



HOSPITAL EMPLOYEE HEALTH



THE PRACTICAL GUIDE TO KEEPING HEALTH CARE WORKERS HEALTHY

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INSIDE

MRSA returns: Though other threats pushed it off the radar, the CDC is revisiting MRSA as an occupational threat to HCWs 101

Got Tdap? Most HCWs are not immunized for pertussis, putting vulnerable patients at risk. 102

NIOSH update: The agency extended the comment period regarding the potential occupational hazards of peracetic acid in healthcare. 103

New disinfectant guidelines: The AIHA has issued new guidelines on healthcare surface disinfectants 104

Alcohol rubs safe: Even at estimates of max use, alcohol hand rubs pose no risk to pregnant or breast-feeding healthcare workers 105

EPINet call to action: International Safety Center calls for surveillance, research on healthcare work wear. 107



Hand in Glove: Employee Health Partners With Infection Control

Colleagues working out of the same office have each other's backs

By Gary Evans, Medical Writer

Over the years, employee health professionals have occasionally found themselves at odds with their colleagues in infection prevention on issues like mandated flu shots or the level of respiratory protection needed to protect a worker from an emerging infection. The different paradigms for occupational health and infection control were brought to the fore during the Ebola outbreak, but were probably most acutely contrasted during the controversy over infection control measures, or the lack thereof, used to protect healthcare workers during the SARS outbreak in Toronto in 2003.¹

Generally speaking, the disciplines have different, though certainly not mutually exclusive, prime directives. One is bound to the protection of the healthcare worker; the other committed

GENERALLY SPEAKING, EMPLOYEE HEALTH AND INFECTION PREVENTION HAVE DIFFERENT, THOUGH CERTAINLY NOT MUTUALLY EXCLUSIVE, PRIME DIRECTIVES.

to the safety of the patient. With the next emerging infection threatening to bring both fields to another crisis point, it makes sense that establishing a routine day-to-day rapport and collaboration could better protect both workers and patients in an emergency.

In that regard, an upcoming CDC guideline will emphasize the importance of collaboration between the two departments. The first section of the draft "Infection Prevention in

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EDITORIAL QUESTIONS:

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Healthcare Personnel” is expected to be released for review in the next few months. (See related story, page 101.)

“In some centers, they are paired where infection prevention and occupational health are managed by the same people,” says **David Kuhar**, MD, medical officer in the CDC’s Division of Healthcare Quality Promotion, who is spearheading the development of the guidelines. “When there are outbreaks, for example, that could involve a healthcare provider. Communication between infection preventionists, who may be involved in detecting it and managing it, with the occupational health providers who are going to do the personnel management portion [is important]. So, yes, we absolutely talk about it in the guideline.”

Partnership Profile

By way of a real-world example, meet two colleagues who work out of the same office, one with the welcoming Zen vibe of a Himalayan salt lamp, plants, and an aromatic oil diffuser.

“We try to make sure that the office is a welcoming space for our staff,” said **Theresa Schrantz**, LPN, CIC, employee health coordinator at Brooks Memorial Hospital in Dunkirk, NY. “Sometimes they come in and they just want to talk, take a breather or a mental health break. We are in the same room and we work as a team. It shows the staff that we are trying to always look out for them and to send them home safe to their families as well. How do we do that? Well, caring and sharing.”

Schrantz and colleague **Lisa Maslak**, BSN, RN, CIC, director

of infection control at the hospital, profiled their collaborative program recently in Portland at the annual meeting of the Association for Professionals in Infection Control and Epidemiology (APIC).

“Great teamwork comes from equality and mutual respect, not sameness,” Maslak said.

With a shared office space, there is some inevitable cross-coverage. “I will tell you when she is not in there, everybody comes in for their PPD,” Maslak joked.

Schrantz countered that the last time her colleague took a vacation, The Joint Commission showed up.

Like many professionals in both fields, Maslak once held both jobs and the two proverbial hats that go with them. For those in that situation, she recommends knowing “what absolutely has to be done” on a given day.

“You need to organize and prioritize,” she said. “That’s the main thing. Have a routine. Make files, spreadsheets, let the calendar be your friend. Keep track of what your due dates are. On a daily basis, what has to be done for the patients and the staff to be safe? Because obviously, that’s your No. 1 priority. Everything else can wait.”

An opportunity arose with the merger with another facility, and Maslak decided, “I’m either going to jump off a cliff or I’m going to change what I’m doing.” Her request to focus exclusively on infection control and hire someone to lead employee health was granted.

“Fortunately, I had worked with Theresa at an ophthalmology office and I knew her work ethic,” she says. “I was able to recruit her to do employee health at my main facility and we figured out how we were going to go from there to make the

whole department work together.”

Schrantz was given some leeway to define her new job as a complement to Maslak’s infection control efforts.

“Because this was basically a new position, I was able to work toward making it my own,” Schrantz said. “I had to do a lot of research to figure out what really needed to be done. I reviewed our state rules for employee health and best practices.”

In addition to compliance with state regulations, she reviewed the OSHA requirements and the expectations of accrediting agencies.

“Look at what you are doing, what should you be doing, and who are the people who you can go to for help with that,” Schrantz says. “Our peers have a wealth of knowledge. Look for those people that can help, and don’t be afraid to reach out.”

Sick Bay

In terms of daily duties, Schrantz said she routinely checks with nursing stations and other staff reporting sources to find out who has called in sick. The follow-up on these reports sometimes blurs the line between personal health issues and injuries and illness related to the job, she says.

“When we have a call-in, I ask, ‘What are the signs and symptoms?’” Schrantz says. “Sometimes our staff doesn’t seem to think that they need to tell us what is wrong. OK, that’s fair, but if you have something contagious, we need to know. I don’t care — well, I do care — but it’s not necessary for me to know if you need a mental health day. What I need to know is if what you have could be something that is [related to] other staff members or our patients. That’s what I need to know, and if Lisa

finds something on the patient end of things that could be affecting our employees, she will let me know.”

The two colleagues also must enforce a New York state law that healthcare workers declining flu vaccination must wear masks for patient care.

“I not only have to keep track of that for recording purposes, but also to stop people in the hall and say, ‘Where is your mask?’” Schrantz says. “I hunt people down — track them for their annual health assessments, their PPDs,

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their exposure follow-ups, follow-up hep B doses, fit testing, safe patient handling, in-services. That takes quite a bit of time on my part.”

Of course, staff education is necessary on the various employee health and infection control issues, including the correct use of personal protective equipment for isolation precautions.

“I am observing staff not using appropriate PPE — that’s frustrating,” Schrantz says. “We talk to the staff in a hospitalwide orientation about PPE. If [a patient] has scabies, everybody is putting on things from top to bottom. They don’t care about MRSA or VRE, so we ask them, ‘What are you taking home to your family?’ You have to hit them where it hurts — that is

something you learn after doing this a few years.”

By the same token, healthcare workers are told to remind families and visitors about the importance of wearing PPE when in the room of an infectious patient.

“We talk to the new nurses in orientation about how to talk to the patients and their families about wearing PPE. We tell them why it is important to wear the PPE,” she says. “The [family] may say, ‘I live with this person at home. I am already exposed,’ but we say while you are here in the hospital there are a lot of other sick people who are here. There are people taking care of other sick people. Every day is an education process.”

Schrantz compiles health records of new employees, something Maslak may turn to as a resource if the situation warrants.

“When patients come down with things that could be related to employees, I need to know what employees were vaccinated — especially in an exposure situation,” Maslak says. “It is important that I work with her to find out what employees are immune to what we are looking at. There are policies that affect both patients and staff. If infection control writes a policy that involves employees, employee health should know about that. And vice versa — if employee health has any [new policy] that has to do with patients, then we need to know that as well.”

Exposure Incidents

There have been several incidents where cooperation and teamwork became paramount, including the time a patient not in isolation was later determined to have TB.

“You can imagine we have an influx of calls and people coming to our office that needed to have further testing,” Maslak said. “Eighty-one staff members — which, for us, is a lot — had to follow up with PPDs and we had to get them retested again at 12 weeks. People get pretty frantic when they think they’re exposed to something like that.”

Schantz adds, “It was a process, but we worked together. We were able to go through records together to figure out who we needed to find. That was a large project for us.”

Another exposure incident that tasked the team involved pertussis, as an undiagnosed case exposed healthcare workers and revealed a larger problem of a lack of Tdap immunization in staff.

“In our area we have a large Amish population, and most of them are not vaccinated,” Maslak said. “When they come into our ED and there is a pertussis exposure, the staff all want prophylaxis, and we were trying to determine what was your exposure and do you really need prophylaxis? We found with this particular pertussis exposure that not only was our patient not vaccinated, but most of our staff wasn’t — so Theresa got right on that.”

Indeed, uptake of Tdap vaccine is poor at many facilities, with a recent CDC report estimating only about a 42% immunization rate in healthcare workers. (*See related story, page 102.*)

“I went to the powers that be and said, ‘We really need to do something about getting our staff vaccinated with Tdap,’” Schrantz said. “Now, we are able to vaccinate with Tdap free of charge to our staff. Even though they all may or may not have needed to receive

prophylaxis, they did think, ‘Maybe I ought to get that Tdap vaccination.’ That ‘free’ word is good, too. Unfortunately, we had an exposure, and that’s not a good thing. But the good thing that came out it was that everybody got vaccinated.”

Connect With Colleagues

For those in facilities that have separate and largely autonomous employee health and infection control departments, Maslak

“INFECTION CONTROL AND EMPLOYEE HEALTH ARE PUZZLE PIECES THAT FIT TOGETHER. IT MAY TAKE TIME TO FIND THOSE PIECES, SO KEEP WORKING AT IT.”

emphasized having a clear process for delineating the various job and tasks and striving for optimal communication.

“Infection control and employee health are puzzle pieces that fit together,” she said. “It may take time to find those pieces, so keep working at it. Communication is key. Listening and respecting each other’s roles are imperative to a successful relationship.”

Joining the discussion, a member of the APIC audience said it is critical to at least determine a worker exposure reporting policy if

you are in a facility where employee health and infection control operate separately.

“I’m in a facility where infection prevention is not in the same department — it is not even located close to employee health,” said **Tiffany Horsley**, BSN, RN, CIC, an infection preventionist at the University of Kansas Hospital in Lenexa. “Because of my experience with employee health, I’m now the liaison. One of the things that we have worked on is a process for who gets notified when an employee has an exposure. Sometimes it’s them, sometimes it’s us, and sometimes it goes into an incident reporting system. It’s important to keep communications open. It’s more challenging. It’s so important — no matter what the situation is — the way we communicate with each other.”

Indeed, it is not a given that such partnerships or collaborations are the norm.

“If you are an IP, do you even know who your employee health nurse is?” Maslak asked the APIC audience. If not, you may soon realize that you have a blind spot in your program planning, she emphasized.

“What is your infection control plan for the year and does it involve employee health and the staff?” she said. “If I want to have higher flu vaccination rates, then employee health needs to know that. If there is an exposure to shingles, do I know who has been vaccinated for chickenpox? Theresa is a great resource because she knows how to get that information quickly.” ■

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CDC Revisiting MRSA in New HCW Infection Guidelines

Will emphasize the importance of employee health programs

With the focus on the emergence of multidrug-resistant gram negative pathogens, *Clostridium difficile* and the re-emergence of childhood diseases like measles, once-predominant methicillin-resistant *Staphylococcus aureus* (MRSA) has somewhat fallen off the radar — particularly as an occupational infection.

However, the CDC is revisiting MRSA and drug-susceptible staph strains in a major way in its comprehensive new guidelines, “Infection Prevention in Healthcare Personnel.”

“*Staph aureus* MSSA/MRSA are certainly not talked about as much, and there have been a decrease in reports over time,” says **David Kuhar**, MD, medical officer in the CDC’s Division of Healthcare Quality Promotion, who is spearheading the development of the guidelines. “Other infections certainly get more press, but about a third of the population is colonized with *Staph aureus* and we still see these infections. It is still important.”

The CDC is updating employee health guidelines that were originally issued in 1998. The new guidelines will include a section on overall program elements and recommendations to protect workers from a broad range of infectious agents.

Two Questions

At a recent meeting of the CDC’s Healthcare Infection Control Practices Advisory Committee

(HICPAC), Kuhar said that two major questions about staph will be subject to a literature review and update. The questions are to inform guidance in healthcare settings without a concurrent MSSA/MRSA outbreak or evidence of ongoing transmission between patients and staff. Under these conditions, the CDC seeks evidence to answer the following questions:

- For healthcare personnel (HCP) with laboratory-confirmed MSSA/MRSA infection, which interventions reduce MSSA/MRSA infections or colonization among patients and/or other HCP?

- For asymptomatic HCP, does screening for MSSA/MRSA colonization lead to implementing interventions that prevent MSSA/MRSA infections or colonization among patients and/or other HCP?

To answer those questions and address other issues of occupational health and MRSA, the CDC is winnowing some 4,000 identified articles to about 460 papers that will be consulted in detail to inform the new guidance. Thus begins the update of individual pathogens in a part of the draft that will follow the first section on employee health program infrastructure, which is now under internal CDC review and clearance.

“Since putting the first section into clearance, we’re moving on to updating information about individual pathogens,” Kuhar explains to *Hospital Employee Health*. “We’re doing *Staph aureus* first for a few reasons. That section in the [1998] guideline has information that really

needs to be updated. Some of it is really out of date, which isn’t the case for all of the pathogens. We thought that this one would be a good first test or ‘practice pathogen’ to update. It will inform how we approach all of the others.”

Regarding the aforementioned staph questions, the first question involving an infected healthcare worker is relatively straightforward, but the second question on asymptomatic colonization and screening of workers is more loaded. Screening of asymptomatic healthcare workers for MRSA in the absence of an outbreak has not generally been recommended and would likely be controversial if the new guidelines called for that. On the other hand, MRSA outbreaks have been traced to asymptomatic carriage by healthcare workers.

“We presented these questions to HICPAC because these were things that we wanted to approach with a systematic literature review — things that we had worried may have changed since 1998,” Kuhar says. “We wanted to make sure that HICPAC agreed that those were the important questions and that we weren’t missing anything.”

Program Support?

The draft section under current review for clearance is about “the infrastructure and routine practices of occupational infection prevention services,” he adds.

That includes the objectives of an occupational health service to

prevent infections, as well as the needed program elements to provide medical evaluations and education to healthcare personnel.

“It is currently in CDC clearance and I think it will be in clearance for several months still,” Kuhar says. “Once it is done, the plan is to put it out for public comment.”

HEH asked Kuhar whether the CDC guidelines will stress the importance of employee health programs, even to the extent of underscoring they are appropriately budgeted and adequately staffed.

“These programs are absolutely important,” he says. “We know there are many documented outbreaks involving transmission of infectious disease among healthcare personnel and patients. Occupational health services provide critical preventive services to these personnel, from

immunization to PEP and treatment for infections, as well as imposing work restrictions for infectious personnel. Without a doubt, occupational health administrators these critical services, and having some discussion about the critical infrastructure [of these programs] is important.”

The next individual pathogen for literature review and update is measles, which has resurged to cause chaotic and expensive outbreaks and exposures in healthcare settings. Kuhar was the lead author of a study that found that 78 reported measles cases resulted from transmission in U.S. healthcare facilities in 2001-2014.¹ That includes 29 healthcare workers who were infected from occupational exposures, one of whom transmitted measles to a patient. The economic impact of preventing and

controlling measles transmission in healthcare facilities was \$19,000–\$114,286 per case.

“There have been several outbreaks involving hospitals in recent years, so we thought that measles was probably important to get to next,” he says. “It is labor-intensive and expensive when you have these outbreaks. I think a lot of these recent measles outbreaks have involved healthcare workers who got measles, and some of them had been immunized previously. That raises a lot of questions about how to appropriately approach measles, especially in the outbreak setting.” ■

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Most Healthcare Workers Not Immunized for Pertussis

CDC: HCW vaccination protects infants

Though there are signs of gradual improvement, healthcare workers are still woefully under-immunized against pertussis, putting vulnerable patients such as infants at risk, the CDC reports.

“We want all healthcare workers up to date with their Tdap vaccine, but especially those who work and interact with young infants,” says **Jennifer L. Liang**, DVM, MPVM, a co-author of the study¹ and a medical epidemiologist in the CDC Division of Bacterial Diseases. “They are too young to even begin receiving the vaccination.”

As employee professionals are aware, the CDC recommends that

healthcare workers be vaccinated with Tdap (tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis) to protect themselves and vulnerable patients. The CDC study assessed Tdap vaccination coverage in healthcare workers surveillance for the years 2012-2014, the most recent data available. The internet panel surveys revealed Tdap vaccination coverage among healthcare personnel (HCP) was 34.8% in 2012; 40.2% in 2013; and 42.4% in 2014, Liang and co-authors report.

“Nurse practitioners/physician’s assistants, physicians, nurses, and HCP working in hospitals and ambulatory care settings had higher

Tdap coverage,” they concluded. “Having contact with an infant aged 6 months or less and influenza vaccination receipt were associated with increased Tdap vaccination. Non-Hispanic black race/ethnicity, having an associate/bachelor’s degree, being below poverty, nonclinical personnel status, and working in a long-term care setting were associated with decreased Tdap vaccination.”

The risk of pertussis among HCP is 1.7 times higher than that of the general adult population. Another argument for vaccination and prevention is that pertussis outbreaks can be very expensive. One outbreak that included infants and 10

healthcare workers cost the hospital almost \$100,000.²

“Based on the findings, we see that most healthcare personnel are not receiving the Tdap vaccination, which leaves them vulnerable to getting pertussis and spreading it to their patients,” Liang says. “We’re hopeful that we will continue to see the trend increasing, and we encourage employee health professionals to have strategies in place similar to what they do with flu vaccine campaigns to help increase coverage.”

To prevent pertussis in healthcare settings, the CDC recommended in 2005 that HCP receive a single dose of Tdap vaccine at an interval as short as two years from the last dose of tetanus and diphtheria toxoids (Td). In 2011, the CDC expanded the Tdap recommendations to all healthcare workers, regardless of age and time since their most recent Td vaccination. Some confusion about the guidelines may be part of the reason for the low uptake of vaccine, the CDC concedes.

“A booster is not recommended at this time,” Liang says. “The recommendation is that healthcare workers receive one dose of the Tdap vaccine. At this time, it is a one lifetime dose. The one exception is

pregnant women. They should have a Tdap vaccine every pregnancy.”

In that regard, the CDC encourages healthcare workers to remind pregnant women to get Tdap as they interact with them in the health system.

“The reason is that while the mother is pregnant she is giving these babies maternal antibodies, so the infants are born with protection,” Liang says.

A bacterial pathogen, pertussis is spread by respiratory droplets. In the WWII era, prior to the wide availability of pertussis vaccines, some 200,000 people in the U.S. were infected annually and some 9,000 died, the CDC reports. Currently, pertussis cases annually are in the range of 10,000 to 40,000 cases annually, with some 20 deaths.

“In the U.S., we have been observing an increase in the number of cases of pertussis since the 1980s,” Liang says. “There are many factors that are contributing to this increasing number of cases. We have very high coverage of people who are vaccinated with the pertussis vaccine, especially among young children and adolescents, so we don’t think this is due to under-vaccination. One of the things we are observing is that the vaccines provide protection, but the

[efficacy] does wane over time, so it is not providing as long of protection as the vaccine that we used to use in the U.S.”

In the 1990s, acellular pertussis vaccines like Tdap replaced the old whole cell vaccines, which had longer efficacy but raised concerns about side effects. Due in part to concerns about waning immunity, even healthcare workers immunized for Tdap may warrant post-exposure prophylaxis with antibiotics after a pertussis exposure.

“The vaccine status is not part of the consideration in terms of whether they receive antibiotics because of an exposure,” she says. “The length of the time they receive it would depend on the antibiotic. I think the most common antibiotic [PEP regimen] that is prescribed is azithromycin for five days.” ■

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NIOSH Seeking Reports of HCW Exposures to Peracetic Acid

The National Institute for Occupational Safety and Health (NIOSH) has extended the comment period until Oct. 1, 2017, regarding the potential hazards of occupational exposures to peracetic acid used as a sterilant and diluted as a cleaner in some hospitals.

The action follows a 2015 NIOSH draft report entitled “Immediately Dangerous to Life or Health (IDLH) Value Profiles” for 14 chemicals, including peracetic acid (aka peroxyacetic acid).

“Comments received from stakeholders raised concerns about

the limited data used as the basis of the NIOSH recommendations,” says **Scott Dotson**, PhD, NIOSH lead health scientist and contact for the request for information. “In response, NIOSH launched a cross-institute research project aimed at collecting the data required to develop an

IDLH value and other workplace recommendations aimed at protecting the lives and health of workers.”

According to NIOSH, the public comments indicated that the proposed IDLH value was “overprotective,” the data available for peracetic acid are of low quality, and issues exist with the sampling and analysis of air samples for the chemical in the workplace.

“With peracetic acid, what we have found is that we don’t have occupational exposure limits — we don’t know what we don’t know about this particular product,” notes **John Martinelli**, healthcare practice director at Forensic Analytical Consulting Services in Citrus Heights, CA. “We know we get a lot of complaints when people are using it. It smells like vinegar, eye irritation, that sort of stuff. But we really don’t know if there is a [serious] health effect associated.”

Speaking recently in Portland at the annual meeting of the Association for Professionals in Infection Control and Epidemiology (APIC), Martinelli said a NIOSH IDLH designation could require more stringent respiratory protection for those working with peracetic acid.

“You do not go into this IDLH environment with a purifying respirator,” he says. “You have to be on supplied air to use that product at the IDLH level.”

To clarify the risk, NIOSH is seeking worker exposure information

and adverse reaction reports from employee health professionals and other clinicians regarding peracetic acid.

“Information on worker exposures to peracetic acid in hospitals and other healthcare settings is of interest,” Dotson says. “Although available data indicate that peracetic acid is used as a sterilant in hospitals, NIOSH currently does not have sufficient information to characterize the scope and magnitude of the use of peracetic acid in healthcare settings.”

Likewise, NIOSH currently does not have specific recommendations on the use of peracetic acid in healthcare settings, he adds, noting that recommendations on the use of chemicals, including alternative sterilants, is available on the CDC website at: <http://bit.ly/2uW0PPE>.

According to NIOSH, peracetic acid is routinely used as a sterilant during the cleaning of endoscopes and other medical devices, as a disinfectant in food processing, as a bleaching agent, and in the synthesis of other chemicals. Last year, NIOSH published a report that a cleaning product containing acetic acid, peracetic acid, and hydrogen peroxide was linked to wheezing, watery eyes, and asthma-like symptoms in healthcare workers.¹

NIOSH is requesting the following information to inform an occupational risk assessment of peracetic acid in healthcare settings:

- workplace exposure data for peracetic acid;
- possible health effects observed in workers exposed to peracetic acid;
- workplaces and products in which peracetic acid may be found;
- description of work tasks and scenarios with a potential for exposure to peracetic acid;
- reports and findings from in vitro and in vivo toxicity studies with peracetic acid;
- data applicable to the quantitative risk assessment of health effects associated with acute, subchronic, and chronic workplace exposures to peracetic acid, sampling, and analytical methods for peracetic acid;
- control measures, including engineering controls, work practices, and PPE, that are being used in workplaces where there is potential for exposure to peracetic acid.

Editor’s note: Employee health professionals can submit comments electronically by entering CDC–2017–0015 and docket number NIOSH 295, at the federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions for submitting comments. ■

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New Disinfectant Guidelines Emphasize HCW Protection

The American Industrial Hygiene Association (AIHA) has issued new guidelines on healthcare surface disinfectants, emphasizing that the

effect on workers and patients must be factored into the equation.

AIHA’s “Guidelines on the Selection and Use of Environmental

Surface Disinfectants in Healthcare” states that “disinfectants have the potential to not only inactivate microbes, but to harm patients and

workers. It is essential that the use of disinfectants is monitored and that steps be taken to minimize exposures and adverse health effects. Exposures to these chemicals can vary based on frequency and duration of the chemical's use. It is also important to note that it is not only the employee that is using the chemical to disinfect, but patients who may be in the room during or shortly after cleaning, who have potential to be exposed."

John Martinelli, healthcare practice director at Forensic Analytical Consulting Services in Citrus Heights, CA, outlined the new AIHA guidelines recently in Portland at the annual meeting of the Association for Professionals in Infection Control and Epidemiology (APIC).

"Typically [guidelines are] organism- and compatibility-based: Will it kill bacteria and viruses, and will it do it without ruining the

surface that we're trying to clean?" he said. "That's generally how things are selected. There are some other factors — cost. Rarely, do we look at the impact on healthcare workers. In some instances, the products will get out into the industry before we even know the impact of health effects on the workers who are using it, to the staff members exposed to the vapors, and to patients. We looked at those risk factors as well."

Remember, patients may have a continuous exposure from the time they are admitted, rather than a worker's intermittent exposure to a disinfectant, the AIHA notes.

The guidelines list the types of chemicals used in surface disinfection and discuss their advantages and disadvantages. The AIHA also identifies occupational exposure limits for chemicals, if possible.

"The objective of the guidelines is to provide assistance to health and safety professionals and others

— specifically, those working in healthcare settings," Martinelli says. "[The document] provides a basic understanding of the organisms that are important in surface room disinfection — gram negatives, gram positives, spores, molds, et cetera. It discusses common disinfectants that are used for surface disinfection and [explains] exposure assessment strategies. How do we know that the workers or the patients are not being adversely affected?"

The AIHA guidelines also address the efficacy of disinfectants.

"Will it kill, and how quickly?" he said. "How hard is it to use? One of the things we find quite frequently is that if environmental services workers don't like working with a product, it is probably not going to be very effective."

Editor's note: The AIHA disinfectant guidelines are available for purchase (\$65 for nonmembers) at: <http://bit.ly/2uVVkjN>. ■

Researchers to FDA: Alcohol Hand Rubs Pose No Risk to Pregnant HCWs

Pregnant and breast-feeding healthcare workers appear to be well within safe exposure limits and can use alcohol-based hand rubs without risk to fetus or baby, a researcher reported recently in Portland, OR, at the annual meeting of the Association for Professionals in Infection Control and Epidemiology (APIC).

"The internal doses of ethanol associated with frequent use of hand sanitizers and scrubs are hundreds of times lower than the concentration that might be related to [reproductive] developmental effects," said **Andrew Maier**, PhD, CIH, DABT, associate professor

of environmental health at the University of Cincinnati. "That is good news. Based on this, there is no significant risk of developmental reproductive [effects] from repeated use of these types of materials. The exposure that one can get from using these products is way below the concentrations that cause these kinds of effects."

The FDA requested information in 2015 on the safety of active ingredients in healthcare antiseptics, saying solutions and products are being used in the absence of data on long-term effects to healthcare workers. Alcohol-based healthcare antiseptics are not only ubiquitous

and used frequently throughout the day in healthcare settings, they are essentially a standard of care, given their recommendation by the CDC. Though some have noted there is no established safety threshold for fetal alcohol syndrome, the FDA would have to find compelling evidence to limit the use of alcohol rubs in hospitals. An unintended consequence could be an increase in healthcare-associated infections that already kill tens of thousands of patients annually.

Studies undertaken by researchers and industry are expected to demonstrate adequate safety data to the FDA, which has recommended

continuing to use the alcohol rubs while the review is in process.

The FDA requested that “maximal use” trials be conducted to ensure the safety of frequent use of alcohol-based hand rubs by healthcare workers.

“This is the new thinking from FDA and they are doing this with all drugs now,” said **David Macinga**, PhD, director of regulatory affairs and clinical science at GOJO Industries, Inc., in Akron, OH. “We used to see studies under typical use, and now FDA is saying we want to see safety studies done under what’s called ‘maximum’ use conditions. If you think about these alcohol hand rubs, they want to see studies done at the maximum number of uses that may be done in a single day by a single person.”

Breaking Down Data

A recently published study² used a retrospective review of the literature and analysis of two other studies that utilized hand hygiene electronic compliance monitoring (ECM) systems. The researchers found the greatest use of alcohol rubs was recorded by an ECM system in a medical ICU.

“In 95% of nursing shifts, individual nurses used alcohol-based hand rubs 141 times or less per shift, and 15 times or less per hour,” the authors reported.

Maier reviewed that study and other data involving alcohol exposures in animals and its presence in common products in a review of the issue at APIC. Maier disclosed receipt of grant funding and research support from GOJO Industries, which manufactures hand cleaners and other healthcare products.

“We’re really focusing our

assessments on developmental effects — reproductive developmental toxicity,” Maier said. “The key question is making sure the exposure level is well below the concentrations where the effect might be caused. That is the margin of safety assessment.”

Evaluating data that included some 250 published studies on the reproductive effects of alcohol consumption, Maier predictably found that the majority of those involved consumption of alcoholic drinks.

“They show that binge drinking or ingestion of high levels of alcohol do cause developmental effects,” he said. “That’s no surprise to most folks in occupational health, but the question is what happens at smaller, very low levels of exposure?”

That is a much harder question to answer, but Maier pointed out at the onset that the tracking systems in place by FDA and other bodies have not identified any link between alcohol hand rubs used in healthcare and reproductive effects in workers. Maier also looked at animal toxicology studies on alcohol and reproductive effects.

“Two big findings came out of our evaluation of the animal toxicology data,” he said. “One is that it is the peak drug concentration that is really the driver for these developmental effects. It’s not the average, low-dose exposure you might have — it is high-dose peaks that are driving these types of responses.”

The blood alcohol concentration (BAC) level where developmental effects begin to occur in the animal data is 150 mg per 100 mls of blood, he said.

“Above that concentration in the blood, you start to see effects in animal toxicology studies,” Maier said. “Below that concentration,

you don’t see effects. We are starting to see this boundary for the onset of effects. So, obviously, we want to make sure that the [human] exposures are maintained well below those types of concentrations.”

Scenarios Tested

A variety of different scenarios were evaluated that reflected topical application of the alcohol hand rubs under conditions representative of average use, high use, and maximal use for two different products. Maier looked at the BAC that would be predicted for the various scenarios and compared that to the threshold for safety in the animal toxicity studies.

“For example, for average use, basically the amount of exposure is 380 [times] lower than the concentration that would potentially cause adverse effects,” he said. “We have a margin of safety there of around 380-fold, which is a pretty large margin.”

High use resulted in a BAC of 0.75, 200-fold less than the threshold for reproductive effects. Maximum use estimates of a BAC of 0.94 still fell within a wide margin of safety, 160 times less than the threshold of concern. Overall, the various scenarios of hand hygiene with alcohol rubs was 160 to 680 times lower than the threshold for developmental effects, he said.

Maier then contrasted those levels with ethanol alcohol in various fruits, noting that the average use of hand rubs over a healthcare shift resulted in an alcohol exposure equivalent to eating a ripe banana. In addition, the FDA defines drinks with no more than 0.5% of alcohol as nonalcoholic beverages, Maier said. The maximum use of alcohol rubs resulting in

a BAC of 0.94 compares to one nonalcoholic beverage with a BAC of 1.20.

“The amount of ethanol blood concentration for hand sanitizers is pretty much similar to the low-dose exposures you would get from fruits,” he said. “In both cases, the margin between those BACs and the amount of concentration that might be associated with onset of

developmental effects is quite large. These can be considered safe by traditional FDA standards. Ethanol sanitizers are safe for their intended use as [hand] hygiene products.” ■

REFERENCE

1. Food and Drug Administration. Safety and Effectiveness of Health Care Antiseptics; Topical Antimicrobial Drug Products

for Over-the-Counter Human Use; Proposed Amendment of the Tentative Final Monograph; Reopening of Administrative Record. *Fed Reg* May 1, 2015: <http://1.usa.gov/1SDshKy>.

2. Boyce JM, Polgreen PM, Monsalve M, et al. Frequency of Use of Alcohol-Based Hand Rubs by Nurses: A Systematic Review. *Infect Control Hosp Epidemiol* 2017;38:189–195.

EPINet Issues Call to Action to Prevent HCW Exposures

Unexpected exposures call for new strategies

The long-established needlestick surveillance system, EPINet — now known as the International Safety Center — has issued a consensus statement and call to action to reduce unexpected exposures to blood and body fluids.

The group calls for more surveillance and research on protective clothing in healthcare. These are situations where exposure is not anticipated and PPE worn, calling for innovative new approaches like protective wearables for healthcare workers, the International Safety Center argues.

The statement cited EPINet data from 2010–2014, which revealed that about 70% of all reported occupational splash or splatter exposures involving body fluids were contaminated with blood. However, some 40% of the exposed workers indicated that they were wearing everyday clothes or nonprotective scrubs or uniforms during the exposure. Only 17% were wearing a protective gown.

According to EPINet data, compliance with PPE use even when an exposure to blood, body fluid, or

biologic hazard is anticipated, is lower than ideal. It can range from more than 70% (glove use) to less than 2% (goggle use), depending on the body location and type of incident, the Safety Center said in the statement.

“Engineering controls can be in the form of safer medical devices that protect workers from a needle or sharp, closed systems used for suctioning, HEPA-filtration in HVAC systems, and now ‘smarter’ textiles that can allow fluids to roll off of the worker rather than contaminating the worker’s skin,” according to the Safety Center.¹ “...Microbes thrive on porous surfaces like textiles, specifically on the most commonly used textiles in healthcare: work wear and uniforms. Contaminated textiles like work wear are known to become colonized with [pathogens].”

The Safety Center recommended that work-wear contamination data be collected by hospitals and shared among government public health agencies. In addition, the CDC and NIOSH should support research that evaluates this risk to workers. Moreover, professional groups and manufacturers should join forces to encourage development of work wear that provides the best protection for workers when they are not wearing PPE or barrier garments, the Safety Center recommended. ■

REFERENCE

1. International Safety Center. Improving Work Wear for Workers at Risk of Exposure to Blood, Body Fluids, and Other Biologic Hazards: A Consensus Statement and Call to Action. 2017: <http://bit.ly/2uSDQqa>.

COMING IN FUTURE MONTHS

- Proactive strategies against nurse burnout
- Highlights from AOHP conference in Denver
- Is this a much-needed mask solution? Another option for protection
- Looking at the economic effect of unsafe healthcare workers



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CE QUESTIONS

- 1. Theresa Schrantz, LPN, CIC, said as part of her employee health duties, she enforces a law that requires:**
 - a. mandatory Tdap vaccination.
 - b. masking for employees not immunized against flu.
 - c. sending workers home when they spike a fever.
 - d. workers to report prior residence in a country where TB is endemic.
- 2. According to a study by the CDC, what was Tdap vaccination coverage among healthcare personnel in 2014, the most recent year available?**
 - a. 34.8%
 - b. 40.2%
 - c. 42.4%
 - d. 51.5%
- 3. A 2015 NIOSH draft report on "Immediately Dangerous to Life or Health" (IDLH) chemicals included peracetic acid. NIOSH is reconsidering the matter and requesting more information because stakeholders claimed the IDLH value for the acid was:**
 - a. "overprotective."
 - b. of low quality.
 - c. subject to issues affecting sampling and analysis of air samples.
 - d. all of the above
- 4. Researchers said average use estimates of alcohol hand rubs by healthcare workers was roughly the equivalent of the ethyl alcohol in:**
 - a. two nonalcoholic beers.
 - b. an 8 oz. cup of cider.
 - c. 6 oz. of mouthwash.
 - d. one ripe banana.

CE OBJECTIVES

After reading each issue of *Hospital Employee Health*, the nurse will be able to do the following:

1. Identify particular clinical, administrative, or regulatory issues related to the care of hospital employees;
2. Describe how the clinical, administrative and regulatory issues particular to the care of hospital employees affect health care workers, hospitals, or the healthcare industry at large;
3. Cite solutions to the problems faced in the care of hospital employees based on expert guidelines from relevant regulatory bodies, or the independent recommendations of other employee health professionals.