NPSG.07.04.01 on catheter-associated bloodstream infection requires that all catheters be monitored; EP 4 states surveillance must be “hospital-wide, not targeted”.

However, NPSG.07.03.01 on multi-drug resistant organisms allows for the risk assessment to drive surveillance, hence EP 4 says surveillance may be “targeted rather than hospital-wide”. In a similar fashion, NPSG.07.05.01 on surgical site infection allows organizations to determine which surgeries to monitor, and EP 5 states, “Surveillance may be targeted to certain procedures based on the hospital’s risk assessment.”

NPSG.07.06.01 on CAUTI does not specify either hospital-wide or targeted surveillance. In fact, it does not specifically require that surveillance for CAUTI be performed at every accredited hospital. Rather, it allows for each organization to decide, based on its risk assessment (IC.01.03.01) whether CAUTI is a priority warranting surveillance. Having said this, The Joint Commission urges organizations to review the scientific literature and consensus-based guidelines when considering CAUTI surveillance. ■

2. Insert indwelling urinary catheters according to established evidence-based guidelines that address the following:

- Limiting use and duration to situations necessary for patient care
- Using aseptic techniques for site preparation, equipment and supplies

3. Manage indwelling urinary catheters according to established evidence-based guidelines that address the following:

- Securing catheters for unobstructed urine flow and drainage
- Maintaining the sterility of the urine collection system
- Replacing the urine collection system when required
- Collecting urine samples

4. Measure and monitor catheter-associated urinary tract infection prevention processes and outcomes in high-volume areas by doing the following:

- Selecting measures using evidence-based guidelines or best practices
- Monitoring compliance with evidence-based guidelines or best practices
- Evaluating the effectiveness of prevention efforts

The draft National Patient Safety Goal was made available for field comment on The Joint Commission's website from December 2, 2010 through January 27, 2011. More than 1,000 responses were received with most responses from accredited organizations. A majority of field review respondents (more than 70%) agreed that a new National Patient Safety Goal should be introduced for CAUTI, the Joint Commission said.

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VA programs cuts CLABSIs by >50%

Pull — not push — does the education trick

The Joint Commission targets central line-associated bloodstream infections in its 2011 national patient safety goals, with NPSG.07.04.01 calling for hospitals to "implement evidence-based practices to prevent (CLABSIs)."

A recently published paper on a Department of Veteran's Affairs (VA) project on CLABSI reduction used the requisite bundles, but focused on education and spreading the word in a manner appropriate to each VA facility¹. The result was a decline from 3.8 CLABSI infections per 1,000 line days to 1.8 per 1,000 line days.

Marta Render, MD, one of the researchers on the project, said the focus had to be on learning because the VA is a "gargantuan system. We had to think about how to get learning out to people who needed it. We did not want to have to push this out to everyone, but have them pull it in."

The project focused on projecting a need — which encourages people to want to help — and encouraging them to find what works for them to achieve the shared end goal, says Render. Many facilities had some or all of what they needed in place; others needed to get better at data collection. Some needed help in creating a team in the ICU. In each case, Render and her team were there to

coach and talk them through strategies. But what they did in the end was specific to their own needs and their own facilities.

To spread the knowledge, they developed web-based tools and kits, including the critical development of the daily goal sheet. "It is a great tool that changed the way we work together," Render says.

If a patient was on pressors and the physician wanted that patient off, the sheet would include goals that led to that end — pushing two liters of fluid but not more. The physician knows to go back and check that goal sheet and ask how the patient is doing and reevaluate the goal if necessary. "The nurses will keep track, and we create the expectation that certain things will happen. We give people permission to speak up if something doesn't seem right. Even the residents know what the expectation is."

Once implemented and data collection started, Render and the team worked with outliers, conducting structured interviews and setting achievable goals — find a team leader in the next week, check the data the next day. Then the team would follow up on those goals, finding out what went wrong if the goal was not achieved and suggesting potential solutions.

Render thinks that building buzz around the topic also helped. They would print and leave around the ICU scholarly papers about CLABSI reduction. The physicians would inevitably pick them up and read them. She also says that concentrating on getting a single champion on board helped many facilities get great results. The team leader would take one amenable physician and do training with him or her, then another. It made the process seem exclusive and special. "Pretty soon people would clamor for the training."

The results were initially rolled out in ICUs, but have since been spread to other inpatient units and VA community living centers. CAUTI and ventilator-associated pneumonia are next on the list.

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JC Q&A: Active testing for MRSA

The Joint Commission recently posted the following answer to a frequently asked question on screening for methicillin-resistant *Staphylococcus aureus* (MRSA).

Q: Is MRSA screening required for all patients? If not, are there certain high-risk patients that must be screened?

A: IC.01.05.01 EP 1 requires that, "When developing infection prevention and control activities, the hospital uses evidence-based national guidelines or, in the absence of such guidelines, expert consensus." Also, NPSG.07.03.01 EP 7 states, "Implement policies and practices aimed at reducing the risk of transmitting multidrug-resistant organisms. These policies and practices meet regulatory requirements and are aligned with evidence-based standards (for example, the Centers for Disease Control and Prevention (CDC) and/or professional organization guidelines)." Please refer to the CDC/HICPAC guideline entitled "Management of Multidrug-Resistant Organisms in Healthcare Settings, 2006": available at <http://ow.ly/70gHk>

The HICPAC guideline lists two sets of interventions, designated as "general" and "intensified, tier 2". Tier 2 interventions are not recommended of all facilities, but rather just those that meet criteria listed in the guideline. These criteria include failure to decrease MDRO rates as well as the first occurrence of an epidemiologically significant organism. Screening, also known as active surveillance cultures (ASC), is listed under the category of "intensified interventions" (recommendation V.B.5.b).

Therefore, unless an organization meets the criteria for "intensified, tier 2" interventions, Joint Commission surveyors would not expect these to be in place. Consequently, active surveillance cultures are not required at all accredited facilities.

However, please note that LD.04.01.01 EP 2 requires compliance with applicable law and regulation. Many state legislatures have enacted law or regulation that requires active surveillance cultures for particular patient populations. The Joint Commission would expect these to be done per LD.04.01.01. ■