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IN THIS ISSUE

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Change the culture, protect the patient using 'positive deviance' to prevent MRSA

Empowering workers to make change that lasts

"Maybe the problem is that you can't import change from the outside in. Instead, you have to find small, successful but 'deviant' practices that are already working in the organization and amplify them. Maybe, just maybe, the answer is already alive in the organization — and change comes when you find it."
— **Jerry Sternin**, director of the Positive Deviance Initiative, www.positivedeviance.org.

An increasing number of hospitals are applying an exotic-sounding philosophy to solve an all too ordinary problem: patient infections with methicillin-resistant *Staphylococcus aureus* (MRSA). It's called "positive deviance" (PD) and it is not an insult. It is, infection preventionists say, a potentially dramatic breakthrough to culture change for hospitals that still are taking a business-as-usual approach while MRSA kills more patients every year than HIV.

PD is not a one-bug intervention, and indeed has been used to attack problems ranging from hunger in Third World villages to high school dropout rates in the United States. The essence of the PD approach is that the answer lies within the community with the problem. In health care, for example, somebody may have found a solution that eluded the typical top-down management approach. To give but one example, a nurse who never forgot to culture for MRSA on patient discharge — unlike many of her colleagues — simply taped a swab on the patient door that day. Unknown barriers may exist to — or even be created by — carefully worded policies and mandated practices. Workers must routinely overcome those barriers in individual units or recurrent situations. Some stop at the barrier and the original goal is lost. Others solve the problem in their own way. Can their answers be applied systemwide? First, you have to look for your 'positive deviants,' those that have taken a different path and found solutions that were not necessarily in the manual.

"It was a little odd at first," says **Dorothy Borton**, RN, BSN, CIC, infection

control practitioner at Albert Einstein Healthcare Network in Philadelphia. "Most of the time [deviance] has a negative connotation, but it helped people think outside the box. It's not so much 'buying in' as already owning it. We're used to giving everybody the answers and telling everybody what to do, but I am not the one providing care every day and I don't know all the nuances of what they do."

Another PD key is to bring health care workers of every stripe into the conversation about problems and solutions, which can come from some unlikely places, she says. "When we started talking to folks about trying to stop transmission of MRSA, there was a lot of blending of personnel and positions in those conversations," Borton tells *Hospital Infection Control*. "Anybody was welcome. It could be a medical clerk, housekeeper, an aide, an RN, a physician, a dietitian. 'Unlikely suspects' is a term we use a lot in PD. Folks that you would not think of as the first person that would have the answer. Sometimes it was very clear to them. They would make a suggestion and others would say, '*That's it*.'"

'Nothing about me without me'

A common PD saying is, "Nothing about me without me," she says. "In other words, you can't talk about somebody else or assign them a responsibility unless they are at the table to discuss it with you."

Borton became intrigued by the potential of PD when she and a colleague attended a conference on using this novel approach to reduce MRSA. They were excited and convinced that the PD process could be applied to the growing MRSA problem. After a kickoff in May 2006, four units volunteered to be PD pilot units. Using the PD process, the staff in the communities (units) identified barriers to compliance with evidence-based practices of hand hygiene and contact precautions: complaints that isolation gowns were hot and often unavailable upon entry to isolation rooms, hand sanitizer dispensers weren't as available as staff desired, isolation signs were confusing and hard to read, and communication about patients in isolation was poor.

The staff then suggested ways to remove barriers, and interventions and improvements were under way. As a result, MRSA in the pilot units decreased from 0.7 infections/1,000 patient days in FY '07 to 0.5 infections/1,000 patient days in the first quarter FY '08. "I think we can do better," Borton emphasizes. "Those data were coming in when not all of our units were up and doing PD. We now have all of our med/surg units, critical care units and step-down units involved in the process. We anticipate those numbers will go lower because everyone is coming into the process."

Role-playing, grass-roots solutions

In addition, hand hygiene compliance has dramatically increased from the 50% range it was hovering around. For example, some workers said they washed their hands when they went into a

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patient room but did not feel comfortable reminding others to do so. Others that knew the danger such workers posed to their patients would speak out, but then found themselves in uncomfortable, combative situations. However, a couple of nurses said they were successful in addressing the problem through diplomatic, gentle reminders and modeling behavior of good hand hygiene. As a result the other workers did some role-playing exercises to prepare for such situations while a physician "champion" volunteered to spread the good word to his peers, she says. "Once they had success, then it would feel better the next time."

The PD program included MRSA surveillance cultures on admission, transfer and discharge in certain units to determine if transmission was occurring. "Initially, people were having difficulty remembering to get their swabs," Borton says. "Some had a pretty good record while others were forgetting all the time."

One approach was recommended by the aforementioned nurse who taped the swab on the door on the day of transfer or discharge. "Someone else on a different floor said a clerk had a list of everybody who was being discharged and would ask the nurses if they swabbed the patients," she says. "These are things that only insiders to the unit would think about."

In an unusual example that emphasizes how much support the hospital gave the workers, several alternative gowns were considered to replace a gown that was "too hot" when used routinely for isolation rooms. Ultimately, the workers decided to go back to the original gown after finding other problems in alternative models "The grass isn't always greener, but the value of that whole exercise is now they are not fussing about the gowns being hot," Borton says. "They know they're hot but they say, 'We checked and there's nothing better out there.'"

Workers also said protective equipment in general was too difficult to access, thus a one-stop station by the door was added to hold such items as gloves, gowns, and masks. "The hardest thing for many of us at first was to let go and trust that people can work this out," she says. "Leadership's role is to remove the barriers."

Pittsburgh VA leads the way

The first hospital to try the PD approach to reduce MRSA was the Pittsburgh VA in 2005. They had already had success — a 50% reduction in two units using an industrial model to standardized practice. However, they wanted to take it a step further, says **Jon Lloyd**, MD, who originally worked with the hospital as a liaison for the Centers for Disease Control and Prevention. They heard about the Positive Deviance Initiative (http://www.positivedeviance.org/). PD pioneer Jerry Sternin was showing that the approach could solve all kinds of problems, but reducing health care infections had not been one of them at that point. "We looked to this approach because of the failure of traditional approaches," says Lloyd, who now is coordinator of the national MRSA prevention network and senior clinical advisor for the Plexus Institute in Bordentown, NJ.

"Health care workers have known about the efficacy of standard and contact precautions for quite a few years," he says. "[Hand washing] since 1847. It's not primarily a knowledge gap. Every hospital has infection control guidelines. They are in a manual and we all know that everyone reads them, commits them to memory, and adheres to them religiously. It is a total fantasy. As a result of the failure of the traditional approaches, we are involved in a national [MRSA] epidemic."

Albert Einstein Medical Center and several other hospitals followed Pittsburgh's lead and a beta network was born that now has led to a national movement. **(See related story, p. 100.)** "There's been more than a 50% reduction in all 14 units at the VA since 2005," Lloyd says. "The pooled data from the five other sites show a 2.9% reduction per month over a year period, so it is about a 35% drop in the one year's worth of data that we have."

In implementing the program, Lloyd looked for solutions and suggestions among all staff, including ministers that console patients in isolation rooms. Explaining how MRSA can be transmitted by vectors such as stethoscopes, he stumbled on a saintly source that could only come from a minister. They dutifully gowned and gloved before going into contact isolation rooms, but they carried the Good Book from patient to patient, often letting them hold it to read passages. "'I think we may be passing on more than the good word with our scriptures,'" Lloyd recalls one told him. "So they started performing Bible hygiene."

Some used a vinyl cover that could be decontaminated between patients, while others used disposable OR hats as a book cover between patients, he noted.

Another unlikely source to MRSA prevention was the housekeeping staff. Some said they had independently adopted their own cleaning methods in some cases because the hospital

Johns Hopkins cuts MRSA rates with PD approach

Program expands to 37 sites in Maryland

One of the leading hospitals in the country has slashed infection rates with an approach called "positive deviance" (PD) that encourages frontline workers to share novel solutions to day-to-day problems.

Johns Hopkins hospital in Baltimore targeted a neurocritical care unit (NCCU) in 2006, when methicillin-resistant *Staphylococcus aureus* (MRSA) was causing between three to 10 infections annually. That rate has been cut to two infections per 100 at-risk patients per month, according to data presented recently in Denver at the APIC conference by **Donna Fellerman**, RN, BA, CIC an infection preventionist at Hopkins.[1]

A new approach was appealing because Hopkins is located in the Mid-Atlantic region, which has the highest measured burden of MRSA in the country. More than 70% of MRSA infections in the region are health care-associated. The costs of MRSA infection include an estimated increased cost of $27,000 per patient, 19 additional days of hospitalization, and increased mortality. PD employs a methodology of behavioral and social change that is based on the observation that in most communities certain individuals or groups develop unique strategies to solve apparently insurmountable problems, Fellerman reported. These individuals, the "positive deviants (PDs)," exist in the same environment as their less successful peers. The process of PD does not rely on technology or administrative initiatives; rather, frontline caregivers identify and implement latent solutions.

Interventions are adopted by the group without the usual resistance to a "top-down" approach. The PD initiative was implemented in several units, including the NCCU. Several personnel were trained as facilitators, and they conduct "Discovery and Action Dialogues." This informal approach gathers personnel who are on the unit at the time and stimulates conversations about issues and possible solutions. The role of the facilitator is to enable all participants to brainstorm ideas, the identify peers on responsibility for determining what is necessary to implement outside the nurses' station on a weekly basis, Fellerman reported.

Actions that have been implemented at the hospital as a result of the campaign include:

- Monthly MRSA transmission data are displayed on a large graph in the break room.
- Hand hygiene compliance data are provided to the unit.
- A unit-based infection control committee was established; meetings are held monthly.
- Hand hygiene reminder signs were developed and posted inside the rooms.
- Housekeepers changed cleaning routines, including discarding supplies and changing curtains in isolation rooms.
- The technique of donning isolation gowns was changed based on the observation of one nurse who always had her gown tied correctly.
- Visitors wash hands prior to entering and leaving the unit.
- Visitor's belongings are bagged to avoid contamination.

The application of PD to MRSA prevention started at the Veterans Affairs Hospital in Pittsburgh with a grant from the Robert Wood Johnson foundation, says **Jon Lloyd**, MD, senior clinical advisor for the Plexus Institute in Bordentown, NJ. The program was expanded to Hopkins and four other beta sites: Albert Einstein Medical Center (Philadelphia); Billings (MT) Clinic; Franklin Square Hospital Center (Baltimore); and University of Louisville (KY) Hospital.

"Then the state of Maryland decided that they would offer training in PD to any hospital that was willing tot try this based on the success [at Johns Hopkins]," Lloyd says. As a result, 37 health care facilities in Maryland — including acute care, long-term care and dialysis settings — are using the PD approach to prevent MRSA infections. Results are not yet available on the expanded study, but the Pittsburgh VA has cut MRSA rates by 50% since 2005 and the five beta sites are averaging about a 36% reduction after one year, he says.

Reference

1. Fellerman DP. Positive deviance in action: A behavioral approach to combating MRSA in a neurocritical care unit. Abstract 11-116. Presented at the APIC conference. Denver; June 2008. ■

cleaning protocol was hard to follow, was written only in English, and did not use any illustrations. They worked with infection preventionists to review every area of a room that should be cleaned between patients. The process included a little "Glo Germ" to show them spots they were missing. As a result, they came up with their own cleaning checklist.

"They were so proud of that they laminated it and put it on every cleaning supply cart," Lloyd says. The housekeepers had seen doctors and nurses using checklists to insert central lines and now took pride in preventing infections rather than just cleaning rooms. "They were thinking of

their job as an infection control procedure, not just cleaning up a room when a patient goes home," he says. "To me, that is one of the most eloquent examples of PD's simplicity. The housekeepers really owned it. The closer these solutions are to the people who actually do the work, the simpler and less expensive they are. And since they create them, they don't turn their backs on them. I think that these solutions are much more likely to endure than those that come from the top down."

Indeed, a hospital CEO might balk at enforcing MRSA infection prevention solutions that come from ministers and housekeepers, but PD spreads rapidly among peer groups without being mandated from the top. "Once they work, staff tend to want to share them peer to peer," Lloyd adds. "So housekeepers on one unit that have had a breakthrough will share that with each other. The solutions spread like a virus. You create the freedom and opportunity for the frontline workers to share their ideas and make decisions. Enabling them to act on their ideas, we found, led to some impressive reductions in transmission."

That said, the success should not lead to some national mandate, which would, after all, run counter to PD's principles, he notes. Better to let it arise and flourish in hospitals that see it as an attractive alternative. "It's for hospitals that are interested in learning how to listen actively to their staff, who believe that it's easier to act your way into a new way of thinking than to think your way into a new way of acting," Lloyd says.

However, PD doesn't stand for "panacea delivered." It's too early to tell whether it will have widespread implications for infection prevention, but simply bringing in workers from all levels and specialties to solve problems may yield benefits. "I don't know that it fits every facility, but it is a great fit for us," Borton says. ■

CEO takes it personal after baby deaths in outbreak

Health system cuts MRSA infection rate by 35%

How serious did Charlotte, NC-based Novant Health decide to take MRSA infections after an outbreak among premature infants left the hospital with two dead babies? Posters went up on the walls that featured a child in a hospital bed with the caption, "You could kill him with your bare hands."

Such a direct approach may make some feel uncomfortable, but **Paul Wiles**, Novant Health CEO, was way beyond that emotion. "I realized my role as CEO must be creating a culture of hand hygiene and infection control because nobody else but me could make that happen," he says.

Already devastated by the baby deaths, he was told the most likely explanation was transient colonization on the unwashed hands of health care workers — a classic model of cross-transmission fueling an outbreak. Two of 18 infected infants died from complications related to being born prematurely and infection with methicillin-resistant *Staphylococcus aureus* (MRSA).

"What an enormous cost to pay for neglecting the very simplest of precautionary measures of infection control," he says. "It hit me a number of different ways. One was just pure tragedy of the loss of a child. The MRSA probably came from outside the organization — but that's not important. It got inside our nursery. The fact that we allowed it to spread was clearly our culpability."

The true cost had been in human life, but there also was the significant loss of honor and pride among clinical staff who personally accepted their failure amid careers they devoted to saving lives instead of taking them, he adds. "I know some of the nurses that work in that unit. [I saw] the emotional devastation that this had on them," he tells *Hospital Infection Control*.

The combination of seeing anguished family members and staff because of such a basic breach in infection prevention led Wiles to demand a profound change in hospital culture. "I guess probably every hospital administrator has heard that we only do [hand washing] right about half of the time," he says. "Behavior is hard to change, but I am not going to tolerate that anymore. We know what the right thing to do is. Creating a behavioral change among thousands of people is hard to do, but on behalf of our patients and employees, we have to do it. I said, 'I don't accept that as being the status quo because 'it's too hard to do.' We're going to change that."

As a result, Novant has dramatically increased hand-washing compliance from 49% to 98% and decreased MRSA infection rates by 35% from 2005 to 2007. Staff implemented a hard-hitting, systemwide campaign that changed the health system's culture and spared an estimated 94 patients from the medical complications of MRSA. In the first six months of 2008, the health system's MRSA infection rate has continued to fall. The campaign

(Continued on page 103)

Novant Health
Hand Hygiene Observation Tool

Facility: ☐ FMC ☐ MPH ☐ TMC ☐ PH ☐ PHH ☐ PHM ☐ POH			
Date of Observations:	Shift of Observations:		
Performed by:	Unit of Observations:		
Person Observed (Code Below)	Opportunity Assessed a. before patient care b. during patient care c. after patient care	Type of Hand Hygiene HW - Hand Wash HS - Hand Sanitize N - No hand hygiene	Comments / Incidental Observations (i.e., nail enhancements, empty soap, sanitizer dispensers)

Code: 1 – Physician
2 – Physician Support Staff
3 – Nursing (RN, LPN, CNNA, etc.)
10 – Other
13 – Environmental Services
4 – Case Management
5 – Pastoral Care
6 – Radiology
11 – Hospitalist
7 – Respiratory Therapy
8 – Rehab Medicine
9 – Students
12 – Laboratory

Source: Novant Health, Charlotte, NC.

includes assigning hand hygiene monitors to roam hospital halls and educate doctors and nurses who do not properly wash their hands. **(See hand hygiene compliance form, p. 102.)** The data are aggregated and widely distributed.

"They report to everybody," Wiles says. "A department head can know what observations took place in their department yesterday." The culture change means everyone is accountable and dismissal is an option for repeat offenders. "If you can't practice good medicine, we don't need you," he says." There might be somebody that does, but we don't. It is a form of harm as much as giving the wrong medication."

The power of storytelling

"The biggest initiative that took place was a concerted effort toward high levels of hand hygiene [compliance]," adds **James W. Lederer**, MD, medical director for clinical improvement at Novant. "Many organizations have been on this trail for years and years. Really, what took place at the end of '04 and the beginning of '05 was a focus by the entire organization [to improve hand hygiene]. It was a focused effort and it really went across all facilities. We took the hard line, not the warm and fuzzy. However, an important [feature] was the power of storytelling about what we are doing and why we were doing it. It was the event. It was the people involved. It was the outcomes that were experienced by these patients."

An expert in infectious diseases, Lederer says it is unusual for a CEO to get directly involved in infection prevention. "You don't expect someone at that level is going to get down into the minutiae where I live," he says. "But he was devastated by this outbreak."

The monitors do direct observation of hand hygiene compliance, but the process is more a driver for culture change than trying to catch every break-in technique, he notes. "Admittedly, it's predominantly Monday through Friday but they have some 'pop' visits weekends and nights," Lederer says. "The mindset I have is if the overwhelming [majority are complying], you get the trickle-down effect to weekends and nights. Today, I put on a seatbelt without thinking. That is what we are trying to do — change the culture to where [hand hygiene] is an unconscious activity."

Novant had always used the traditional resources for hand hygiene education that many hospitals in America use today, but it was obviously not enough because it never changed behavior, says **Jim Tobalski**, senior vice president of marketing and communications at Novant Health. Tobalski was charged with spearheading the employee educational campaign and helping the clinical team improve hand hygiene compliance. He admits that he initially had no idea how to accomplish the goal. "The project was huge, but I knew to be successful, we had to scrap what I refer to as the traditional 'Mr. Scrubby Bubbles' approach and do something totally different," said Tobalski, a "Seinfeld" TV show fan whose ultimate decision to follow "Seinfeld" character George Costanza's example and "do the opposite" paid off.

(Editor's note: Novant's posters, billboards, and educational materials are available at free of charge at www.washinghandssaveslives.org/materials.html.) ■

A 'big-picture' approach to Joint Commission SSI goal

IP sees infection rates fall with SCIP measures

As the Joint Commission makes preventing surgical-site infections (SSIs) a national patient safety goal next year some infection preventionists may be more ready than others to meet the full panoply of phased-in requirements. **(See *The Joint Commission Update for Infection Control* supplement in this issue.)**

For her part, **Jeanine Woltmann**, RN, BS, CIC, infection control manager at Glen Cove (NY) Hospital, should have no problem passing muster with Joint Commission surveyors. She has ramped up a comprehensive program to prevent SSIs, implementing multiple interventions over time as recommended by the national Surgical Care Improvement Project (SCIP). A national quality partnership of organizations focused on improving surgical care, SCIP's goal is to reduce the incidence of surgical complications nationally by 25% by the year 2010.

In 2007, Woltmann expanded her SSI prevention program to include all inpatient surgical cases being monitored for the SCIP measures. Compliance with SCIP measures since June 2007 has been greater than 90%, she says. Some of the results of the effort include:

- Class I & Class II SSIs have fallen 22% from 1.4% in 2004 to 1.1% in 2007.
- Although numbers of total joint replacement (TJR) procedures increased from 785 in 2003 to

Don't 'SCIP' the patient in SSI prevention effort

Patients urged to speak up, ask questions

The SCIP Surgical Care Improvement Project (SCIP) is not just for clinicians. There is a message for patients as well: Know the risks and protect yourself. SCIP has created a tip sheet that can be given to patients slated for upcoming surgery. Key points include:

One way you can help lower your risk for problems from your surgery is to talk with a member of your surgical care team before surgery about the type of care you should receive. Your care team includes your surgeon, your anesthesiologist, and your nurses. Tell your doctor about other medical problems you may have, such as allergies or diabetes. These problems could affect your surgery and treatment. Patients who smoke get more infections. Talk to your doctor about how you can quit. If you do not see them do so, ask your care team members to wash their hands before examining you. Speak up if you have questions or concerns. If you don't understand, ask again. It's your body and you have a right to know.

• To avoid infection—

If I need antibiotics before surgery, when will I receive the antibiotic and for how long?

Antibiotics should be given within 60 minutes before surgery and should be stopped within 24 hours in most cases. Given properly, antibiotics can greatly lower your chances of getting an infection after surgery.

If hair needs to be removed from the part of my body that is having surgery, what will you use?

Your doctor or nurse should use clippers to remove hair if needed at the site of your surgery. Using a razor to remove hair before surgery can cause infections because of the risk of leaving small cuts on the skin.

• To avoid blood clots —

What will you do to prevent blood clots?

When you have surgery, you are at risk of getting blood clots because you do not move while under anesthesia. The more complicated your surgery, the higher your risk. Your doctor will know your risk for blood clots and steps that will help prevent them, such as giving you the right medicine before surgery.

• To avoid heart attacks —

If I take medicine for heart disease, should I keep taking it?

Taking certain medicines together can cause problems. Tell your doctor about all the medicines you are taking, including over-the-counter things like aspirin and herbal remedies. Your doctor or nurse will tell you which medicines you should continue to take and which medicines you should stop taking before surgery. ■

1,054 in 2007, the number of infections decreased 63% from 13 (1.7%) in 2003 to five (0.47) in 2007.

• Venous thrombo embolism (VTE) cases decreased 45% from 44 in 2005 to 24 in 2006.

• Post-op pneumonias decreased 75% from 12 in 2003 to three in 2006.

The big picture

"It takes a lot of teamwork — getting everybody on board with it," Woltmann tells *Hospital Infection Control.* "We're looking at the whole picture now."

Indeed, there is quite a landscape to survey if your goal is prevent infections and other complications from surgery. According to the Centers for Disease Control and Prevention, SSIs are the second most common cause of health care-associated infections, with approximately 500,000 occurring annually in the United States. Costs and outcomes secondary to SSIs can vary by location and surgery type, but it is safe to say the direct and indirect costs of SSIs run in the billions annually.[1] More importantly, SSIs are a major cause of patient morbidity and mortality, so successful prevention is sometimes a literal life-and-death issue. SCIP began as the Surgical Infection Prevention (SIP) in 2003, with its first target the appropriate and timely administration of antibiotics related to surgery. As result, monitoring of antibiotic prophylaxis for TJR, vascular procedures and colon surgeries began, recalls Woltmann. The focus was on giving the correct pre-op antibiotic within one hour before incision and discontinuing it within 24 hours of surgery end time. In 2005, under its new name, the SCIP initiative began monitoring the additional perioperative measures of appropriate hair removal, glucose control, beta-blocker for appropriate surgical candidates, VTE prophylaxis for all surgical patients and prevention of respiratory complications, such as post-op- and ventilator-associated pneumonia, she says.

"All of these are [designed] to prevent any complications during the surgical admission,"

Woltmann says. "We not only monitor the antibiotics but we are also looking at the [administration of] beta-blockers to prevent any venous clots or pulmonary embolisms. We also monitor their glucose to make sure we keep it at normal levels to enhance healing. Some patients come in, do not know they are diabetic and the stress of surgery raises their glucose levels. They may be a Type II diabetic and not know it yet."

Another Joint Commission requirement in the 2009 patient SSI safety goal is to conduct post-discharge SSI surveillance, typically the Achilles heel of any prevention program. The Joint Commission calls for following all patients for 30 days and those with total joint replacement out to one year.

"We have been doing that," Woltmann says. "We have a post-discharge letter that goes to the surgeons so that we do get feedback. Also — at least within New York state — if we identify an infection [in a patient discharged] from another hospital, we notify that hospital of that infection. There is communication back and forth. That's especially important in today's world because patients are discharged so quickly now."

Indeed, with lengths of stay shorter than ever, post-discharge surveillance is critical to get the full spectrum of SSIs. "We do a large volume of total joint infections and if they get infected, they will have to be readmitted," she says. "So we will see that with readmission. If they are readmitted to another hospital, they will call me; and if their patient is admitted here, I will call them. You need that feedback — you need to know."

Reference

1. Perencevich EN, Sands KE, Cosgrove SE, et al. Health and economic impact of surgical-site infections diagnosed after hospital discharge. *Emerg Infect Dis* 2003 Feb. Available at: www.cdc.gov/ncidod/EID/vol9no2/02-0232.htm. ■

Minnesota makes the call on MRSA isolation

State takes on issue left 'unresolved' by CDC

The Minnesota Department of Health has issued guidelines for methicillin-resistant *Staphylococcus aureus* (MRSA) that address an issue the Centers for Disease Control and Prevention has left unresolved: when to discontinue contact isolation precautions.

The Minnesota guidelines recommend that patients with risk factors for MRSA colonization and infection (i.e., hemodialysis patients and long term care residents) should not be considered for discontinuation of contact precautions for MRSA infection.[1] Other patients may have isolation discontinued after three negative cultures. **(See recommendations, p. 106.)** In a sense, the state recommendations codify some of the considerations recommended by the CDC, though the federal agency officially left isolation discontinuation as an unresolved issue in its 2006 recommendations on multidrug-resistant organisms (MDROs) and its 2007 isolation guidelines.[2,3]

"The Minnesota department of health has written MRSA guidance so that our state would be consistent on discontinuing precautions," **Michelle Farber**, RN, CIC, said recently in Denver at the annual APIC conference.

As evidenced by the APIC session, the issue of discontinuing contact isolation measures (e.g., staff don gloves and gowns before entering room) was the subject of much confusion and question among infection preventionists (IPs). At the heart of the matter is the question of whether or not the isolated patient is a risk for transmission to other patients and health care workers. It is not an easy question, but simply leaving patients in isolation raises issues of quality of care and places a premium on private rooms that sets off a series of related problems from ambulance diversions to cohorting and decolonization. "There is no evidence [supporting only] one methodology, so we are going to be studying and re-looking at our guidance," said Farber, an infection control specialist at Mercy Hospital in Coon Rapids, MN.

The 2006 CDC MDRO guidelines cited a lack of data in leaving the issue unresolved, though they suggested that IPs consider discontinuing contact precautions "when three or more surveillance cultures are repeatedly negative over the course of a week or two in a patient who has not received antimicrobial therapy for several weeks, especially in the absence of a draining wound, profuse respiratory secretions, or evidence implicating the specific patient in ongoing transmission of the MDRO within the facility." The 2007 CDC isolation guidelines also left the issue unresolved but went a bit further in saying, "It may be prudent to assume that MDRO carriers are colonized permanently and manage them accordingly. Alternatively, an interval free of hospitalizations, antimicrobial therapy, and invasive devices (e.g., six or 12 months) before re-culturing patients to document clearance

Minnesota guidance for dropping MRSA isolation

High-risk groups should remain isolated

The Minnesota Department of Health recommends the following for discontinuing contact isolation and "removing patient flags" for methicillin-resistant *Staphylococcus aureus*[1]:

A. Patients with the following risk factors are not eligible for discontinuing contact precautions during their hospital stay:

i. Reside in an acute or chronic long-term care facility

ii. Receive hemodialysis

iii. On antimicrobials active against MRSA

iv. Admitted for a suspect staphylococcal infection

v. Have areas of chronic open wounds or skin breakdown (e.g. decubitus ulcers)

vi. Have long-term invasive devices (e.g., gastrostomy tube, endotrachial tube)

vii. Recurrent infection or colonization with MRSA (patients previously cleared and presenting with new infection or colonization)

viii. Have other MRSA risk factors as identified by the admitting facility

B. Patients may come off contact precautions when the following criteria have been met:

i. There is documentation of a minimum of three consecutive negative nares cultures and a minimum of three consecutive negative cultures from previously positive sites(s) (where applicable, note B8a).

ii. Consecutive cultures should be at least seven days apart.

iii. Cultures should be obtained no sooner than one week after completion of decolonization and/or clinical treatment.

iv. Cultures do not need to be obtained during one hospitalization; cultures obtained during multiple hospitalizations or from outpatient visits may count toward the three negative cultures needed provided the patient does not fall into the categories outlined [above] at time of culture collection.

Reference

1. Minnesota Department of Health. Recommendations for Prevention and Control of Methicillin-Resistant *Staphylococcus aureus* (MRSA) in Acute Care Facilities. 2008. Available on the web at: www.health.state.mn.us/divs/idepc/diseases/mrsa/rec/rec.pdf. ■

of carriage may be used."

The Minnesota guidelines, which were written in consultation with IPs, note that the uncertainly about the issue has been exacerbated by the increasing use of active surveillance cultures to detect MRSA in certain units or patient populations. That means more patients are being placed in isolation, so discontinuing the measures as quickly as possible could free up much-needed private rooms.

"As a result, the question of when to discontinue precautions is quickly becoming more pressing," the Minnesota guidelines emphasized. One factor that must be considered when in the decision is the duration of MRSA colonization, which can vary in any given patient from three months to more than two years, according to published studies.[3,4] Risk factors associated with persistent carriage included breaks in the skin, indwelling devices, receipt of immunosuppressive therapy, and receipt of hemodialysis, the state guidelines note. "Although not explicitly done for the purpose of developing a protocol to discontinue contact precautions, the studies of MRSA carriage provide background for developing a protocol for discontinuation of contact precautions," the Minnesota guidelines state.

Indeed, the lack of distinct risk stratifications for individual patients makes it harder to take patients out of contact precautions, creating a default position where more hospitals may err on the side of isolation, APIC discussions revealed.

"We don't want to have all of our patients in isolation," said **Vickie Brown**, RN, MPH, CIC, associate director of hospital epidemiology at UNC Hospitals, Chapel Hill, NC. "There is good evidence that the risk of carriage is associated with breaks in the skin and skin conditions. Keep in

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mind that the patient that has a draining wound who has a history of MRSA is much more likely to still have MRSA than someone who has just been picked up on a nasal swab and they don't have any [other risk factors for transmission]."

Discontinuing isolation is a judgment call based upon published guidelines, research, and assessment of the patient population, she noted. IPs must weigh the negative consequences of isolation with the potential risk of disease transmission to susceptible patients. "Our first priority is always to protect other patients and employees," she concluded.

CNE/CME *questions*

9. The positive deviance approach to culture change emphasizes that institutional problems must be solved by senior administration.
A. True
B. False

10. Which of the following interventions were used at Johns Hopkins Hospital in Baltimore to reduce the rate of MRSA infections?
A. Monthly MRSA transmission data are displayed on a large graph in the break room.
B. Hand hygiene compliance data are provided to the unit.
C. Visitors wash hands prior to entering and leaving the unit.
D. All of the above

11. The national Surgical Care Improvement Project (SCIP) national goal is do which of the following by 2010?
A. Develop a new system of patient risk assessment.
B. Drop outdated hand hygiene rituals in the OR.
C. Reduce surgical complications by 25%.
D. Increase appropriate antibiotic prophylaxis to 90%.

12. According to guidelines by the Minnesota Department of Health, contact isolation for MRSA can be discontinued after three consecutive negative cultures. Which of the following is true?
A. Cultures do not need to be obtained during one hospitalization.
B. Consecutive cultures should be at least three days apart.
C. Cultures should be obtained less than week after completion of decolonization and/or clinical treatment.
D. All of the above

Questions continue

Still, the issue raises some tricky questions. For example, one APIC audience member asked whether to use MRSA cultures or rapid PCR tests in deciding whether to discontinue isolation.

"For our rapid screening of admissions for MRSA, we use PCR and we isolate based upon that," Brown noted. "But we would recommend to a physician that if you want to get a patient off isolation, use the MRSA culture. That is because we are not certain if the PCR is detecting MRSA genetics that are not actually viable — maybe it is [picking up] such a small amount that it wouldn't play a role in transmission. We simply don't know the answer to that."

References

1. Minnesota Department of Health. Recommendations for Prevention and Control of Methicillin-Resistant *Staphylococcus aureus* (MRSA) in Acute Care Facilities, 2008. Available on the

CNE/CME objectives

After reading each issue of *Hospital Infection Control*, the infection control professional will be able to do the following:

• identify the particular clinical, legal, or educational issue related to epidemiology;

• describe how the issue affects nurses, hospitals, or the health care industry in general;

• cite solutions to the problems associated with those issues, based on guidelines from the federal Centers for Disease Control and Prevention or other authorities, and/or based on independent recommendations from clinicians at individual institutions. ■

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web at: http://www.health.state.mn.us/divs/idepc/diseases/mrsa/rec/rec.pdf.

2. Siegel J, Rhinehart E, Jackson M, et al. Centers for Disease Control and Prevention. Healthcare Infection Control Practices Advisory Committee. Management of multidrug-resistant organisms in health care settings, 2006. Available at: http://www.cdc.gov/ncidod/dhqp/.

3. Siegel JD, Rhinehart E, Jackson M, et al. Centers for Disease Control and Prevention Healthcare Infection Control Practices Advisory Committee. Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, 2007. Available at: www.cdc.gov/ncidod/dhqp/.

4. Marschall J, Muhlemann K. Duration of methicillin-resistant *Staphylococcus aureus* carriage, according to risk factors for acquisition. *Infect Control Hosp Epidemiol* 2006; 27:1,206-1,212.

5. Scanvic A, Denic L, Gaillon S, et al. Duration of colonization by methicillin-resistant *Staphylococcus aureus* after hospital discharge and risk factors for prolonged carriage. *Clin Infect Dis* 2001; 32:1393-1,398. ■

CNE/CME answers

9. B; 10. D; 11. C; 12. A.