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CDC is on the fast track with new UTI prevention guidelines

CMS cuts drive sudden interest in the all-but-forgotten infection

IN THIS ISSUE

- **From marathon to sprint:**
UTI guideline will be a first under new system to expedite recommendations, shorten review process. cover
- **An inconvenient study:**
Misinterpreted study shows infections cannot be prevented by single intervention 29
- **APIC leveraging CMS regs:**
Turning federal reimbursement cuts into increased support and resources for ICPs 30
- **Nature trumps nurture:**
Frequent hand washing may heighten risk of dermatitis. . . 31
- **Abstract & Commentary:**
SARS and pandemic flu in light of fear, memory, and infection control 33

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The Centers for Disease Control and Prevention is drafting comprehensive new guidelines for urinary tract infections (UTIs), a complication so common and typically treatable that it has been accepted with a sort of benign neglect by the health care system.

Not any more. The so-called Rodney Dangerfield of infections is suddenly getting respect aplenty, and if you want to know why just follow the money. The Centers for Medicare & Medicaid Services' (CMS) recent decision to halt payment on additional costs generated by catheter-related UTIs and two other "preventable" infections (mediastinitis, catheter-related vascular infections) has sounded a wake-up call for hospital administrators. (See related story, p. 30.) In addition, the CDC's Healthcare Infection Control Practices Advisory Committee (HICPAC) expects to issue new UTI prevention recommendations this summer, replacing guidelines that now are 27 years old.

The sheer totality of UTIs — the most common health care-associated infection — mean that millions of health care dollars are at stake if reimbursements are slashed as expected in new CMS regulations effective October 2008. Despite some initial protests and warnings of unintended consequences, CMS is not likely to change its perception that many UTIs are simply preventable. A recently published study by Sanjay Saint, MD, bolsters the agency's argument, as he found that that urinary catheters — a well-established risk of infection if not removed as soon as possible — are not even monitored at a large number of hospitals. In a particularly striking finding, one-third of hospitals surveyed did not conduct any type of UTI surveillance.¹ (See *Hospital Infection Control*, February 2008, p. 17.)

With the buck stopping soon, health care facilities are looking for the most cost effective ways to prevent UTIs. That means guidelines being developed and fast-tracked by HICPAC are more likely to be a page-turner than tossed on a shelf and forgotten. "I do think these UTI guidelines will have a lot of significance," says Patrick Brennan, MD, chairman of the

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HICPAC committee. At recent meeting in Atlanta, HICPAC continued the process of honing down a staggering number of studies and trials into a sharply focused guideline on best prevention practices.

“As a result of new CMS requirements for reimbursement, there is a growing interest in prevention of catheter-associated urinary tract infections,” HICPAC member **David Pegues, MD**, told *HIC*. “The easiest way to prevent a catheter infection is by not placing the device or getting the device as soon as possible.”

Indeed, appropriate catheter placement and prompt removal when medically unnecessary

are areas that will certainly be addressed in the guidelines, said Pegues, one of the principals in the UTI guideline development and director of infectious diseases at the University of California/Los Angeles (UCLA).

“Recently, there has been an increase — although the relative number of publications remains small — in looking very critically at administrative means to decrease the frequency for which catheters are initially inserted and providing physician reminders to get catheters out sooner,” he said. “Am I disappointed that physicians aren’t even aware that the patient has a catheter and aren’t even thinking of removing it? Certainly, but there is an answer to that [problem]. The good news is there are studies like Saint’s that look at electronic reminders or administrative means to decrease the frequency of catheter use and increase the frequency for which catheters are placed for appropriate indications. We are capturing that information — including that specific study — and there will be recommendations growing out of that body of literature.”

Answers not so simple

However, Brennan warned that UTIs are a complex problem, and catheter utilization is only one of the issues the committee must address. “It’s seemingly simple to take the catheter out, and there certainly is a lot of utilization that is convenience-based,” he said. “But there are a lot of patients where it is really hard to take the catheter out — the ICU patient, patients that are bedbound. It’s tougher than it seems.”

Emerging themes in the committee’s review of the UTI literature include such issues as whether one type of catheterization is better than another, antibiotic prophylaxis, and use of silver- and drug-coated devices. Developing standardized approaches that could be adopted widely could go a long way toward preventing an infection that strikes roughly a million patients a year.

“There is a difference between infections that are disasters one by one, like an infection after an open heart surgery — mediastinitis — and infections that on a case-by-case basis aren’t as overwhelming,” says **Michael Bell, MD**, a medical epidemiologist in the CDC division of health care quality promotion who works with HICPAC. “When you look at the sheer numbers of [UTIs] they have a huge impact on health care. They are so common — so many people get them — that if you could prevent them the impact on overall

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Editorial Questions

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health care could be pretty big. I think that is the approach that CMS is taking. It's a different type of impact and risk compared to the catastrophic individual infection."

The UTI guideline will be one of the first issued under a new HICPAC system designed to expedite the recommendations and shorten a marathon review process. Infection control professionals who waited — sometimes impatiently — for eventual release of the patient isolation guidelines last year are well aware of the problem. The most striking example is the HICPAC sterilization guideline, which has remained in draft form for five years as of February 2008. The advisory committee has long since signed off on the guideline, but it is snagged up in interagency review over issues such as conflicting federal policies and different requirements for label wording. (See *HIC*, August 2005, p. 100.) "It's still being cleared," Bell told *HIC* at the meeting. "We've got the final conference call coming up."

The need for speed

Under a revamped process that includes a streamlined literature review process by HICPAC, the UTI guidelines are on track to be drafted in June 2008 and finalized in the immediate months after. "The whole guideline writing process has changed," Bell explains. "We have moved to an internal system where we do the writing with HICPAC and CDC personnel [using] a systematic way of assessing the evidence. All of that is geared toward [in part] a more rapid turn around. We are hoping for between nine months and a year for most of these guidelines. [They will] also be shorter guidelines with a clear demonstration of why recommendations are graded one way vs. another way. So that people who are reading the guideline, not only understand what to do, but how well that [recommendation] is supported."

The UTI guideline is proceeding within the new approach, with the committee using systematic published reviews rather than consulting all papers published on the topic, Brennan told *HIC*. "Essentially it is a trade-off between efficiency and reviewing every single paper," he says. "And when you have a yield like we did on this — 8,000 references to start with — even when you pare it down to a small fraction of that, it is still over 300 manuscripts that have to be retrieved from sometimes obscure sources and reviewed. So to be able to rely on well-done systematic reviews creates a

real efficiency in the process."

Indeed, the old joke at HICPAC meetings that the guidelines would need updating by the time they are completed now has tinge of truth to it. "The biggest concern is that the landscape has changed so much over the course of the last decade," Brennan says. "We need to be much more nimble in the way that we do these. We can't afford to take years to turn these documents around anymore. In this [new] process, we are very clearly defining the questions we want to answer and then going through the grading of the evidence in a very systematic way."

Three key questions

The committee is creating the UTI guidelines around three overriding questions, which are listed below along with some of the preliminary topics that have emerged from the literature review:

1. Who should and should not receive urinary catheters?

- Morbidity and mortality with catheterization
- Risk factors for UTI
- Is catheterization necessary?
- Is one type of catheterization better than another?

- Intermittent vs. indwelling catheterization
- Suprapubic vs. urethral catheterization
- Intermittent vs. suprapubic catheterization
- Clean vs. sterile intermittent catheterization
- Comparison among multiple methods

2. For those who may require urinary catheters, what practices decrease the risk of infection?

- Antibiotic prophylaxis
- Bladder irrigation
- Antiseptic instillation in drainage bag
- Drainage systems/methods
- Metal care
- Silver-coated catheter
- Antibiotic-coated catheter
- Duration and/or frequency of catheterization
- Lubrication
- Infection control/quality improvement

programs

3. What are the best methods to manage urinary catheter-associated complications?

- Preventing/reducing encrustations or blockage
- Catheter material

Using such questions as a focus point narrows the committee's mission and gets away from the wide, unwieldy approaches taken in the past. "It

makes it possible to do this in more rapid cycle, rather than trying to address the issue of UTI prevention globally and bringing in all of the data, all of the literature and trying to sort it out," Brennan says. "At the end of the day, I don't think it's always clear what questions you are trying to answer. My personal view, having come into the process late, is that is a lot of what we struggled with at the end of the isolation guideline. We were trying to resolve open questions that hadn't been clearly defined."

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AHA protests fed move to halt IC program

'Wholly inappropriate and detrimental'

A decision by a federal agency to halt a landmark infection prevention effort continues to create fallout, with the American Hospital Association (AHA) issuing a strongly worded letter protesting the move.

A highly successful program to prevent catheter-related bloodstream infections (CR-BSIs) was recently shut down because it appeared to be involved in human research rather than quality improvement. The action was taken by the Office for Human Research Protections (OHRP), a branch of the Department of Health and Human Services (HHS) charged with overseeing and approving research involving human subjects. Developed at Johns Hopkins Hospital in Baltimore and implemented by 108 intensive care units in the Michigan Keystone project, the program in question has dramatically reduced CR-BSIs. (See *Hospital Infection Control*, February 2008, p. 13.)

Highlights from a letter from Rich Umbdenstock, president and CEO of the AHA, to HHS Secretary Michael Leavitt are summarized as follows:

"I am writing to ask you to immediately retract any statements from the OHRP that imply that quality improvement efforts should undergo review by Institutional Review Boards (IRBs), and that consent should be obtained from all patients before changes could be incorporated.

"As you know, hospitals across the nation are engaged in a variety of activities aimed at redesigning health care delivery systems to ensure that our patients get the best possible care we can deliver. Some of these activities are organized by hospitals, such as the Michigan Health & Hospital Association's Keystone project. Others include projects initiated by the Institute for Healthcare Improvement, the Quality Improvement Organizations funded by the Centers for Medicare & Medicaid Services, and the work of several professional societies and organization such as the American College of Surgeons and the American College of Cardiology . . . [R]esearch to determine which drugs or procedures will benefit patients requires appropriate oversight by an IRB and informed consent by the patients. However, those efforts are far different from the quality improvement efforts exploring the use of checklists, computerized reminders, teamwork training, and other steps to ensure that the care we intend to deliver is actually delivered.

"It is worth noting that hospitals and health care professionals are not the only ones engaged in such projects. The quality transparency efforts in which the AHA, the HHS, and several other organization have spearheaded, the local value exchanges your department has fostered, and the value-based purchasing initiatives you have championed are other examples. Yet, HHS has, quite reasonably, sought no IRB review or informed consent for these changes, because they, too, are intended simply to improve the delivery of care.

"As quality improvement efforts become more standardized and rigorous, and as the data collection efforts that support this work become more extensive, it would be right and appropriate to contemplate how we can collaborate to ensure that the welfare of patients remains the central concern and that patient privacy is protected. It also would be appropriate to consider effective ways for hospitals and other providers to communicate with the public about their quality improvement efforts. However, it would be wholly inappropriate and detrimental to the patients and communities we serve if the measures apparently championed by the OHRP were to force hospitals and others to discontinue their quality improvement efforts. On behalf of America's hospitals and the patients who depend on us, I urge you to ensure that the essential quality improvement efforts under way across the nation continue unabated." ■

Inconvenient study: Hand washing up, rates unfazed

Researcher says findings being misinterpreted

Surprising research results — which have been widely misinterpreted as evidence that hand hygiene has little impact on infection rates — more likely reveal that health care infections (HAIs) arise from complex causes and cannot be prevented by a single intervention, the author tells *Hospital Infection Control*.

“The study is something of a cautionary tale, but it certainly shouldn’t be interpreted as hand hygiene is not important,” says **Mark Rupp, MD**, director of infection control at the University of Nebraska Medical Center in Lincoln. “I’ve seen some of headlines saying: ‘Study shows hand hygiene doesn’t work.’ That’s really not what the study says. These infections have more than one aspect of pathogenesis. Hand hygiene [alone] will not make low infection rates go away.”

But perception may be every bit as important as reality in an age when infection prevention is increasingly the subject of consumer activism, press coverage, and state and federal legislation. Infection control professionals can ill afford to see hand hygiene — the cardinal principle of HAI prevention — sent out to pasture with sacred cows of the past. “There is no doubt that you can pick up pathogens on your hands and carry them from person to person,” Rupp emphasizes. “We need to make sure that is one way that transmission of infections does not occur.”

That said, hand hygiene in and of itself may not be enough, though the conclusion complicates a message ICPs and major medical groups have been trying to convey for years. “There is perception out there if these nurses and doctors would just clean their hands, all of our infection control problems would go away,” Rupp says. “These are complex infections. I think it is a little naive to suggest one intervention is going to make a big difference. Hand hygiene is an important aspect of the overall infection control program, but it is not the end-all, be-all of infection control.”

The key is combining a high adherence to hand hygiene with “bundle” approaches featuring several interventions simultaneously, including environmental cleaning and prudent use of antibiotics. “All of those things have to be in the mix,” he

says. Still, Rupp emphasizes that many other infection control prevention policies were already in place in his hospital, which had low infection rates at baseline. “I think our low infection rates would indicate that our practices were pretty good,” he says. “It is important for people to understand that you can’t take a single measure and expect to have a huge impact on [infections.] It is a little bit disappointing, but the study speaks for itself.”

Crossover study in two ICUs

Rupp and colleagues found that the introduction of alcohol-based gels resulted in a significant and sustained improvement in the rate of hand hygiene adherence, but the overall infection rates were unaffected. The study was conducted in two medical/surgical ICUs for adults, each with 12 beds, from August 2001 to September 2003.¹ An alcohol-based hand gel was provided in one critical care unit and not provided in the other. After one year, the assignment was reversed. The hand hygiene adherence rate and the incidence of nosocomial infection were monitored. Hand culture samples also were obtained from nurses’ hands. Of note, fingernail length greater than 2 mm, wearing rings, and lack of access to hand gel were associated with increased microbial carriage on the hands. During 17,994 minutes of observation, which included 3,678 opportunities for hand hygiene, adherence rates improved dramatically after the introduction of hand gel, increasing from 37% to 68% in one unit and from 38% to 69% in the other unit, the authors reported.

Improvement was observed among all groups of health care workers, but the resonating “sound bite” from the research finding is based on a disturbing finding reported by the authors: “No substantial change in the rates of device-associated infection, infection due to multidrug-resistant pathogens, or infection due to *Clostridium difficile* was observed.”¹ Of course, it is widely known that spore-formers like *C. diff* can be difficult to remove with alcohol rubs, but that doesn’t tell the whole story. “We looked at ventilator-associated pneumonia, catheter-related bloodstream infections, catheter-associated urinary tract infections, rates of infection with MDROs,” Rupp says. “We saw a big upswing in hand hygiene [compliance], but we didn’t see a corresponding decrease in infection rates.”

One possible explanation is that the study was underpowered and ultimately unable to detect small changes in infection rates that were low at

baseline, he notes. The researchers ran the study out over two years in hopes of achieving statistically significant rate changes, but it was not to be. Rupp hypothesized that he would at least find infection rate decreases that fell short of statistical significance. "We really just didn't see any trends in infection rates," he says. "That's disappointing and quite frankly, somewhat surprising."

The rate of hand hygiene compliance achieved may not have been enough, though 70% sounds impressive compared to the historical estimates that only about half of health care workers disinfect their hands prior to a typical patient encounter. "You may have to push up hand hygiene compliance above a certain threshold that we don't know right now," he says. "It might have to be 90% or closer to 100% before hand hygiene really does start to make a big difference."

Moreover, many variables affect transmission at any given care moment, including the amount of inoculum on the worker's hands, the virulence of the organism, and the status of the patient's immune system. Environmental and process factors such as room cleaning and removing catheters promptly also play a role in the origin of infections, some of which may not be preventable under in any scenario.

"Another misnomer that people are [hearing] is that all nosocomial infections are preventable," Rupp says. "I do think we can prevent a lot of infections. We can drive these things pretty low, but we are not going to make them all go away."

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APIC trying to leverage CMS regs to boost ICP resources

MRSA follow-up: Many hospitals not doing enough

Trying to leverage federal reimbursement cuts into support and resources for ICPs, the Association for Professionals in Infection Control and Epidemiology (APIC) has launched a series of educational initiatives in an ambitious follow-up to its ongoing efforts to eradicate methicillin-resistant *Staphylococcus aureus* (MRSA).

"We are using this as an opportunity to

provide greater awareness, to provide educational opportunities, and to position our members as the leaders who can not only save lives but dollars," **Kathy L. Warye**, chief executive officer of APIC, tells *Hospital Infection Control*.

The APIC programs will provide a comprehensive package of education, research and guidance for ICPs on infections that the Centers for Medicare & Medicaid Services (CMS) has classified as preventable occurrences: catheter-associated urinary tract infections (UTIs), central line catheter-associated blood stream infections, and mediastinitis. The infections are targeted for reduced federal reimbursement effective October of this year. APIC had previously warned of the "unintended consequences" of the CMS actions, arguing that not all of the infections are preventable and the cuts could spur increased testing and inappropriate treatment for hospital patients on admission. (See *HIC* Oct. 2007, p. 117.) With the regulatory changes apparently inevitable, the association is reminding administrators that their infection control departments have never been more important.

"We continue to align ourselves around what's best for patients," Warye says. "With these CMS regulations, we think we have an opportunity to gain additional clinical and administrative support to reduce these infections."

C. diff prevalence study

In addition to the CMS initiative, APIC also is increasing educational efforts and outreach to prevent *Clostridium difficile*. Efforts in this area will include a prevalence study to gain a better understanding of the scope of the problem. APIC plans to develop a guide for the elimination of *C. diff*, including strategies for controlling transmission; an educational Webinar series, and a conference in the fall of 2008 that features the results of the prevalence study. A highly virulent toxigenic strain (ribotype 027) of *C. diff* has emerged in recent years in a series of hospital outbreaks with increased mortality. There also is growing concern about transmission from asymptomatic carriers and *C. diff* infections in otherwise healthy people in the community. In that respect, *C. diff* is somewhat analogous to the broadening threat of MRSA, which was the subject of a landmark APIC prevalence study last year.

"There wasn't a very accurate understanding how much MRSA existed in the community or in health care institutions, so we undertook the

prevalence study," she says. "We feel that something similar for *C. diff* is appropriate. We are hearing from our members that they are seeing more of it. There is a need to understand its prevalence and get a better understanding of different elimination strategies and how transmission can be prevented."

Inaction could result in legislation

There was some backlash when the MRSA study results were first unveiled at the APIC annual conference last year, with some ICPs questioning whether the data would set the stage for legislating clinical practice. Several states, for example, are in various phases of considering or implementing laws requiring active surveillance cultures to identify MRSA patients. On the contrary, it's not the release of infection data, but the failure to act upon it with preventive strategies that draws legislative mandates, Warye emphasizes.

"In over 25 years of dealing with legislatures my perception is that governments — whether they are state, local, or federal — act when they perceive that the responsible parties are not [acting]," she says.

The MRSA prevalence study has been recently published, confirming previous reports that MRSA was found in 46 of every 1,000 patients, eight times higher than previous estimates.¹ Those findings were echoed by another study that came to the compelling conclusion that MRSA now kills more Americans annually than HIV/AIDS.²

APIC's MRSA guidelines

APIC guidelines for the elimination of MRSA transmission include a risk assessment to identify high-risk areas for MRSA within the hospital; a surveillance program to outline activities and procedures to identify MRSA cases; adherence to hand hygiene guidelines; use of contact precautions; environmental and equipment cleaning and decontamination (especially items that are close to patients such as bedrails and bedside equipment); and targeted active surveillance cultures of high-risk patients.

"This is not rocket science — this is not something that is yet to be invented," Warye tells *HIC*. "If we don't want to see more regulation, institutions need to be proactive in implementing those strategies and providing the necessary resources. Otherwise they will be at the mercy of laypeople in legislatures who could increasingly dictate

health care practice."

In that regard, a follow-up survey conducted by APIC indicates MRSA — despite increasing attention from the press and public — is not sufficiently on the radar screens of many hospital CEOs. An APIC poll of ICPs found that 50% said their health care facility is not doing as much as it could or should to stop the transmission of MRSA. "It doesn't surprise me," Warye says. "It speaks to the fact that infection prevention and control programs are often not adequately resourced."

The tight purse strings are not only reflected in typical quality measures such as ICP staffing levels, but in less obvious areas such as laboratory resources and the latest diagnostics, she adds. While 59% of the 2,100 ICPs who responded have adopted interventions to address MRSA, it's clear more needs to be done to pressure the health care system to act. Enter CMS, talking the universal language: money.

"There have been a whole series of wake-up calls for health care administrators over the last several months: our prevalence study on MRSA, the CDC study on MRSA, the CMS regulations. But it is going to take everybody in the institutions who has a role to play in reducing infection risk proactively undertaking these activities," she says.

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Hand hygiene, dermatitis: nature trumps nurture

Washing more than 10 times daily ups risk

Frequent hand washing appears to heighten the risk for irritant contact dermatitis in health care workers, particularly those genetically predisposed to the condition, investigators report. New research examining the risk factors for irritant contact dermatitis — a common skin condition marked by scaling, redness, itching, and burning due to a chemical substance on the skin

— found that health care workers who washed their hands more than 10 times per day were more likely to develop the condition than those who washed their hands less frequently.

The study found that certain people appear to be genetically predisposed to skin reactions to irritant detergents, with those who do “wet” work in low-humidity conditions particularly vulnerable to hand dermatitis, says **Susan Nedorost**, MD, lead investigator and associate professor of dermatology at University Hospitals Case Medical Center in Cleveland. “The primary objective of our study was to determine whether certain people are more prone to irritant contact dermatitis than others,” she tells *Hospital Infection Control*. “We showed that this is the case. Workers who had an irritant response to an experimental patch test with low concentration detergent were more likely than those without such a reaction to experience hand dermatitis.”

Conducted in collaboration with the National Institute of Occupational Safety and Health (NIOSH), the study was recently presented by Nedorost in San Antonio at the 66th Annual Meeting of the American Academy of Dermatology. The study included a total of 100 health care workers who washed their hands at least eight times daily. Study participants were asked to complete a questionnaire to identify frequency of hand washing, use of alcohol-based cleansers, history of specific medical conditions (including asthma, eczema, and psoriasis, among others), and family history of dermatitis or eczema. Patch tests to determine how easily the skin was irritated by detergents also were conducted on the study participants. Low concentrations of three common detergents were patch tested to predict which patients were at risk for hand dermatitis.

NIOSH studies genetic link

Data from the questionnaires and patch tests that were analyzed from 60 subjects who completed the study to date found that 63% of participants developed hand dermatitis. Specifically, 22% of participants who washed their hands more than 10 times per day developed hand dermatitis compared to only 13% of those who washed their hands fewer than 10 times daily. The reaction to low-concentration (2.5%) sodium lauryl sulfate (SLS) was a statistically significant predictor of hand dermatitis, whereas other common variables such as history of childhood eczema, glove use, and use of alcohol-based

cleansers, were not significant, she notes.

Specifically, the large percentage of participants who reacted positively to SLS and developed hand dermatitis far outweighed the number of participants who did not react positively to SLS, but subsequently developed hand dermatitis.

“This means that ‘nature’ is a more important factor for development of hand dermatitis than ‘nurture’ — what you do with your hands,” she says. “The result is promising as NIOSH now will proceed with the second part of the study to look for genetic polymorphisms that predispose to susceptibility to irritant hand dermatitis.”

That arm of the study will investigate the possible associations of genetic variations with susceptibility to hand dermatitis. For example, genetic variants in the gene-encoding filaggrin — a protein that binds to cells in the outermost layer of skin — have been shown to be strong predisposing factors for atopic eczema. “Variations in the filaggrin gene may cause a disturbance of the top layer of the skin, which serves as a barrier against environmental exposures such as frequent wetting and drying of the skin,” she says. “Once the top layer of the skin cracks due to frequent wet/dry cycles, especially in conditions of low humidity where drying occurs rapidly, it results in inflammation. This is how irritant hand dermatitis begins.”

In comments she emphasizes go beyond the scope of the study, Nedorost told *HIC* that alcohol rubs are likely to cause less irritation than washing with soap in low-humidity conditions (i.e., winter in the Midwest). “We clearly showed that hand dermatitis was more common and more severe in our health care workers between November and April in this study than during the May-October interval,” she says. “I don’t know if alcohol-based cleansers or [soap] washing is better during the summer. Certainly, alcohol-based cleaners should not substitute for washing if hands are grossly soiled. Our hospital also prohibits their use when caring for patients with *C. difficile* because alcohol may not kill the spores.”

Still, when appropriate, alcohol-based hand cleansers should be substituted for soap hand washing, she recommends. In addition, a cream or ointment-based emollient should be applied immediately after water exposure before the skin is completely dry. The goal is to prevent rapid drying and cracking, so applying the emollient after the skin is dry is not nearly as beneficial, she says. ■



ABSTRACT & COMMENTARY

SARS, pandemic flu: Fear, memory, infection control

Understanding anxiety factors may predict behavior

By **Dean L. Winslow, MD**,
Chief, Division of AIDS Medicine
Santa Clara Valley (CA) Medical Center

Synopsis: Health care workers who had been actively involved in the outbreak of severe acute respiratory syndrome (SARS) in 2002-03 were more "positive" in responding to an impending avian influenza epidemic.

Sources: Tam DK, et al. **Impact of SARS on avian influenza preparedness in healthcare workers.** *Infection* 2007; 35:320-325; Imai T, et al. **SARS risk perceptions in health care workers, Japan.** *Emerg Infect Dis* 2005; 11:404-410; Koh D, et al. **SARS: Health care work can be hazardous to health.** *Occup Med (Lond)* 2003; 53:241-243.

The perception of health care risks motivates behaviors in health care workers as well as patients. Several years after the SARS outbreak in China and Hong Kong, Japanese industrial scientists found that health care workers had a high perception of risk for SARS manifest primarily by a desire to avoid patients. At the same time these workers had a low acceptance of risk and felt little personal control. These workers' perceptions were not associated with poor knowledge of preventive measures. Indeed, the workers had a high sense of fear because they felt preventive measures were not effective. When job category was considered, nurses ranked the highest for perception of risk. With regard to gender, women had higher indices of fear than men. Older age correlated with less perception of fear.

Now, two years later comes an article from Hong Kong, an area that was an epicenter of the SARS epidemic. The authors did not ask questions about SARS preparedness and the fear therein, but asked questions about a more contemporary perceived threat, avian influenza. The

questionnaire modified from one used previously for SARS perceptions was administered in Chinese to 2,929 health care workers; 999 questionnaires were available for analysis, most from nurses (84.3%). About 30% of respondents had experience in SARS outbreaks. What stood out in the results was the association between the experience with SARS and the sense of needing to remain vigilant for avian influenza. Nurses with experience with SARS were more likely to avoid patients suspected of having avian influenza. The same nurses were less likely to want a change in their job. The nurses who had frequent recall of their SARS experience were the ones more likely to be afraid of becoming ill with avian influenza. A SARS recall on the part of the health care worker did not relate to a positive acceptance of acquiring avian influenza as part of the job; whereas, subjects with SARS recall were slightly, but significantly more likely (54.6% vs. 46.8%) to believe there would be an avian influenza outbreak in Hong Kong.

Commentary

Most of the data from this survey support the idea that SARS in Hong Kong better prepared the health care society to approach a hypothetical influenza pandemic. While there may have been sampling errors, as the authors caution, this setting was a unique attempt to sample the sense of risk when no standardized instrument exists "to measure attitude and risk perception of health care workers towards an impending avian influenza outbreak."

With this study we move into rarefied level of inquiry: how does memory affect our willingness to provide health care? It is known that traumatic memories can affect our behavior, but there is little study of such memories on health care delivery. Thus, we have a paradox between the Japanese observation of anxiety about SARS among health care workers who had no actual exposure to SARS and the greater acceptance of risk with regard to an acute respiratory pathogen by Hong Kong workers who actually had exposure to SARS.

An American explanation to this paradox may be, well, if you escaped once you have a good chance of escaping again. Still, the real reasons may have deeper cultural roots. Studies such as the one by Tam, et al. need to be repeated in various countries, perhaps with contrasting experiences to other pathogens. For example, are nurses with experience with HIV patients more likely to

have less anxiety caring for patients with hepatitis C? Are physicians who worked in leper colonies more likely to risk their lives in subsequent exposures to potentially fatal infections? Perhaps the experience with Ebola in Uganda would be another area of study.

Those current investigations were not easy to perform and recruitment of subjects can be difficult. In Tam's study, only about a fourth of questionnaires were ultimately returned, most of these being from nurses. New studies need pursue a higher enrollment of more physicians, pharmacists and allied health care workers so that we can understand the psychological dynamics among those groups and develop strategies based on the group's response to both perceived and real past exposures. Physicians, infectious diseases specialists, and infection control professionals need to understand those evolving dynamics of anxiety in health care workers. Understanding their fear can help us better address the basic infection control issues of isolation, hand washing, and other protective measures during epidemics and pandemics. ■

FDA approves rapid tests for MRSA, influenza

Infection detection in real time

In what could be a boon for infection surveillance and treatment programs, the Food and Drug Administration has approved a new rapid test for methicillin-resistant *Staphylococcus aureus* (MRSA) that can identify the bug in two hours. In

a separate ruling, the FDA gave the green light to a new rapid test that detects influenza and several other respiratory viruses.

The FDA has cleared for marketing the first rapid blood test for MRSA, the BD GeneOhm StaphSR Assay (Becton Dickinson Inc.; Franklin Lakes, NJ). The test uses molecular methods to identify whether a blood sample contains genetic material from the MRSA bacterium or from the drug-susceptible staph. "The BD GeneOhm test is good news for the public health community. Rather than waiting more than two days for test results, health care personnel will be able to identify the source of a staph infection in only two hours, allowing for more effective diagnosis and treatment," **Daniel G. Schultz, MD**, director of

CNE/CME questions

9. Emerging themes in guidelines under development to prevent urinary tract infections include:
 - A. catheter placement and removal.
 - B. antibiotic prophylaxis.
 - C. use of silver- and drug-coated devices.
 - D. All of the above
10. A study that has been widely interpreted as evidence that hand hygiene has little impact on infection rates more likely reveals that infections arise from complex causes and can not be prevented by a single intervention.
 - A. True
 - B. False
11. A survey of infection control professionals found what percentage reporting that their health care facility is not doing as much as it could or should to stop the transmission of MRSA?
 - A. 17%
 - B. 29%
 - C. 50%
 - D. 91%
12. A study found that certain people appear to be genetically predisposed to skin reactions to irritant detergents, with those who do "wet" work in low-humidity conditions particularly vulnerable to:
 - A. contact dermatitis.
 - B. persistent hand contamination.
 - C. psoriasis.
 - D. All of the above

CNE/CME instructions

Physicians and nurses participate in this CE/CME program by reading the issue, using the provided references for further research, and studying the questions. Participants should select what they believe to be the correct answers, then refer to answer key to test their knowledge. To clarify confusion surrounding any questions answered incorrectly, please consult the source material. After completing the semester's activity, you must complete the evaluation form that will be provided and return it in the reply envelope to receive a credit letter. ■

the FDA Center for Devices and Radiological Health, said in a statement. FDA cleared the BD GeneOhm StaphSR assay based on the results of a clinical trial at five locations. The new assay identified 100% of the MRSA-positive specimens and more than 98% of the more common, less dangerous staph specimens.

In order to preserve the integrity of positive test results, the test should be used only in patients suspected of a staph infection, the FDA stated. The test should not be used to monitor treatment for staph infections because it cannot quantify a patient's response to treatment. Test results should not be used as the sole basis for diagnosis as they may reflect the bacteria's presence in patients who have been successfully treated for staph infections. Also, the test will not rule out other complicating conditions or infections, the FDA noted.

The other recently approved rapid test is the ProFlu+ test (Prodesse Inc., Milwaukee), which can provide results in as few as three hours. The real-time test employs a multiplex platform that allows several tests to be processed using the same sample to detect influenza A virus, influenza B virus, and respiratory syncytial virus A and B (RSV). "Antiviral drugs are most effective when initiated within the first two days of symptoms," Schultz said. "This new test, which is part of the new era of molecular medicine, can help the medical community quickly determine whether a respiratory illness is caused by one of these four viruses and initiate the appropriate treatment."

ProFlu+ uses a molecular biology process to isolate and amplify viral genetic material present in secretions taken from the back of the throat in patients. While ProFlu+ is faster than conventional tests, it is specific to the four viruses, and is more accurate when used with other diagnostics, such as patient data, bacterial, or viral cultures, and X-rays, in diagnosing a patient. Positive results do not rule out other infection or coinfection and the virus detected may not be the specific cause of the disease or patient symptoms, the FDA added. ■

Stop CR-BSIs at your facility

Sign up now for AHC Media's upcoming audio conference, *The Buck Stops Soon: Prevent CR-BSIs or Pay Up* on Thursday, March 26, 2008, from 1 p.m.-2:30 p.m. ET. The 90-minute interactive audio conference will include 1.5 nursing contact hours and 1.5 AMA PRA Category 1 Credits™ for your entire staff. Presented by **William Jarvis, MD**, one of the world's leading experts on health care epidemiology, the audio conference will explain how to prevent catheter-related bloodstream infections (CR-BSIs), already one of the most expensive and deadly health care-associated infections. However, they are about to get a lot more costly for hospitals and other medical settings.

Catheter-related vascular infection is one of three "preventable conditions" targeted for payment cutbacks by the Centers for Medicare & Medicaid Services. Effective October 2008, the costs for many CR-BSIs will be kicked back to hospitals. With private insurers expected to follow the CMS

CNE/CME answers

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

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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action, hospitals and health care systems have never had a greater incentive to prevent CR-BSIs.

But CR-BSIs don't just affect the bottom-line, they cause the flat line. Some 28,000 patients die annually of these infections, which emerging research and cutting-edge practice suggest are largely preventable. We're not talking about a rare event. The Centers for Disease Control and Prevention estimates that a quarter of a million patients annually acquire a blood stream infection related to a central venous catheter. Roughly a third of those are already in serious condition in an intensive care unit. The time has come; the buck is stopping. For proven strategies to save money and lives by preventing these infections, join us for a timely audio conference.

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The Joint Commission Update for Infection Control

News you can use to stay in compliance

Joint Commission ups the ante on infection prevention

Sweeping 2009 patient safety goals could have major impact

The Joint Commission has broadly expanded its emphasis on infection prevention in proposed 2009 patient safety goals that recommend specific strategies to fight a veritable “murderers’ row” of health care-associated infections (HAIs). (See goals, p. 3.) Moving boldly beyond a comparatively general emphasis on hand hygiene and sentinel event reporting in longstanding patient safety goals, The Joint Commission is establishing what are essentially “best practices” to prevent the following infections:

- multiple drug-resistant organisms infections in acute care hospitals, focusing on methicillin-resistant *Staphylococcus aureus* (MRSA);
- *Clostridium difficile*-associated disease (CDAD);
- catheter-associated bloodstream infections (CA-BSIs);
- surgical-site infections (SSIs).

Goals could affect surveys

Though The Joint Commission will consider all comments compiled in a field review that ran through the end of February, the final goals will be enforceable in 2009 accreditation surveys.

“Health care organizations will need to demonstrate their attempts at complying with these goals,” says **Peter B. Angood**, MD, vice president and chief patient safety officer for joint commission. “The goals are surveyed and scored in similar fashion to all of the standards. It does affect the overall scoring as part of the accreditation review process.”

The move comes as HAIs gain increasing notoriety among the public, consumer groups, and state and federal lawmakers. Though this recent

attention is driving the new patient safety goals, it follows a growing emphasis on infection prevention within The Joint Commission. In a continuing effort to bring patients into the safety loop, the goals call for organizations to provide patients with information regarding infection control measures for hand hygiene practices, respiratory hygiene practices and contact precautions as appropriate to the patient’s condition. The information is to be discussed with the patient and family members on the day the patient enters the organization. (The information may be written or recorded.)

“Health care-associated infections have really become very topical in the last three to five years,” Angood says. “There have been national as well as international efforts to standardize the approaches in managing HAIs. We felt that it would be important to focus on this issue through the national patient safety goals.”

Indeed, The Joint Commission goals could generate additional resources for infection control programs as administrators realize accreditation hangs in the balance. That said, there are always concerns that such a comprehensive list of infection prevention activities could result in the proverbial unfunded mandate for ICPs. “We recognize that in order to comply with many of these patient safety goals it does require institutions to sometimes add resources,” Angood tells *The Joint Commission Update for Infection Control*. “But these are important [infections] and they need to be addressed.”

However, the specificity of the goals could box in ICPs who prefer to style their programs to their institutional needs and problems. “They’re very specific and there doesn’t seem to be a lot of

leeway for ICPs to do their internal assessments and determine the path that's correct for their organization," says **Susan Kraska**, RN, CIC, an ICP at Memorial Hospital of South Bend, IN.

The Joint Commission should provide more "punch" for infection control resources while leaving ICPs the flexibility to target their programs, she says. "Prevention strategies should be focused on all aspects," she adds. "Keying in on one or two organisms is micromanaging infection prevention and control programs. I hope the Joint Commission will ask [hospitals] to support national patient safety goals, but be less specific."

Asked whether the goals were prescriptive to a fault, Angood says a balancing act is always part of the process. "If we are too general, then we have noted over time that the variety of approaches are way too diffuse and we wind up not creating a positive impact," he says. "If we get too prescriptive then we end up having to manage all the concerns that individual organizations have — we have to address their own particular nuances. We are always trying to hit a balance."

Feedback from the field could influence the process, he adds. "It gives us an opportunity to revise and edit the goals and better hit the balance prior to their formal release," he says.

Active surveillance for MRSA

Though some ICPs have raised concerns about the cost-effectiveness and the potential unintended consequences of active surveillance cultures (ASC) for MRSA, The Joint Commission calls for hospitals to adopt the practice in the proposed 2009 patient safety goals. The specific goal calls for "clinical or active surveillance culture/testing" as part of MRSA surveillance programs.

"We are putting it on the table," Angood says. "We had a lot of deliberation on this particular issue of surveillance and we [decided] to get some feedback from our field review and make a final decision. Depending how the feedback comes back in the field review, we will make a final choice on whether it is going to be a goal or whether it is perceived as way too onerous."

ASC has been successfully used in some institutions to detect the reservoir of MRSA, place colonized patients in contact isolation, and ultimately lower infection rates. However, there is considerable controversy about the practice within the infection control community. Some ICPs see ASC as an essential prevention measure,

while others argue that it is expensive and unnecessary if other infection prevention measures, such as standard precautions, are practiced with high compliance by health care workers. Critics of the practice cite unintended consequences such as a rise in other pathogens and ambulance diversions as demand for isolation rooms exceeds bed capacity.^{1,2} Many favor the approach recommended by the Centers for Disease Control and Prevention, which calls for active surveillance cultures only if rates continue to go up after all basic measures have been implemented.³

"I continue to be convinced that is the best approach for the most hospitals, says **William Scheckler**, MD, who has previously served on advisory boards for both the CDC and The Joint Commission. "The concern I have [about the patient safety goals] is that they focus a bit much on MRSA and *C. diff*. That's not in and of itself a bad thing, but those are not the only organisms of interest."

That said, The Joint Commission's increasing interest in infection prevention is good news, he emphasizes. "The increased emphasis and interest in infection control is very welcome for us that have dedicated a good share of our professional lives to preventing these infections," says Scheckler, a health care epidemiologist at St. Mary's Hospital in Madison, WI.

The Joint Commission goals also include establishing surveillance systems for *Clostridium difficile*-associated disease (CDAD). As an epidemic strain of *C. diff* continues to emerge in many U.S. hospitals, a Centers for Disease Control and Prevention working group has issued clinical definitions and is urging ICPs to increase surveillance for the pathogen.⁴ However, the general consensus is that formal *C. diff* surveillance systems are more the exception than the rule, in part because the pathogen was so named because it is 'difficult' to grow out in lab cultures. "We recognize that surveillance will be a stretch for many organizations, but if we don't prompt them to pay attention to it then the problem is going to continue to evolve and potentially get worse," Angood says.

Research or quality improvement?

In another interesting aspect of The Joint Commission goals, the practices outlined to prevent CA-BSIs are almost identical to the program developed at Johns Hopkins Hospital in Baltimore and implemented by 108 intensive

care units in the Michigan Keystone project. One problem: That highly successful program was recently shut down by the federal Office for Human Research Protections because it appeared to be involved in human research rather than quality improvement.

"It is very similar," Angood concedes. "But this is oriented toward improving the quality and safety of health care. Some of the topics we wind up addressing are important for improving quality and safety, but we recognize occasionally there [are research questions raised]."

In addition, CA-BSIs are one of the infections targeted for reduced reimbursement by the Centers for Medicare & Medicaid Services (CMS). Effective this October, the new CMS rules cut payments for the additional costs of CA-BSIs and other "preventable conditions," including infectious complications of medias-tinitis and catheter-related urinary tract infections. The latter two were not included in The Joint Commission's proposed patient safety goals. "We chose not to specifically mirror those efforts by CMS," Angood says. "This is independent and specifically focused on trying to improve the management of HAIs overall. "

SSIs after discharge

One of the HAIs The Joint Commission is trying to manage are SSIs, but the proposed goals do not address the troublesome issue of post-discharge surveillance. "We certainly discussed it and chose not to keep it in there at this stage," he says. "If the feedback comes in that's an obvious gap then we will make efforts to put it into place." According to the CDC, between 12% and 84% of SSIs are detected after patients are discharged from the hospital.⁵ However, many hospitals do not do sufficient post-discharge follow-up on patients to record subsequent infections. Such programs can be labor-intensive to say the least, so some epidemiologists and surgeons have suggested targeting SSIs that require additional hospitalization or antibiotic prescriptions. The Joint Commission SSI goal calls for rate compilation and reporting, but does not specify feedback of surgeon-specific rates. "The intent is that reporting [occurs], and all levels of the organization that need to know the results are informed so, if needed, there can be further quality initiatives," he says.

The 2009 proposed patient safety goals were created as a part of a multiorganization collaboration that included The Joint Commission, the

Centers for Disease Control and Prevention, the Society for Healthcare Epidemiology of America and the Association for Professionals in Infection Control and Epidemiology. Guidelines to assist in adopting the goals are expected to be issued soon.

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Proposed safety goals call for specific practices

The Joint Commission's proposed 2009 National Patient Safety Goals include the following new emphasis on infection prevention:

- **Requirement 7C:** Implement best practices to facilitate the prevention of multiple drug resistant organisms (MDRO) infections in acute care hospitals, focusing on methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile*-associated disease (CDAD).

1. Educate health care workers about MDRO and the necessity for prevention.
2. Measure MRSA and CDAD infection rates, monitor compliance with best practices, and evaluate the effectiveness of prevention efforts.
3. Provide MRSA and CDAD infection rate

data and prevention outcome measures to key stakeholders including senior hospital leadership, physicians, nursing staff, and other clinicians.

4. Educate patients and their families about MRSA and CDAD prevention.

5. Conduct a risk assessment for MRSA incidence, prevalence, acquisition, and transmission.

6. Implement hand hygiene practices.

7. Use contact precautions for patients with MRSA to reduce patient-to-patient spread of infection.

8. Effectively clean and disinfect patient care equipment and the patient care environment based on standards identified by the organization.

9. Implement a MRSA surveillance program to identify and track patients with clinical or active surveillance culture/testing specimen positive results for MRSA.

10. Implement a laboratory-based alert system that identifies new patients with MRSA.

11. Implement an alert system that identifies readmitted or transferred MRSA-positive patients.

• **CDAD**

12. Conduct a risk assessment for CDAD incidence, prevalence, acquisition, and transmission.

13. Implement hand hygiene practices.

14. Use contact precautions for patients with CDAD to reduce patient-to-patient spread of infection.

15. Effectively clean and disinfect patient care equipment and the patient care environment.

16. Implement a CDAD surveillance program.

• **Requirement 7D: Implement best practices for prevention of catheter-associated bloodstream infections (CABSI).**

1. Educate health care workers about CABSI and the necessity for prevention.

2. Measure CABSI rates, monitor compliance with best practices, and evaluate the effectiveness of prevention efforts.

3. Provide CABSI rate data and prevention outcome measures to key stakeholders including senior leadership, licensed independent practitioners, nursing staff, and other clinicians.

4. Educate patients and their families about CABSI prevention.

• **Before insertion**

5. Reinforce the education of health care personnel about CABSI prevention and the care of central venous lines.

At insertion

6. Use a catheter checklist and a standardized

protocol for central venous catheter insertion.

7. Perform hand hygiene prior to catheter insertion or manipulation.

8. Avoid using the femoral vein, if possible, for central venous access in adult patients.

9. Use a standardized supply cart or kit that is all inclusive for the insertion of central lines.

10. Use a standardized protocol for maximum sterile barrier precautions during central venous catheter insertion.

11. Use a chlorhexidine-based antiseptic for skin preparation in patients older than 2 months of age.

• **After insertion**

12. Use a standardized protocol to disinfect catheter hubs and injection ports before accessing the ports.

13. Evaluate all central lines daily and remove nonessential catheters.

• **Requirement 7E: Implement best practices for prevention of surgical site infections (SSI).**

1. Educate health care workers about SSI and the necessity for prevention.

2. Measure SSI rates, monitor compliance with best practices, and evaluate the effectiveness of prevention efforts.

3. Provide SSI rate data and prevention outcome measures to key stakeholders including senior leadership, licensed independent practitioners, nursing staff, and other clinicians.

4. Implement policies and practices aimed at reducing the risk of SSI that meet regulatory and accreditation requirements and are aligned with evidence-based standards.

5. Educate patients and their families about SSI prevention.

6. Administer antimicrobial agents for prophylaxis with a particular procedure or disease according to standards and guidelines for best practices:

a. Deliver intravenous antimicrobial prophylaxis within one hour before incision [two hours are allowed for the administration of vancomycin and fluoroquinolones].

b. Discontinue the prophylactic antimicrobial agent within 24 hours after surgery [within 48 hours is allowable for cardiothoracic procedures].

7. Shaving is an inappropriate hair removal method. When hair removal is necessary, use clippers or depilatories.

8. Maintain optimal control of blood glucose levels (as defined by the organization) with standardized protocols during the perioperative period for surgical procedures. ■