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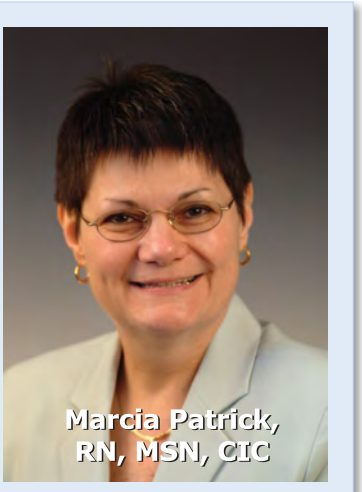
HHS hits pause button — and a few nerves — on injection safety issues in ambulatory care

'We won't get an opportunity to continue to define the scope of the problem.'

By **Gary Evans**, Executive Editor



Marcia Patrick, RN, MSN, CIC

The Department of Health and Human Services (HHS) appears to be taking a step back from its recent emphasis on injection safety issues in ambulatory care and surgical settings (ASCs), though noting that some 3,200 inspections done in fiscal years 2010 and 2011 "found that deficient infection control practices are widespread in ASCs," according to a report by the Government Accountability Office (GAO).

There has been some confusion about whether the HHS is relegating infection control in ambulatory care to a lower priority or has simply gathered enough data for analysis and planned interventions. In any case, the Association for Professionals in Infection Control and Epidemiology (APIC) immediately expressed disappointment in the decision.

"APIC is not happy with it, but the [key] detail is it's not that they are going to stop surveying for injection safety and other infection control things — they are going to stop aggregating the data and publishing it," says **Marcia Patrick**, RN, MSN, CIC, a member of the APIC board of directors. "That means we won't get an opportunity to continue to define the scope of the problem. One would hope that after the surveys that we should see a decrease in the number of violations for these things, but we are not going to know — other than anecdotally — if the surveyors say it is getting better, it is getting worse, it's not changing. That's not scientific."

U.S. Rep. **Frank Pallone, Jr**. (D-NJ), requested the GAO report in September 2011 to help Congress identify gaps in current health care practices and improve patient safety while reducing costs. While citing

In This Issue

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lean budgets of state survey agencies in changing the program, the HHS put something of a positive spin on the action by noting that it had collected several thousand of the survey worksheets and had sufficient data for analysis of infection control practices in ambulatory care.

"[This action] prevents us from continuing to explicate the scope of the problem," Patrick says. "What other things are being identified that could help us devise solutions? How are we going to be able to provide solutions if we don't know what the problems are?"

Deficient practices not described

The deficient practices uncovered thus far were not specifically described in the GAO report. The HHS referred inquiries about them back to its written statement included as an appendix in the GAO report. The HHS stated that the outpatient settings have been "required to correct these deficient practices," which were detected in a survey program that began after the 2008 outbreak of hepatitis C virus in a Las Vegas endoscopy clinic. That highly publicized outbreak — which resulted in nine cases of confirmed HCV transmission to patients and another 100 people that were possibly infected in the now-shuttered clinic — resulted in a partnership between two HHS agencies, the Centers for Disease Control and Prevention (CDC) and the Centers for Medicare and Medicaid Services (CMS). The CDC developed an infection control worksheet that the CMS began using to survey injection safety and other infection control measures in the ambulatory settings, many of which are not accredited by the Joint Commission and have heretofore operated well under the radar.

In the Las Vegas outbreak, improper use of single dose vials on more than one patient and other violations of basic infection control were implicated. While shocking at the time, such practices may remain a temptation given current shortages of certain drugs and the lack of vials small enough to be truly sufficient for one patient only. Even apparently meticulous, good-faith efforts to preserve medication that should be discarded from single dose vials is a high-risk venture. Such practices can still result in outbreaks, as seen most recently in severe bacterial infections with methicillin-resistant *Staphylococcus aureus* (MRSA) in two pain clinics. *(See Hospital Infection Control & Prevention, August 2012, cover.)*

"The CDC has reiterated its position — single-dose vials means single use because we keep seeing these devastating outbreaks," Patrick says. "You give somebody hepatitis B and there is something like a 6% to 10% risk of becoming a lifelong carrier with a huge increase in risk for liver cancer. And for hepatitis C, probably 80% of the people that get infection end up with chronic carriage — they never get rid of the hepatitis. Hepatitis is the leading reason for liver transplants, so this is serious, life-changing stuff. It is all about patient safety. The risk to patients, I believe, is too great to not be doing everything we can to fully define [this problem] and then develop solutions."

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ASCs seek clarification on single-dose/single use

Drug shortage, vial sizes put ASCs in a bind

While emphasizing they are following all infection control guidelines, ambulatory surgery centers are lobbying public health officials to reconsider and clarify policies on single-use vials in light of current drug shortages.

"There is a larger issue of the problem that drug shortages are causing," says **Bill Prentice**, JD, chief executive officer of the Ambulatory Surgery Center Association. "I have heard from centers that have had to turn patients away and say, 'I'm sorry we can't treat you today because we do not have the drugs to safely perform your surgery.'"

Moreover, some of the scarce drugs are shipped in vials labeled single-dose, though they may contain more medication than needed for one patient.

"We are experiencing a lot of drug shortages on some of the major anesthetic drugs in particular that are used in ASCs," he says. "I'm hearing from our members that because of the packaging and size of these vials that they end up using a small amount of the injectable and then throwing the remainder away — which is a complete waste to the health care system."

Prentice and colleagues recently sought clarification on the issue in a meeting with officials from the Centers for Disease Control and Prevention. The question was essentially is there any process "that would allow a center to use a single-use vial on more than one patient in some aseptic way?" Prentice says. "Not reusing the needle — not reusing the syringe. We wanted to ask that question as well as find out what is the science behind their current protocols regarding single use."

The CDC recently reiterated its stance on the issue in light of continuing outbreaks, emphasizing that some centers were using appropriate drug substitutes or having pharmacies that adhere to the strict standards in United States Pharmacopeia General Chapter 797 safely split doses from single dose vials. That is not a practical solution for ASCs, which do not have pharmacists on staff because they use drugs for patient care and are not set up to dispense them, Prentice says.

"The drugs that are used in ASCs are primarily anesthetic pain control and things of that nature that are used while on site," he says. "To use a compounding pharmacy is not a practical solution. For example, there are no compounding pharmacies in Wyoming."

Moreover, even if ASCs incurred the expense of pharmaceutical drug compounding, the vials would have a very short shelf life, Prentice and colleagues told the CDC.

"It was a very productive meeting and the CDC staff pledged to continue to work with us on the issues," he says. "We are telling our members to be in full compliance with current best practices, which include using a single-use vial only once and then discarding the rest. That said, we are hearing a lot of pushback from our members who are really complaining about having to throw away perfectly good drugs."

The next steps are to meet with the Food and Drug Administration and possibly the drug manufacturing companies to seek redress on the issue, he said. "To have something labeled a single dose vial that holds 200 ml and the surgeon only needs 12 ml — then have to throw out the rest — doesn't make a lot of sense," he says. ■

As part of implementing the expanded oversight of ambulatory care after the Las Vegas outbreak, CMS collected detailed information from its Infection Control Surveyor Worksheets for fiscal years 2010 and 2011.

"Specifically for these two fiscal years, CMS required state surveyors to submit a completed copy of the worksheet for every ASC that they surveyed, in addition to their routine reporting of citations for lack of compliance with particular standards," the GAO reported. "According to the CMS officials, the agency plans to use the data collected from the surveyor worksheets to determine the differences in the type and level of citations given by state survey agencies to ASCs identified as noncompliant with the agency's health and safety standards. CMS officials said that the agency has provided CDC with the surveyor worksheet data to examine the extent of infection control problems, including unsafe injection practices, in a sample of ASCs nationwide, from which CDC officials expect to create a baseline assessment of unsafe injection practices in these settings. [The CDC expects] that it will be completed at some point in 2012."

The CMS stopped collecting individual worksheets from state survey agencies for each ambulatory care survey conducted after FY 2011, the HHS said in the GAO report.

"With over 3,000 worksheets collected, we believe there is sufficient data to support detailed

analysis of ASC infection control practices nationally," the HHS said. "CMS was also interested in relieving the state survey agencies, which are operating in a resource-constrained environment, of the burden associated with preparing a consolidated worksheet and submitting it to our contractor after each ASC survey. In its recommendation, GAO has been sensitive to CMS's concerns about the burden on state survey agencies, suggesting that CMS could limit this data collection to a random sample of ASCs, adjusting the sample size, and collecting the data less frequently than every year. Consistent with these GAO suggestions, CMS plans to resume collection of the Infection Control Surveyor Worksheet beginning in FY 2013 for a state-stratified, randomly selected subset of ASCs surveyed in that year, and will repeat this sampling and data collection approximately every three years thereafter."

Asked whether collecting and analyzing surveys from a randomized subset less frequently would be sufficient to address the continuing problem, Patrick said, "It's more of a sampling size. And how do we know that this sampling size is going to be truly representative of what is really going on? I think we are early enough in this process that we need as much data as we can [collect] over time. Also, we need to see improvement, see where the gaps remain and then address those. Once we have a stable process then I think we look at some sampling."

Are surgery centers getting a bad rap?

The GAO report also did sit well with the Ambulatory Surgery Center Association (ASCA), which felt its facilities were being tarred with the same brush being swept over every strip-mall clinic and medical office in the country.

"The report makes a number of confusing leaps when discussing 'ambulatory care settings' and 'ambulatory surgery centers' that do a disservice to ASCs and merit correction," the ASCA said in a statement posted on its website. "We plan to meet with Representative Pallone's staff to discuss our concerns."

The association further clarified that ambulatory surgery centers are not "rural health clinics, urgent care centers or ambulatory care centers that provide diagnostic or primary health care services. ASCs treat only patients who have already seen a health care provider and selected surgery as the appropriate treatment for their condition. ASCs are not physicians' offices either. All ASCs must have at least one dedicated operating room and the equipment needed to perform surgery safely and ensure quality patient care."

Noting that the GAO report seems to repeatedly


Bill Prentice, JD

lump all manner of outpatient settings as ASCs, **Bill Prentice** JD, CEO of the ASCA says, "We think the report is more than a little confusing in that regard and might mislead policy makers about where they need to devote attention to reduce infections. It seems like they want to keep drawing attention to the ASC setting — maybe because we are regulated by the CMS and these other settings [are not]."

Though the HHS subsequently agreed to the GAOs proposal to reduce the sample size and go to random selection, the GAO originally expressed concern that "without continuing to collect the data from the Infection Control Surveyor Worksheets after fiscal year 2011, CMS will lose its capacity to monitor ASC compliance specifically with respect to safe injection practices, which would be necessary to track the effectiveness of its increased efforts to prevent unsafe practices. CMS officials reported that they do not have access to information that would allow them to identify which citations stem in whole or in part from unsafe injection practices because the citation reports that are routinely submitted by surveyors after an ASC is inspected are based on standards that cover a mix of injection-related and other infection control or medication administration practices. Furthermore, the lack of the worksheet data will reduce CMS's ability to check the accuracy and completeness of surveyor assessments of unsafe injection practices going forward." ■

CDC expands HCV testing, refers HCW issue to SHEA

Targeting undiagnosed infections

Conceding that the effectiveness of risk-based hepatitis C virus testing has plateaued, public health officials are rolling the dashboard dice to capture the grand-daddy of all birth cohorts: Baby Boomers.

The Centers for Disease Control and Prevention recommends that millions of Americans born from 1945 through 1965 get a one-time test for HCV.

Though many people may be completely unaware they are infected for years — they don't call it the "silent epidemic" for nothing — by the

time they become symptomatic they may need to get in line for a liver transplant. Some 15,000 Americans, most of them baby boomers, die each year from HCV-related illness, such as cirrhosis and liver cancer. Deaths have been increasing steadily for more than a decade and are projected to grow significantly in coming years. The CDC estimates that HCV testing of baby boomers could identify more than 800,000 additional people with the virus.

With newly available therapies that can cure up to 75% of infections, expanded testing — along with linkage to appropriate care and treatment — could save a lot of livers and more than 120,000 actual lives, the CDC estimates. Indeed, with the development of protease inhibitors that can lower HCV viral counts as well as new antiviral drugs, there are more treatment options to offer the HCV infected.

The CDC's previous HCV recommendations called for testing only individuals with certain risk factors (i.e. blood transfusion prior to screening improvements in 1992, IV drug use). According to the CDC, baby boomers are five times more likely than other adults to be infected with HCV. Or put another way, more than 75% of the adults with HCV are in the famous birth cohort. In any case, there should be a lot more of them out there with HCV than presently detected, in part, because HCV is such a transmissible virus.


Bryce Smith, PhD

"Hepatitis C is actually a very infective virus — at least 10 times more so than HIV," says **Bryce Smith**, PhD, lead health scientist in the CDC Division of Viral Hepatitis. "HCV can live outside the body for as long as seven days, as we have seen with some of these outbreaks. One of the reasons that we recommend that anyone who has been on chronic hemodialysis be tested for HCV is just because there is a reasonable likelihood that they have been exposed to someone else's blood."

Somewhat surprisingly, the virus is not efficiently transmitted via sexual contact.

"The data is equivocal on sexual transmission, but we do know that sexual transmission does sometimes happen," he says. "The data kind of go back and forth on this particular point and right now we don't have a specific recommendation related to using condoms or using barrier methods. For example, we don't recommend that for long-term couples or 'sero-discordant' couples, where there is one person with [HCV] and one person without."

The hospital role

Is the CDC recommending that hospitals and health care providers routinely offer HCV tests to all their patients that fall within this age range?

"Yes," Smith says, though adding the caveat "local laws tend to [dictate] exactly how things like that can happen in terms of getting consent from the patient or whether it can be considered part of their routine blood work. Local laws will guide that, but it is definitely our recommendation that anyone born within 1945 through 1965 should be tested for HCV. Just one time."

Well, possibly two. A patient whose initial HCV antibody test is reactive is considered to either have current HCV infection or have had an HCV infection in the past that has subsequently resolved. To identify people with active HCV infection, those who test anti-HCV positive should be subsequently tested with a nucleic acid test (NAT).

"In essence it is kind of a two staged series," Smith says. "The first test is an antibody test. It tells you whether or not there is [HCV] antibody in the bloodstream, and again it is a very common and relatively inexpensive test. That will tell whether or not the patient has ever been infected with hepatitis C. We estimate that about 75% of people who have ever been infected go on to be chronically infected. [If they are positive], a second test has to be done to look for the presence of the virus itself in the bloodstream."

If so, the patient needs to get a full medical evaluation that would include an identification of the specific HCV genotype, measurement of their viral load and the best options for treatment. The NAT test could be done in a hospital, or the patient could be referred to their primary care physician or other "medical home" for the follow-up testing, he says.

As always, the question arises of who will pay for the testing. "Everyone has different types of insurance, but by and large it is our understanding that this [antibody] test is considered to be pretty routine," Smith says. "It is available just about everywhere. It is a test that generally speaking is covered by most insurance [programs]. We don't expect that to be a significant problem. We have looked really closely at the costs of this strategy and found that it is actually quite cost effective. It really is very similar to other routine preventive services like colorectal and cervical cancer screening or breast cancer screening.

Go directly to SHEA

Asked if health care workers within the targeted age range are also recommended for HCV testing, Smith says, "We are not making any distinction. I would say anyone who was born from 1945 to 1965 — who is a baby boomer — should be tested for hepatitis C. That is really regardless of their profession."

Of course the identification of HCV-positive health care workers raises the thorny issues of provider-to patient transmission, work restrictions and informing patients — much as it did when the CDC finally went to a universal HIV test recommendation in 2006. The CDC referred inquiries on the issue to the 2010 guidelines by the Society for Healthcare Epidemiology of America (SHEA).[1] Those guidelines are quite specific in recommending recurrent testing for HCV viral counts and applying work restrictions to workers who perform so called exposure-prone invasive procedures. The precautions to be taken range from double-gloving to an outright restriction on performing certain procedures if the worker has a high viral load — defined as equal to or greater than 10^4 genome equivalents per milliliter of blood for HCV.

However, in what some say was an undermining omission, the guideline did not address routine testing of surgeons and other OR personnel — except to say that testing should not be mandatory and that health care workers performing invasive, exposure-prone procedures are "ethically obligated" to know their status. The European Consortium could not reach consensus on HCV-infected providers. The United Kingdom guideline states that HCV-infected providers with circulating RNA should not conduct exposure-prone procedures.

REFERENCE

1. Henderson DK, Dembry L, Fishman NO, et al. SHEA guideline for management of health care workers who are infected with hepatitis B virus, hepatitis C virus, and/or human immunodeficiency virus. *Infect Control Hosp Epidemiol* 2010; 31:203-232. ■

CMS flu shot reporting will allow patients to compare hospital rates

New measure puts pressure on EH and IC

This influenza immunization season may be one of the most challenging for the nation's hospitals as they face a new requirement to track every employee, licensed practitioner, student and volunteer.

Beginning in January 2013, the Center for Medicare & Medicaid Services (CMS) will require hospitals to report their influenza immunization rates based on a standard measure. The information will be available to the public through the website, www.hospitalcompare.hhs.gov.

The measure, which was certified by the National Quality Forum, counts employees, licensed independent practitioners (doctors, nurse practitioners and physician assistants) and students/trainees/and volunteers. Hospitals will report the percentage that received the vaccine, declined, or received religious or other exemptions. If an employee doesn't receive the shot but doesn't actively decline vaccination, they are included among the "unknown." (*For more details, see story, page 104.*)

The new measure will enable hospitals to compare their vaccination rates with other hospitals in their region or of a similar size. It also becomes one of several quality measures that consumers can use when selecting a hospital.

"The infection control and occupational health people will be under a certain amount of pressure because this will be publicly released data," says **William Schaffner**, MD, chairman of the Department of Preventive Medicine at Vanderbilt University in Nashville, TN, and past president of the National Foundation for Infectious Diseases.

At the same time, public reporting may bring greater clout and resources to infection control and employee health, he says.

Hospitals have already been preparing for greater scrutiny of their influenza immunization program. The Joint Commission influenza immunization standard (IC.02.04.01) became effective as of July 1, 2012. It requires hospitals to set annual goals and to work toward a vaccination rate of 90% by 2020.

An eye on the burden

How burdensome will the new reporting requirement be? That depends on the existing data collection systems related to human resources and employee health, says **Melanie Swift**, MD, medical director of the Vanderbilt Occupational Health Clinic.

To calculate the denominator for the measure, hospitals need to include individuals who have worked 30 days or more. For non-employees, such as students and volunteers, including only those who were on site for at least 30 days

may be difficult, Swift says.

"An easier approach is to define the denominator of people who may have been in the institution for 30 days or more, and report vaccination status for that entire group," she says.

Many hospitals already have occupational health software to track immunizations. But those that need to update their technology may find some additional opportunities with the new rule, says Swift.

"For organizations who will be adding support to their occ health programs to track this, it's a good opportunity to look at the other things they need to track, such as TB testing and other vaccines, and be sure to build in the capacity to track and monitor these programs and services as well," she says. "This will require an investment of resources, but if done thoughtfully, you can gain value and efficiency by addressing more than just flu vaccine."

Measure designed for ease

Ease of reporting was a major consideration in the design of the measure, says **Megan Lindley**, MPH, epidemiologist with the National Center for Immunization & Respiratory Diseases at the Centers for Disease Control and Prevention.

Lindley and her colleagues conducted pilot tests of the measure at hospitals around the country and altered the specifications based on the feedback. For example, initially, the measure would have counted everyone who worked at least one day in the hospital.

"We just learned that was incredibly challenging for hospitals to track," she says.

Tracking contractors and vendors also was too difficult for some hospitals, she says. Hospitals may voluntarily report those vaccination rates.

The measure also sidesteps the need to collect written documentation. Employees can decline the vaccine through a written or online declination or verbally. And they are not required to show documentation if they state that they were vaccinated elsewhere.

"We found there were a lot of problems with requiring written declination," says Lindley. "Not all facilities use declination forms. For the measure now, verbal declination is acceptable."

The data will be reported through CDC's National Healthcare Safety Network (www.cdc.gov/nhsn), which is the same surveillance system used to report hospital-associated infections.

Even with the efforts to make the new influenza immunization measure user-friendly, hospitals still will be ramping up their immunization programs and tracking efforts. Managers and hospital leadership will need to be onboard to ensure success, says Schaffner.

"I do believe that the occupational health service and infection control people will not be able to do this on their own," he says. "They're going to have to rely on the managerial structure of the institution to help them."

For example, managers will need to help with the follow up of employees who have not been vaccinated or declined, he says.

To mandate – or not?

It's a well-known adage that "what is measured gets done." With public reporting and greater scrutiny of flu vaccination rates, hospitals are looking for ways to boost their participation. A growing number of hospitals have opted for mandatory vaccination.

Last year, about 78% of hospital employees were vaccinated by early November, a rate that had almost doubled in five years. Yet the Joint Commission requires hospitals to work toward a HealthyPeople 2020 goal of 90% vaccination.

As a result, some hospitals have adopted controversial mandatory flu immunization policies as a condition of work. Whether or not your hospital uses a mandatory approach, it is important to address the reasons that employees choose not to be vaccinated, says **Suzette Bramwell**, DNP, RN, COHN-S, assistant professor of the College of Nursing at Brigham Young University in Provo, UT, who studied influenza vaccination and behavior change as part of her doctoral research.

Those reasons will differ and so you may need to tailor your message, she says. For example, employees with a fear of needles need to know about needleless options, such as the nasal version. Those without direct patient care, such as cafeteria workers, need to understand the potential benefits of vaccination.

Hospitals also may want to link the messages of their flu vaccination campaign to the overall mission of the organization, even using the same phraseology, Bramwell says. "Don't make it a totally different program," she says. "Show everyone how this fits with whatever you're trying to do every day."

The Veterans Health Administration is planning to use motivational interviewing to help promote influenza immunization. That technique, used for health issues such as smoking cessation and weight management, coaxes

Breaking down the new flu shot measure

Developed by the Centers for Disease Control and Prevention, the following National Quality Forum measure will be used to report health care worker influenza immunization rates to the Centers for Medicaid & Medicare Services (CMS).

Description: Percentage of health care personnel (HCP) who receive the influenza vaccination.

Setting: Health care settings include acute care hospitals, nursing homes and other long-term care facilities, dialysis facilities, ambulatory surgery centers, outpatient clinics and physician offices.

Denominator Statement: Number of HCP who are working in the health care facility for at least 30 working days between October 1 and March 31 of the following year, regardless of clinical responsibility or patient contact.

Denominators are to be calculated separately for:

(a) Employees: all persons who receive a direct paycheck from the reporting facility (i.e., on the facility's payroll).

(b) Licensed independent practitioners: include physicians (MD, DO, MBBS), advanced practice nurses, and physician assistants only who are affiliated with the reporting facility who do not receive a direct paycheck from the reporting facility.

(c) Students/trainees and volunteers: include all students/trainees and adult volunteers who don't receive a direct paycheck from the reporting facility.

Numerator Statement: HCP in the denominator population who during the time from October 1 (or when the vaccine became available) through March 31 of the following year:

(a) received an influenza vaccination administered at the healthcare facility, or reported in writing (paper or electronic) or provided documentation that influenza vaccination was received elsewhere; or

(b) were offered but declined the vaccination; or

(c) were determined to have a medical contraindication/condition of severe allergic reaction to eggs or to other component(s) of the vaccine, or history of Guillian-Barré Syndrome within 6 weeks after a previous influenza vaccination; or

(d) Unknown: Persons with unknown vaccination status or who do not otherwise meet any of the definitions of the above-mentioned numerator categories.

Numerators are to be calculated separately for each of the above groups.

Exclusions: None.

Data Source: Medical or administrative records.

Denominator Codes:

1. Include all HCP in each of the three denominator categories who have worked at the facility between October 1 and March 31 for at least 30 working days. This includes persons who joined after October 1 or who left before March 31, or who were on extended leave during part of the reporting period. Work for any number of hours a day should be counted as a working day.

2. Include both full-time and part-time persons. If a person works in two or more facilities, each facility should include the person in their denominator.

3. Count persons as individuals rather than full-time equivalents.

4. Licensed practitioners who receive a direct paycheck from the reporting facility, or who are owners of the reporting facility, should be counted as employees.

5. The denominator categories are mutually exclusive. The numerator data are to be reported separately for each of the three denominator categories.

Numerator Codes:

1. Persons who declined vaccination because of conditions other than those specified in the 3rd numerator category above should be categorized as declined vaccination.

2. Persons who declined vaccination and did not provide any other information should be categorized as declined vaccination.

3. Persons who did not receive vaccination because of religious exemptions should be categorized as declined vaccination.

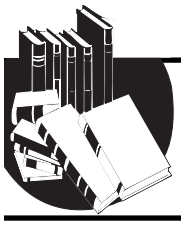
4. Persons who deferred vaccination all season should be categorized as declined vaccination.

5. The numerator categories are mutually exclusive. The sum of the four numerator categories should be equal to the denominator. ■

individuals to make changes by addressing their barriers and incentives to change.

"We're hoping that this proves to be a good alternative to mandating flu vaccines," says **Ebi Awosika**, MD, MPH, director of VHA's Employee Health Promotion Disease and Impairment Prevention program.

Editor's note: More information about the flu immunization tracking measure, including frequently asked questions, is available at www.cdc.gov/nhsn/hps_Vacc.html. ■



ABSTRACT & COMMENTARY

Does the nose still know when it comes to MRSA?

Many colonized patients may be undetected

By **Joseph F. John**, MD, FACP, FIDSA, FSHEA, Professor of Medicine, Medical University of South Carolina, Charleston

Dr. John reports no financial relationships in this field of study

Synopsis: MRSA swabs identified only two-thirds of MRSA carriers.

Sources: Matheson A, Christie P, Stari T, et al. Nasal swab screening for methicillin-resistant Staphylococcus aureus—How well does it perform? A cross sectional study. *Infect Control Hosp Epidemiol* 2012;33:803-8.

David MZ, Medvedev S, Hohmann SF, et al. Increasing burden of methicillin-resistant *Staphylococcus aureus* hospitalizations at US Academic Medical Centers 2003-2008. *Infect Control Hosp Epidemiol* 2012;33:782-9.

The classic teaching is that if a human carries *Staphylococcus aureus*, it is most likely residing in the anterior nares. This concept held generally true for methicillin-susceptible *S. aureus* (MSSA) and for nosocomial methicillin-resistant *S. aureus* (MRSA) for many years. With the advent of relatively susceptible community-based MRSA — so-called USA300 — there often was a conspicuous absence of nasal carriage in persons who had single or even multiple infections with community-MRSA/USA300. Thus, there has been an evolving question of what anatomic sites give the most reliable index of colonization and a risk of subsequent infection.

A study was done at two acute care hospitals in Scotland to determine which of four sites were the most likely to show colonization of MRSA at the time of admission. Four sites were swabbed for culture: nostrils, perineum, axilla and throat. Also a pooled swab was cultured in selective mannitol nutrient broth before being plated onto selective agar. Overall, 6,533 patients were studied from Aberdeen Royal Infirmary and 3,781 from Crosshouse. When a positive wound or device culture was factored into the total positives, there were 298 positive colonizations. The nose was the most likely positive (72.5%), followed by perineum (39.1%), throat (37.7%) and axilla (8.4%).

The "gold standard" was the presence of at least one confirmed agar or broth/agar culture from any pooled swab. Nasal swabs identified 66% of the MRSA-positive admissions. Throat and perineal cultures added nearly 16%. Axillary cultures alone added only 2.4%.

■ COMMENTARY

Not all patients are Scots, but if they were, our current approach to pre-admission carriage of MRSA would have to change, or accept a recognition rate of just above two thirds. A rate of nearer to 50% may be true for a real world experience due to compliance, lack of standard training programs, etc. The Dutch routinely do nasal and throat swab looking for MRSA carriage and have reported throat carriage without nasal carriage previously. In the present study throat cultures plus nasal swabs would bring the screening accuracy to about 70%, not bad if a hospital wants to do something to recognize the MRSA carrier at admission and put them in contact isolation. In this study a positive culture of a preexisting infected site plus a nasal swab identified 100% of confirmed carriers.

The real benefit of the study is to show that carriers may have colonization at one or more sites yet not have nasal colonization. The study also suggests that the nose is becoming less of a true focus of staphylococcal carriage, at least in terms of MRSA-colonized patients at the time of admission. The overall rate of MRSA carriage in these two Scottish hospitals at admission was only 3%. So, hospital administrators would have to be convinced that isolation of that small a MRSA-colonized group would actually prevent significant spread and morbidity in their hospitals. Additionally, in an article accompanying the Scottish report, David and co-investigators from the University of Chicago found that there was a doubling of MRSA-associated hospitalizations from 22 per 1000 discharges to 42 per 1000 discharges. This sharp increase was likely due in part to infection with community MRSA, the very issue that the Scottish paper highlights by showing nasal swabs alone will not uncover all patients who are transporting MRSA into the hospital ■

Cutting ciprofloxacin reduces *Pseudomonas*

'What we were dealing with was habits'

A North Carolina hospital's program to restrict ciprofloxacin use in intensive care units was associated with a significant decreasing trend of *Pseudomonas aeruginosa* resistant isolates.

The hospital has collected data and monitored antibiotic use since 1999, says **Paul P. Cook**, MD, director of antibiotic management program at Vidant Medical Center in Greenville, NC. Cook also is a professor of medicine and chief of the division of infectious diseases at Brody School of Medicine, East Carolina University in Greenville.

"We saw that we were using a lot of ciprofloxacin in our hospital, and we observed in our microbiology lab a lot of resistance, particularly in *Pseudomonas*," Cook explains.

The hospital's pharmacists tried to convince physicians to stop prescribing ciprofloxacin. But the voluntary efforts at stewardship did not go far enough.

"Then we switched to an electronic medical record in 2007, so we decided to restrict ciprofloxacin, requiring approval for prescriptions from an infectious disease physician," Cook says.

The hospital's antibiotic management program is a subcommittee of the therapeutics committee, and both groups approved the change to restricted use of ciprofloxacin.

The program has pharmacists make a recommendation regarding antibiotic use, and the provider does not have to respond for the recommended drug to be prescribed. If a physician disagrees, then the case is reviewed and infectious disease physicians provide input.

The restriction worked. At first some physicians disagreed with the recommendations, although about 85% of the recommendations were accepted, Cook says.

When physicians agreed or said nothing, the recommendation became an order with Cook's signature on it.

"After we started using electronic medical records in 2007, we were able to review more charts and we made more recommendations for antibiotic use, and our acceptance rate went up to 92%," Cook says.

"Our use of ciprofloxacin went from being very high to not so high at first, but once we restricted it, the use actually went low," he says. "We monitored this over a 10-year-period in the ICU."

Data showed that the use of other antibiotics, such as carbapenems, increased, as expected.

Also, susceptibility to ciprofloxacin improved, but there was another surprising and positive outcome: susceptibility to carbapenems also improved.

"We hypothesized that ciprofloxacin increases the efflux pumps that are responsible for resistance to a variety of drugs, including carbapenems," Cook explains. "So if we use more ciprofloxacins we get resistance to both ciprofloxacins and carbapenems, and if we use less we get less resistance to both."

The key to the program's success was making antibiotic stewardship of ciprofloxacin a quality issue, combined with increased prescriber education.[1] The hospital also obtained physician buy-in before requiring approval for ciprofloxacin prescriptions.

"What we were dealing with was habits," Cook says. "In 2000, ciprofloxacin was the most commonly used drug in the hospital. We had to get people to stop using an antibiotic they were extremely comfortable using."

Cook recalls a conversation with a urologist who said, "We've used this drug for 15 years and it's our go-to drug." Cook responded: "Yes, this drug 15 years ago was so good that it would work, but now it's overused and won't work."

He showed physicians the susceptibility data and patterns for *pseudomonas* and other common nosocomial infections like *E. coli*. Fifteen to 20 years ago, the drug was 95% to 98% susceptible to those infections, compared with a current susceptibility for ciprofloxacin of 70%, Cook says.

"That's a big difference if you're talking about patient care," he notes. "Providers are much more comfortable using a drug that has a 98% chance of being effective, so this can have significant consequences for patient care."

The next step was to find an alternative drug for doctors to prescribe.

"We picked some indications where we saw ciprofloxacin being used and looked at what we could offer that would be just as effective," Cook says. "We picked ertapenem, a carbapenem."

Although the program has been in place for years, it continues to evolve and physician education and buy-in continues.

"Over many years we did grand rounds, presentations, and individual conversations with physicians and providers about specific issues and specific patients," Cook says. "But what we clearly have told the physicians is that we are not demanding that our recommendations be accepted, we are strongly recommending it, but the physician has the right to opt-out."

The program's success is its biggest marketing tool: "We've shown that MRSA infection rates

have decreased since our program started, and we also showed a slight decrease in *Clostridium difficile* since 2007," Cook says.

"It's not a debatable issue that we as a society are using too many antibiotics," Cook says. "These programs reduce the unnecessary use — not to zero — but they help, and this is critical to ensure better patient care."

REFERENCE

1. Lewis GJ, Fang X, Gooch M, et al. Decreased resistance of pseudomonas aeruginosa with restriction of ciprofloxacin in a large teaching hospital's intensive care and intermediate care units. *Infect Contrl Hosp Epidemiol* 2012;33(4):368-373. ■

Pertussis surges, HCW vaccination lags

Nation on track for most cases since 1959

As the nation faces the largest outbreak of pertussis in 50 years, the rate of vaccination of health care workers languishes at about 20%.

By mid-July, 18,000 cases had been reported to the Centers for Disease Control and Prevention in Atlanta, with the largest outbreaks in Washington state and Wisconsin. Infants are especially at risk; so far this year, nine babies have died of pertussis.

Yet vaccination coverage with Tdap, the pertussis booster that also contains tetanus and diphtheria vaccine, has remained low among health care workers. Vaccination is most critical for health care workers who care for infants and pregnant women, but the CDC recommends Tdap vaccination "as soon as feasible" even for health care workers who recently received a tetanus booster.

From 2005 to 2010, only 20.3% of health care workers received the vaccine, according to the National Health Interview Survey.

To boost vaccination, Washington state sent reminders to all licensed health care professionals. An awareness campaign, with billboards and ads on television, radio, buses and social media, is urging all adults to receive the pertussis vaccine.

Skagit County was an epicenter of the epidemic, with the highest rate of pertussis in the country. Skagit Valley Hospital in Mount Vernon, WA, scrambled to verify the vaccination status of employees, especially those who said they had received the vaccine elsewhere.

At the beginning of the epidemic, only about a third of hospital employees had received Tdap. By mid-July, that number had jumped to 67%.

Employee health nurse **Greta Ashley**, RN, BSN, CIC, used peer vaccinators and other strategies from the annual influenza vaccination playbook. But the pertussis response has been

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

- ■ Update on the CMS hospital infection control survey
- ■ Can patient risk factors predict MRSA colonization?
- ■ The high cost of a single HCW with pertussis
- ■ Special supplement: *Joint Commission Update for Infection Control*
- ■ The long walk to the C-Suite. Be ready.

overwhelming.

Even vaccinated employees who have an unprotected exposure to a patient with pertussis should have antimicrobial prophylaxis or be monitored daily for symptoms for 21 days, according to CDC guidelines. Employees had an exposure and develop symptoms should be furloughed for five days, CDC says.

Ashley had to put other employee health projects on hold and worked 50-hour weeks to keep up with the pertussis response. She is the only employee health nurse for 1,800 employees and 400 volunteers.

She did find a receptive audience in the employees. Even some who balk at the influenza vaccine have come to get their Tdap, she says. "There is a sincerity about trying to protect the infants," she says. ■

CNE/CME Questions

1. **Marcia Patrick,** RN, MSN, CIC, raised which of the following concerns regarding changes to the Department of Health and Human Services (HHS) injection safety program in ambulatory care settings?
   A. The action prevents continuing explication of the scope of the problem
   B. The risk to patients is too great to change the program
   C. It is too early in the process to go to a sampling size
   D. All of the above

2. How many Americans — most of them "baby boomers" — die each year from HCV-related illnesses?
   A. 7,000
   B. 12,000
   C. 15,000
   D. 18,000

3. The Society for Healthcare Epidemiology of America (SHEA) recommends that health care works that perform invasive, exposure-prone procedures are ethically obligated to know their status for HCV, HIV and HBV.
   A. true
   B. false

4. A North Carolina hospital saw a decrease in resistant isolates of *Pseudomonas aeruginosa* after restricting which antibiotic?
   A. ciprofloxacin
   B. vancomycin
   C. penicillin
   D. ceftazimine