HOSPITAL EMPLOYEE HEALTH

THE PRACTICAL GUIDE TO KEEPING HEALTH CARE WORKERS HEALTHY

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INSIDE

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Zika and Employee Health: Err on Side of Caution

Pregnant HCWs at particular risk via needlesticks

By Gary Evans, Senior Staff Writer

Increased transmission of Zika virus is expected in the U.S. as *Aedes* mosquitoes emerge in a broad swath across roughly two-thirds of the country as the warmer months come on, raising a critical question for healthcare workers: Can Zika virus be transmitted from an infected patient by a needlestick?

The answer from public health officials is a theoretical, "Yes."

Though it has yet to be documented, it seems entirely plausible that the stick of a hollow-bore needle containing Zika virus-contaminated blood could simulate transmission via the mosquito's penetrating proboscis — though the latter is said to probe with an impressive flexibility. Of course, even if Zika is injected into a caregiver via a needle, other variables like the viral titer circulating in the patient's blood and the immune status of the injured worker would, in part, determine the likelihood of subsequent infection.

"If you consider Zika, it is theoretically possible that a sharps injury or a mucous membrane exposure could transmit the disease," says **David Kuhar**, MD, a medical officer in the division

SPECIAL REPORT: PROTECTING HCWS FROM ZIKA

As temperatures warm and mosquitoes capable of spreading dramatically emerging Zika spread out across the United States, healthcare workers may be exposed to the virus on the job as well as in the community. Avoiding needlesticks and blood exposures is paramount in healthcare, particularly for those who are pregnant or trying to become so. Zika is also causing a rare paralytic syndrome and could be associated with other adverse events because it has mutated since it first emerged in 1947. ■

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of healthcare quality promotion at the Centers for Disease Control and Prevention (CDC). "It remains, of course, possible."

Indeed, there is every reason to err on the side of caution with blood exposures, given that Zika has already been transmitted sexually, is causing an unprecedented level of birth defects, and is linked to rare cases of Guillain-Barré paralytic syndrome (GBS).

As of April 27, 2016, U.S. public health officials were reporting 426 travel-associated Zika virus disease cases. There were no locally-acquired vector-borne cases, but eight cases were sexually transmitted. Thirty-six of those with Zika were pregnant. There was one case of Zika-related GBS. In contrast, U.S. territories were being heavily hit by local mosquito transmission, with only three of 599 cases related to travel. In addition, 56 pregnant women have been infected and there were five cases of GBS.

"We hope we don't see widespread local transmission [in the U.S.] but the states need to be ready," **Anne Schuchat**, MD, principal deputy director of the CDC, said at a recent press conference. "We have learned that the virus is linked to a broader set of complications in pregnancy — not just microcephaly, but also prematurity, eye problems, and other conditions."

Puerto Rico is beset with an epidemic, and the situation was expected to worsen before it improves.

"We are quite concerned about Puerto Rico, where the virus is spreading throughout the island," Schuchat says. "We think there could be hundreds of thousands of cases of Zika virus in Puerto Rico and perhaps hundreds of affected babies."

While Zika is primarily a public health threat via mosquitoes, the severe birth defects associated with the infection may give pause to healthcare workers who are pregnant or trying to become so, particularly if their patient care duties involve exposure to blood and frequent use of sharps. Though it may provide little comfort, it should be noted that Zika infection progression does not always result in birth defects. Still, in terms of managing risk and avoiding adverse outcomes, it's hard to imagine a more emotionally charged situation than an expectant nurse balancing work demands against protective maternal instincts.

"Women who work in healthcare have a default to put their patients first, no matter the risk," says **Amber Mitchell**, DrPh, MPH, CPH, president and executive director of the International Safety Center (aka EPINet). "The greater spread of Zika and other emerging illness reminds us all that in order to best care for patients, they must put their own safety and wellness on the same plane. Think perhaps, not 'you first, me next' – but 'us together.'"

As employee health professionals are well aware, Zika is just the latest example of bloodborne threats to healthcare workers.

"Since there are dozens of bloodborne pathogens known to cause infection and illness from blood and body fluid exposures like sharps injuries — and more emerging every year — it is more important than ever for healthcare facilities to focus on prevention strategies for sharps injuries, needlesticks, and exposures," Mitchell says. "Keep track of where exposures are continuing to occur, measure them so that you can target interventions, education,

and get better uptake of safety engineered devices."

Though most Zika cases are asymptomatic, the virus may be present in the blood for approximately one week. That sets up a scenario for transmission via mosquito bites as travelers returning from areas of ongoing transmission serve as reservoirs for subsequent victims of the same mosquitoes. The infection risk is primarily in the community, but the situation warrants vigilance to basic precautions in healthcare as those with the virus in their blood become patients seeking treatment for day-to-day maladies, elective surgery, chronic illnesses, and emergencies.

"There have been no reports yet of transmission of Zika virus to healthcare personnel or other patients," says **Jill Shugart**, MSPH, REHS, assistant program coordinator at the National Institute of Occupational Safety and Health (NIOSH). "Minimizing exposures to body fluids is important to reduce the possibility of transmission, but there have not been documented reports as of today [April 27, 2016]. Healthcare personnel should adhere to standard precautions in every healthcare setting – the normal precautions we take to prevent exposures to blood and body fluids that might transmit an infectious agent."

New Occ health guidelines

A branch of the CDC, NIOSH recently issued Zika occupational health guidelines[1] in conjunction with OSHA, reiterating and emphasizing the following exposure control and sharps safety measures for healthcare settings:

• Follow workplace standard operating procedures (e.g., workplace exposure control plans) and use the engineering controls and work practices available in the workplace to prevent exposure to blood or other potentially infectious materials.

• Do not bend, recap, or remove contaminated needles or other contaminated sharps. Properly dispose of these items in closable, puncture-resistant, leakproof, and labeled or color-coded containers.

• Use sharps with engineered sharps injury protection to avoid injuries.

• Report all needlesticks, lacerations, and other exposure incidents to supervisors as soon as possible.

Healthcare workers should use standard precautions during patient care regardless of suspected or confirmed Zika infection status, the agencies recommend. However, employers should consider enhanced precautions in situations where workers are at increased risk of exposure to Zika virus or other hazards.

THE NEW ZIKA OCCUPATIONAL GUIDANCE STRESSES THAT HEALTHCARE WORKERS UNDERSTAND THE RISKS AND ROUTES OF EXPOSURE AND TAKE STANDARD METHODS TO PREVENT TRANSMISSION.

"While there is no evidence of Zika transmission through aerosol exposure, minimizing the aerosolization of blood or body fluids as much as possible during patient care or laboratory tasks may help prevent workers from being exposed to other pathogens," the guidelines state. Additional protections, including engineering controls to ensure containment of pathogens or enhanced PPE to prevent or reduce exposure, may be necessary during any aerosol-generating procedures or other such tasks, the agencies recommended.

Expect to protect

While currently under revision, the CDC's 1998 healthcare worker guidelines state that, "Immunologic changes occur during pregnancy, primarily depression of certain aspects of cell-mediated immunity such as decreased levels of helper T cells. These changes permit fetal development without rejection but generally do not increase maternal susceptibility to infectious diseases. … In general, pregnant healthcare personnel do not have an increased risk for acquiring infections in the workplace." *(See related story, page 69.)*

The new Zika occupational guidance stresses that healthcare workers understand the risks and routes of exposure and take standard methods to prevent transmission. Workers should be trained to seek medical evaluation if they develop symptoms of Zika. About one out of every five people infected with the virus develops symptoms, usually beginning 2-7 days after the bite of a mosquito carrying the virus. Symptoms are usually mild and can last up to a week. The most

common symptoms are fever, rash, joint pain, and red or pink eyes. Other symptoms include muscle pain and headache. These symptoms are similar to those of dengue fever or chikungunya.

Ensure that workers receive prompt and appropriate medical evaluation and follow-up after a suspected exposure to Zika virus, NIOSH and OSHA recommend. If the exposure falls under OSHA's bloodborne pathogen standard, employers must comply with medical evaluation and follow-up requirements in the standard. Zika is not spread by contact, but it can be spread sexually and safe precautions are advised if either partner has potentially acquired the virus. There are no special measures recommended for pregnant healthcare workers in the new guidelines, though a section on "outdoor workers," raises the issue of asking for reassignment indoors.

"We wrote this guidance to both employees and employers, and we want to make sure that both groups have the right information," Shugart says. "Certainly pregnant healthcare workers or anyone who is concerned about Zika should talk to their supervisors. We do recommend that employers train the workers about the risk and working in those environments."

A separate CDC guideline[2] on research laboratory workers states that "the involvement of pregnant workers in studies with Zika virus should be minimized." For general workers in clinical labs, the CDC recommends that specimens from patients suspected of having Zika virus infection should be handled in accordance with standard precautions that include gloves, a laboratory gown or coat, and eye protection. In general, Biosafety Level 2 precautions are appropriate for the handling of Zika specimens. Laboratories should perform a risk assessment to determine if there are certain procedures or specimens that may require higher levels of biocontainment. For example, potential aerosol-generating procedures should be performed in a biological safety cabinet, the CDC recommends.

In any case, the greatest threat of Zika transmission to pregnant healthcare workers and their colleagues will be in their communities via mosquito bites. Unfortunately, some research with malaria suggests that pregnant women may attract mosquitoes through a slight elevation in body temperature and the exhalation of more carbon dioxide. In a study comparing mosquito attacks on pregnant versus non-pregnant women in Africa, the researchers found those expecting were more likely to be bitten because they exhaled a 21% greater volume of

Outdoor Health Workers at Risk for Zika

Inform, provide protection

For employee health professionals who have outdoor workers at their facilities, the following are the basic measures recommended by OSHA and NIOSH:[1]

- Inform workers about their risks of exposure to Zika virus through mosquito bites and train them how to protect themselves.
- Provide insect repellents and encourage their use according to the guidance below.
- Provide workers with, and encourage them to wear, clothing that covers their hands, arms, legs, and other exposed skin. Consider providing workers with hats with mosquito netting to protect the face and neck.
- In warm weather, encourage workers to wear lightweight, loose-fitting clothing. This type of clothing protects workers against the sun's harmful rays and provides a barrier to mosquitoes. Always provide workers with adequate water, rest, and shade, and monitor workers for signs and symptoms of heat illness.
- Get rid of sources of standing water (e.g., tires, buckets, cans, bottles, barrels) whenever possible to reduce or eliminate mosquito breeding areas. Train workers about the importance of eliminating areas where mosquitos can breed at the worksite.
- If requested by a worker, consider reassigning anyone who indicates she is or may become pregnant, or who is male and has a sexual partner who is or may become pregnant, to indoor tasks to reduce their risk of mosquito bites.

REFERENCE

1. OSHA, NIOSH. Fact Sheet: Interim Guidance for Protecting Workers from Occupational Exposure to Zika Virus. April 2016: http://1.usa.gov/1TvbTJu. ■

CO_2 in the latter stages of pregnancy and their body temperatures were 0.7°C hotter.[3]

Again, the general tone of public health guidance with Zika is to err on the side of caution. One of the harsh lessons of Ebola was that the virus did not behave in accordance with predictions, forcing the CDC to abandon its initial position that any hospital could handle a case of the virus. Similarly, previous outbreaks of Zika did not herald the explosive association with birth defects seen in the current epidemic in the Americas. A new study[4] strongly suggests the reason why: Zika virus has mutated since it was first discovered in Africa in 1947. Sequence analysis of Zika RNA shows the virus "has undergone significant changes in both protein and nucleotide sequences during the past half century," the researchers report.[4] The genetic changes "could play a role in virulence or improved fitness ... and enhanced transmissibility and infectivity from the mosquito vector to the human host," the researchers concluded.

Zika virus has the potential to spread anywhere that mosquitoes capable of spreading this virus are found, NIOSH warns. *Aedes* species mosquitoes are the principal vector of Zika virus, particularly *Aedes Aegyptus,* which is typically concentrated in the southern U.S. as well as parts of the Southwest. Another vector for Zika virus is *Aedes albopictus*, which are found in much of the southern and eastern part of the U.S. *Aedes* mosquitoes can also carry other arboviruses, including dengue, yellow fever, chikungunya, Japanese encephalitis, and West Nile.

Another wide-ranging mosquito called *Culex* has shown the ability to carry the virus in the lab, but not in the wild. Complicating the matter further, a U.K. biotech company is seeking permission to test genetically modified mosquitoes — designed to interrupt the cycle of reproduction — in the Florida Keys. Some residents in the area have taken the position that they are being subjected to a research trial in the absence of informed consent, throwing the proposal into turmoil and delay as this story was filed.

A fascinating modeling study[5] recently conducted by the NASA projects that by mid-July, 50 U.S. cities in more than 20 states will be "meteorologically suitable" for *Ae aegypti* mosquito populations to emerge. *(See list, page 66.)* In particular, cities in the southeastern U.S. will have conditions suitable for "high abundance" of the mosquitoes, while other eastern cities extending to New York will have "moderate-to-high abundance" and areas out west will be in the low-to-moderate range. The study did not include *Ae. albopictus* mosquitoes, though there is some concern they could also spread Zika in a less efficient manner.

"This is important because *Ae. albopictus* has greater cold tolerance than *Ae. aegypti*, and therefore could facilitate seasonal Zika virus transmission risk in more northerly U.S. cities where *Ae. aegypti* is not found," the NASA researchers note.

Indeed, a separate CDC projection[6] including *Ae. albopictus* range expands the possible reach of Zika farther north to include some 30 states up to lower Minnesota in the Midwest and to the lower portion of Maine in the Northeast. Among the many variables are the weather, with the NASA researchers noting projections for June-August 2016 suggest a 40%-45% probability of above-normal temperatures over the entire contiguous U.S. for the upcoming summer of 2016.

"Therefore, it is possible that above-normal temperatures will lead to increased suitability for *Ae. aegypti* throughout much of the U.S. in summer 2016, though in some of the hottest regions of Texas, Arizona, and California, above-normal temperatures may lead to decreased suitability," the researchers note.

The NASA study cited socioeconomic factors and poverty as a predictor of human-mosquito exposures, citing factors like lower usage rates of air conditioning, poorer housing infrastructure, and lack of window screens, as well as decreased access to safe water and sanitation.

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3. Dobson, R. Mosquitoes prefer pregnant women. *BMJ* 2000; 320:1558.
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6. CDC. Estimated range of *Aedes aegypti* and *Aedes albopictus* in the United States, 2016: http://www.cdc.gov/zika/vector/range.html. ■

Zika: New Test, but No Vaccine and Limited Treatment

Outdoor workers should be informed of risk and prevent bites

More widespread testing for Zika virus is now available, as the FDA recently issued an Emergency Use Authorization (EUA) for a Qualitative Real-Time RT-PCR test. Unfortunately, treatment options are limited.

The test will detect Zika virus RNA in blood samples. The test should only be used for individuals meeting CDC Zika virus clinical criteria (e.g., clinical signs and symptoms associated with infection) and/or CDC Zika virus epidemiological criteria (e.g., history of residence in or travel to a geographic region with active Zika transmission) by qualified laboratories, the FDA emphasized.

Transmission occurring in 43 countries

The EUA does not indicate formal FDA approval indefinitely, and can expire or be terminated or revoked by the Department of Health and Human Services. According to a fact sheet posted by the FDA, Zika transmission is occurring in 35 countries and territories in the Americas, seven countries and territories in Oceania/Pacific Islands, and one country in Africa.

"Public health officials have determined that Zika virus poses a potential public health emergency," according to the FDA.

If Zika virus infection is suspected based on current clinical and epidemiological criteria, the RT-PCR test may be ordered. As chikungunya and dengue infection can have early symptoms resembling those of Zika infection — and coinfection with these viruses is possible — testing for those viruses should be considered as well.

ACCORDING TO A FACT SHEET POSTED BY THE FDA, ZIKA TRANSMISSION IS OCCURRING IN 35 COUNTRIES AND TERRITORIES IN THE AMERICAS, SEVEN COUNTRIES AND TERRITORIES IN OCEANIA/ PACIFIC ISLANDS, AND ONE COUNTRY IN AFRICA.

Take supportive measures for Zika infection

Zika virus RNA is typically detectable in serum for approximately seven days following onset of symptoms. Contact your state or local health department to facilitate testing, the FDA advised.

With no vaccine nor established treatment, the following recommended measures by public health officials for those infected with Zika virus are primarily supportive:

- Drink fluids to prevent dehydration.
- Take medicine such as acetaminophen to reduce fever and pain.
- Avoid taking aspirin, ibuprofen, naproxen, or other non-steroidal anti-inflammatory drugs because of rare cases of bleeding occurring with flaviviruses and these medications.
- Talk to a healthcare provider before taking any medications, including prescriptions, for other medical conditions.
- To help prevent others from getting sick, avoid mosquito bites during the first week of infection. Wearing clothing that covers skin and using insect repellents can help prevent mosquito bites.
- To help prevent transmission to partners via sexual contact, abstain from sexual activity or use condoms during sexual activity during and following infection.[2]

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NASA Forecasts Zika Mosquitoes in 50 Cities by Mid-July

Modeling projections based on habitat, precipitation, weather

NASA recently issued a modeling study that projects that prevalence of *Aedes aegypti* mosquitoes — the primary vector for Zika virus transmission — for 50 selected U.S. cities in 21 states for the upcoming summer months.[1]

By mid-July, all fifty cities are projected to be "meteorologically suitable" for *Ae. aegypti*, with far southeastern cities possibly seeing high bug abundance; other eastern cities projected at moderate-to-high abundance; and select western cities forecast to low-to-moderate abundance. Here is a listing of the states and cities NASA projected to have the following levels of mosquito abundance in mid-July:

High abundance:

- AL: Mobile;
- FL: Jacksonville, Orlando, Miami, Tallahassee, Tampa;
- GA: Savannah;
- LA: New Orleans;
- SC: Charleston;
- TX: Brownsville, Dallas, Houston, San Antonio.

Moderate to high:

- AL: Birmingham, Huntsville, Montgomery;
- AK: Fayetteville, Little Rock;
- GA: Atlanta, Augusta;
- LA: Shreveport;
- MI: Jackson;
- MO: Kansas City, St. Louis;
- NY: New York City;
- NC: Charlotte, Raleigh;
- PA: Philadelphia;
- SC: Columbia;
- TN: Memphis, Nashville;
- VA: Richmond;
- TX: Dallas, El Paso, Houston, San Antonio;
- Washington, DC.

Low to moderate:

- AZ: Phoenix, Tucson, Yuma;
- CA: Bakersfield, Fresno, Sacramento;
- CO: Denver;
- NV: Las Vegas;
- NM: Albuquerque;
- OK: Oklahoma City;
- TX: El Paso, Midland, Laredo;
- UT: Salt Lake City.

REFERENCE

1. Monaghan AJ, Morin CW, Steinhoff DF, et al. On the Seasonal Occurrence and Abundance of the Zika Virus Vector Mosquito Aedes Aegypti in the Contiguous United States. *PLOS Curr Outbreaks*. March 16, 2016: http://bit.ly/1Z2UKsC. ■

Fatal Attraction: Why are Mosquitoes Drawn to Some People Over Others?

'All but impossible to eradicate'

Those with type O blood, beer consumption, foot odor, and heavy breathing may be seen by a female mosquito as a dream date, according to the American Mosquito Control Association (AMCA). *(http://www.mosquito.org/faq)*

Interestingly, the blood taken by the pest is not a food source for the female adults but a way of providing nourishment for mosquito eggs. Thus males do not seek blood at all, and both sexes feed on planter nectar as their primary energy source.

"Why some people seem to be more attractive than others to mosquitoes is the subject of much repellent — and attractant for traps — research being conducted nationwide," according to the AMCA. "Carbon dioxide is the most universally recognized mosquito attractant and draws mosquitoes from up to 35 meters. When female mosquitoes sense carbon dioxide, they usually adopt a zigzagging flight path within the plume to locate its source. Once in the general vicinity of a potential host, other cues predominate, including body odors (sweat, lactic acid, etc.) and heat. Odors produced by skin microflora also play a part in inducing the mosquito to land. … People drinking beer have been shown to be more attractive to mosquitoes. Limburger cheese has also been found to be attractive. Scientists have theorized that this may explain the attraction some mosquitoes find for human feet."

On a very serious note, Zika virus poses a significant threat to pregnant women and their unborn children. Unfortunately, pregnant women seem to be among the groups favored by mosquitoes. Research with mosquito-borne malaria and other studies suggest pregnant women may have a rise in body temperature and exhale more carbon monoxide than they do normally. Both factors can attract mosquitoes so it will be absolutely critical for pregnant women to follow recommendations by the CDC to avoid bites that could threaten the fetus. *(http://1.usa.gov/1RzGQi9)*

> RESEARCH WITH MOSQUITO-BORNE MALARIA AND OTHER STUDIES SUGGEST PREGNANT WOMEN MAY HAVE A RISE IN BODY TEMPERATURE AND EXHALE MORE CARBON MONOXIDE THAN THEY DO NORMALLY.

Concerning myths and urban legends, the AMCA says eating bananas does not attract mosquitoes, but wearing perfume does. On the other hand, eating garlic and taking vitamin B12 have been proven in controlled laboratory studies to have no effect on mosquito biting. A 2004 study (http://1.usa.gov/1NMHGGt) found that human blood group O subjects generally attracted more *Aedes albopictus* mosquitoes than other blood groups (B, AB, and A). However, statistical significance was only established for mosquito preference for O over type A.

Mosquitoes have been around for millions of years, thus the interesting but unproven premise of the dinosaur DNA preserved in the bug in amber in *Jurassic Park.* The AMCA is understandably being asked why we can't target mosquitoes for complete eradication, give the various diseases they have spread over the years. The following is its response:

"Mosquitoes fill a variety of niches which nature provides. As such, placing a value on their existence is generally inappropriate. ... Their adaptability has made them extraordinarily successful, with upwards of 2,700 species worldwide. Mosquitoes serve as food sources for a variety of organisms but are not crucial to any predator species. … Given that Nature abhors a vacuum, other species will fill the niches vacated by the mosquitoes after an initial shuffling period of variable length. Be advised, though, that species replacing mosquitoes may be even worse — it's extremely difficult to predict. Mosquitoes' ability to adapt to changing environments would make them all but impossible to eradicate." ■

CDC Issuing New Infection Control Guidelines for Healthcare Workers

Previous version is now 18 years old

The CDC is updating its *Guideline for Infection Control in Healthcare Personnel*, which was originally published in 1998 before a series of emerging pathogens posed occupational threats via SARS, H1N1 pandemic flu, MERS, Ebola, and Zika.

While such emerging infectious diseases underscore the ever-changing threat to healthcare workers, the new employee health guidelines continue to focus more on the longstanding day-to-day threats and broaden the umbrella of protection beyond hospitals, explains **David Kuhar**, MD, a medical officer in the division of healthcare quality promotion at the CDC.

"Emerging pathogens provide more unique challenges," he says. "Ebola, for example, provided a lot of challenges for healthcare workers. They were using equipment that isn't typically used in hospitals [that] required specialized training and post-exposure management that is different from anything occupational healthcare services are used to providing. These emerging pathogens require unique considerations for healthcare worker safety and that's why when they emerge, there are specific guidelines developed for, say, PPE for healthcare workers with Ebola or a separate infection control guideline for MERS-CoV."

Of course some pathogens emerge and do not fade away, with HIV perhaps the most notorious example in the modern era.

"Some emerging pathogens are a temporary issue and some could become a permanent one, so depending on what happens over time if one becomes more common it tends to become part of routine guidance," he says. "Until that happens, CDC tends to address them with uniquely developed guidelines."

Stay agile

Though they will continue to be addressed in separate guidelines, the recurrence of new infectious threats stresses the importance of flexibility in employee health programs.

"The employee health function has to be agile enough that there is an ability to respond to whatever comes up," says **Ruth Carrico**, PhD, RN, FSHEA, CIC, assistant professor of health promotion and behavioral sciences at the University of Louisville (KY). "We can't just say, 'This is our list of problems from an organism or a situation perspective.' You've got to have a program that can recognize and respond to issues and can train and provide the care and follow-up that is necessary. I think this is an opportunity to really look at our programs and say what are doing well, what we are not doing well, and how do we need to change."

As outlined at a March 31, 2016, meeting of the CDC's Healthcare Infection Control Practices Advisory Committee (HICPAC), the new guidelines will include overall program elements and protect workers from a broad range of infectious agents. *(See related story, page 71.)*

The guidelines will address employee health challenges beyond the hospital, including outpatient settings, clinics, ambulatory surgery centers, home healthcare, non-acute care inpatient facilities, and long-term care. The plan is to address both on- and off-site occupational health services, including contracted services.

"The locations where care is delivered are changing rapidly," says Carrico, a former HICPAC member who is serving as an advisor on the guidelines. "It's very hard to say, 'Here is an occupational health program that can be implemented any place.' I think we need to take a step back and say what is the framework that will address the need in any setting where care is delivered? We are trying to make sure wherever care is delivered that we are recognizing the risks to healthcare workers and figuring out a process to minimize those risks."

Ebola was a game-changer

The recommendations will be aimed at healthcare administrators who oversee occupational health services as well as the leaders and staff of the programs.

"I think a lot of it is refreshing the information that was in there previously, but also just as we have information about what constitutes an infection prevention and control program, there will be an effort to do something very similar with the employee health and occupational

health program," Carrico says. "This really is a program that is important if we are looking at protecting the healthcare workforce. Watching what happened with Ebola really brought that forward. We need to develop a greater and more organized appreciation for the occupational health function [in healthcare]."

Of course, employee health professionals deal with non-infectious challenges like back injuries and ergonomic issues, but the infection control aspect of the job has taken on a greater urgency in the aftermath of Ebola.

"There is a very strong infectious diseases component," Carrico says. "We need to make sure that is very clear and that there is a methodology for investigating, monitoring, and follow-up of these kind of issues. In a patient care setting, the healthcare workers themselves can be involved in transmission. So it becomes a unique situation to try to look at transmission in both directions: to the healthcare worker and to the patient."

In recent years, the patient safety movement has evolved to recognize healthcare workers as a critical part of an overall culture of safety, but employee health professionals are still stretched thin in terms of resources, says **Amber Mitchell**, DrPh, MPH, CPH, president and executive director of the International Safety Center (aka EPINet).

"Our healthcare workers and healthcare systems are asked to take on more with less," she says. "More patients, less time. More public health and community outreach, less funds. More emerging infection risks, less ready access to proper protection. If we don't collectively begin putting our healthcare workers [first] and making their environments safer, we won't have workers well and prepared enough to care for us as patients."

In that regard, the CDC should ensure the guidelines include a recommendation for full support and adequate resources for employee health services, Mitchell says.

"Adequate funding, resources, and staffing for employee health departments allows healthcare facilities to operate more safely and efficiently," she says. "Perhaps CDC should consider an idea to summarize or reference facilities that have had great successes doing that. OSHA has some good case studies on high-performing hospitals in their guidance where focus on worker safety means a parallel increase in patient safety."

> "WE ARE TRYING TO MAKE SURE WHEREVER CARE IS DELIVERED THAT WE ARE RECOGNIZING THE RISKS TO HEALTHCARE WORKERS AND FIGURING OUT A PROCESS TO MINIMIZE THOSE RISKS."

Asked about the CDC guidelines recommending resources for employee health programs, Kuhar says, "Our intent is not to do so in great detail, but rather at a very high level. I think it's pretty clear that without resources and staffing provided, you can't provide the appropriate services. It's obviously relevant, but we won't address it in great detail [like], for example, you need this number of occupational health providers for this number of personnel."

A 'living document'

In addition to specific pathogens, many of which will be updated from the 1998 version, the new CDC guidelines will be a "living document" that will be updated electronically. In that regard, the plan is to post the sections of the new guidelines sequentially as they are completed and approved by HICPAC.

The first section will outline the baseline infrastructure and routine practices of occupational health service. The proposal is to include descriptive text plus hyperlinks to supplementary materials that can be updated over time (e.g., immunizations on hire for HCWs). The second section will focus on epidemiology and prevention of selected infections as well as protection of special healthcare worker populations (e.g., pregnant, immune compromised, and those temporarily working outside the U.S.).

"We are updating a small section at a time so that parts of it will come out in sequence," Kuhar says. "So the first section, which I presented a HICPAC, we are planning to have the committee review some drafts in July. I think the changes that are required will really determine the timeline of when it gets posted online. Each time we finish a section we will take up another one and post them sequentially."

Asked about the perception by Mitchell and others that protecting healthcare workers has become a more complicated enterprise, Kuhar

reminds that many more worker protections are now in place than there were in 1998.

"There have been a lot of new regulations and guidelines put in place to protect healthcare workers as time has gone on and as we have begun to better recognize the threat that certain pathogens pose in healthcare," he says. "One example is the [OSHA] bloodborne pathogen standard, which has been updated since 1998 with the Needlestick Prevention Act. There have been more requirements for employers to ensure protection."

Speaking of OSHA, the agency has been mulling issuing an infectious disease standard for several years. Given the increasing collaboration between federal agencies in recent years on infectious diseases, any OSHA proposed rule would no doubt incorporate key aspects of the CDC occupational health guidelines currently being drafted. ■

New CDC Guidance Includes EH Program Elements, Pathogens

Will update control of C. diff, *measles, respiratory infections*

New infection control guidelines to protect healthcare workers will include the following overall program elements and specifically address the list of pathogens below, according to the CDC.

Elements of Occupational Health Services for Infection Prevention:

- leadership and management (including performance measures & quality improvement);
- collaboration and communication (within and outside health organization);
- risk assessment in the healthcare facility;
- medical evaluations (preplacement, periodic, and episodic; including counseling);
- health and safety education and training;
- immunization programs;
- management of potentially infectious illnesses and exposures;
- records, data management, confidentiality, and reporting.

The CDC guidelines will address protecting workers from a broad range of infectious agents, including the following selected infections transmitted among healthcare personnel and patients:

- acute GI infections (norovirus, *C. difficile*, others);
- bloodborne pathogens (HIV, HBV, HCV);
- conjunctivitis;
- cytomegalovirus (CMV) disease;
- diphtheria;
- hepatitis A;
- herpes simplex;
- measles;
- meningococcal disease;
- multidrug-resistant gram negative bacteria;
- mumps;
- parvovirus;
- pertussis;
- poliomyelitis;
- rabies;
- rubella;
- scabies and pediculosis;
- *Staphylococcus aureus* (MSSA, MRSA);
- *Streptococcus* (group A);
- tuberculosis;
- vaccinia;
- varicella;
- viral respiratory infections (influenza, RSV, others);
- potential agents of bioterrorism (i.e., anthrax). ■

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.

COMING IN FUTURE MONTHS

- Surgical smoke issues still smoldering
- Cleanliness is next to breathlessness: Asthma from cleaning products
- HCWs working with influenza-like illness
- Breaking down the blood exposures in AOHP surveillance

CE INSTRUCTIONS

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

1. Read and study the activity, using the provided references for further research.

2. Scan the QR code to the right or log on to AHCMedia.com, then select "MyAHC" to take a post-test.

3. Pass the online tests with a score of 100%; you will be allowed to answer the questions as many times as needed to achieve a score of 100%.

4. After successfully completing the test, your browser will be automatically directed to the activity evaluation form.

5. Once the completed evaluation is received, a credit letter will be e-mailed to you instantly.

CE QUESTIONS

1. According to Anne Schuchat, MD, Zika infection in pregnant women has been linked to which fetal outcome?

A. Microcephaly
B. Prematurity
C. Eye problems
D. All of the above

2. A new study found that Zika virus has technically mutated since it was first discovered in Africa in 1947, but the changes had no effect on virulence or improved fitness of the virus.

A. True
B. False

3. Though transmission via this route is unproven, new public health guidelines to prevent occupational Zika virus infection note that additional measures may be considered for:

A. Disinfecting equipment shared by patients.
B. Terminal room cleaning.
C. Generation of aerosols.
D. All of the above.

4. The CDC's new *Guidelines for Infection Prevention in Healthcare Personnel* will include comprehensive new approaches to guidance for protecting workers from:

A. SARS
B. MERS
C. Ebola
D. None of the above.