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THE PRACTICAL GUIDE TO KEEPING HEALTHCARE WORKERS HEALTHY

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INSIDE

Soul searching: Hospital chaplains give healthcare workers a safe space to ask unanswerable questions 88

New nurses in peril: Physical and verbal attacks reported by those new on the job 90

Vaccinated HCW acquires measles: A large outbreak was sparked by fear of the MMR vaccine 91

HCW Ebola deaths: Two workers died in the largely contained outbreak in Congo . . . 92

Updated Guidelines: The CDC is seeking a balanced approach to new infection control guidelines for healthcare workers 93

A quiet place: Tired HCWs at risk of injury, medical errors. 95

Healthcare Workers at Risk of Asthma, Respiratory Woes

CDC underscores the importance of reporting symptoms

By Gary Evans, Medical Writer

Healthcare workers are one of the leading occupational risk groups for asthma and other respiratory problems due to multiple potential allergic “triggers” and sources of exposure in the medical environment, the CDC reports.

“The highest prevalence of current asthma was among workers in the healthcare and social assistance industry and in healthcare support occupations,” according to the CDC.¹ “New-onset work-related asthma in these workers has been associated with exposure to cleaning and disinfecting products, powdered latex gloves, and aerosolized medications.”

For example, increasing use of strong

sporicidal cleaning and disinfectant solutions to eradicate *Clostridium difficile* — one of the leading causes of healthcare infections — can lead to asthma and respiratory symptoms in housekeeping and other exposed healthcare workers.²

“There are multiple sources of exposures in the work environment of hospital settings,” says **Jacek Mazurek, MD, PhD**, surveillance branch chief of the respiratory health division of the CDC’s National Institute of Occupational Safety and Health (NIOSH). “Reporting symptoms and exposures is critical. Avoidance is our main means of preventing asthma. Sometimes, workers have to be removed from the source of exposures.”

“AVOIDANCE IS OUR MAIN MEANS OF PREVENTING ASTHMA. SOMETIMES, WORKERS HAVE TO BE REMOVED FROM THE SOURCE OF EXPOSURES.”

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EDITORIAL QUESTIONS:

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That's one of the take-home messages for employee health professionals, who should underscore the importance of reporting exposures and symptoms and work with colleagues to protect healthcare workers from subsequent attacks.

"It is important to stress that if symptoms are occurring in workers they need to talk to their occupational health providers," Mazurek says. "The best way of preventing development and exacerbation of their asthma would be avoidance. Those who are sensitized to various products should also wear a bracelet so in case of a severe attack the first responders would be aware."

The CDC reviewed 2011-2016 data from the National Health Interview Survey (NHIS) to determine industry- and occupation-specific prevalence of asthma, asthma attacks, and asthma-related ED visits among working adults.

For the period, they found 6.8% (11 million) of an estimated 160.7 million working adults had current asthma. Among those with asthma, 44.7% experienced an asthma attack, and 9.9% had an asthma-related ED visit in the previous year. The highest numbers of asthma attacks (307,000) and asthma-related ED visits (75,000) were among people working in ambulatory healthcare. By major occupation group, asthma prevalence was highest among workers in healthcare support (8.8%), followed by personal care and service (8.6%) occupations.

High-level Disinfectants Can Be Triggers

While this broad brush stroke is sufficient to raise alarm, the CDC report was not granular enough to

include specific healthcare worker data by occupation. What is known is that there is no shortage of chemicals and procedures in healthcare that can trigger respiratory reactions.

For example, some high-level disinfectants — commonly used for heat-sensitive equipment — have been linked to work-related asthma.

"Both glutaraldehyde and peracetic acids have been recognized as sensitizers that cause asthma in healthcare workers," Muzarek says. "For that reason, OPA [ortho-phthalaldehyde] was introduced as an alternative for glutaraldehyde in 1999."

Some subsequent reports raised questions about the occupational effects of OPA, but NIOSH reviewed the data and cleared the high-level disinfectant for use in healthcare.³

"Another exposure group is cleaning products used on surfaces," he says. "There are studies linking various cleaning products with asthma and rhinitis in cleaning workers. We know that nurses also contact these products that can exacerbate asthma. These include chlorine, ammonia, and quaternary ammonium compounds."

Work-related rhinitis is defined by NIOSH as nasal congestion, rhinorrhea, sneezing, and/or itching. Importantly, it may be a precursor to occupational asthma, which typically presents as wheezing, shortness of breath, and coughing. It also can result in occupational anaphylaxis, a systemic allergic reaction that can be life-threatening or fatal. "There is some evidence that asthma may be prevented or controlled by appropriate management of rhinitis," NIOSH notes.⁴

In addition to sensitizing materials, physical exertion and stress also can spur an asthma attack. Both of those are abundant in hospitals,

but researchers do not have the data to link this general finding specifically to healthcare.

“We know these factors are associated with triggering and exacerbating asthma,” he says. “The impact of specific work arrangements on worker health is under investigation.”

In general, clinicians should consider work-related asthma in workers with new-onset or worsening asthma. Again, the preferred primary strategy to prevent work-related asthma is exposure control, which includes elimination or substitution of hazardous products, engineering controls, and in some cases, respiratory protection. That said, simply putting people vulnerable to asthma and respiratory problems in respirators is not the answer, Mazurek says.

“There is very little evidence of the effectiveness of wearing respirators to prevent asthma,” he says. “It’s not currently in our recommendations.”

Respiratory Therapists Also at Risk

Given the potential severity of these exposures, there is a need for data by specific healthcare occupation to separate needed protection measures from “overkill,” says **Brian K. Walsh**, PhD, RRT-NPS, RRT-ACCS, AE-C, RPFT, FAARC, president of the American Association for Respiratory Care (AARC).

“We need more studies to show what protective precautions should be taken,” he says. “We also need research linking aerosols to specific professions like respiratory therapy. I think it is time for us to look specialty by specialty — nursing, respiratory therapy, anesthesia. There is some literature about their risk of inhaled anesthetics.”

Respiratory therapists treat patients with aerosolized medications and thus may be exposed to the drugs or the viral and bacterial pathogens their patients are infected with. These aerosolized medications include antibiotics like amikacin, the antiprotozoal pentamidine, and antivirals such as ribavirin. These drugs can evoke respiratory symptoms in and of themselves, and

“WE NEED MORE STUDIES TO SHOW WHAT PROTECTIVE PRECAUTIONS SHOULD BE TAKEN. WE ALSO NEED RESEARCH LINKING AEROSOLS TO SPECIFIC PROFESSIONS LIKE RESPIRATORY THERAPY.”

the exposure is further complicated by the possibility of an infecting pathogen being released during the process.

“A lot of the aerosols that are created by ventilators and nebulizers have actually gone through the person’s respiratory tract and potentially picked up the [infecting] virus or bacteria,” Walsh says. “[For a] lot of the inhalants and the medications that we give, the aerosol is a larger molecule and the bacteria or viruses can actually ‘ride’ on it.”

Though these aerosols “drop quickly as you get away from

the patient,” Walsh says, it is recommended that respiratory therapists wear gloves, gowns, and, if the procedure warrants, a respirator.

However, one study⁵ found numerous breaches of recommended personal protective equipment (PPE) use by respiratory therapists. Among the findings, 22% of respondents did not always wear protective gloves, 69% did not always wear protective gowns, and 49% did not always wear respiratory protection while administering aerosolized pentamidine, which has been linked to adverse reproductive effects. The reasons most often reported for these lapses by respondents was that it was not part of the protocol, an engineering control was being used, no one else who performs this work uses PPE, and the equipment was not readily available in the work area.

“Some people see it as overkill to wear gloves and gowns, and there is also an associated cost that the hospital has to pick up,” Walsh says. “There is not a lot of evidence supporting the need to wear that. There needs to be more research.”

Indeed, there is an “old school” perception that the measures may be unnecessary, though patients under standard precautions would be indicated for at least appropriate glove use and hand hygiene, he says.

“For certain drugs we should wear an N95 mask, gloves, and gowns,” Walsh says. “Those are kind of best practices to try to minimize the aerosol [exposures]. But often they are seen as ‘inhuman’ if you are just giving an aerosol treatment and the [patient] is not contagious. That is just old school practice.”

The issue of asthma in respiratory therapists is confounded by the fact that many go into the field after life experiences with breathing problems, he says.

“A lot of people go into respiratory therapy because they or a family member had lung disease as a child,” he says. “That triggered their mindset to go into this [field] to help people.”

Indeed, there is an anecdotal perception that respiratory therapists may have breathing issues when they are away from work, which means they are also away from the frequent exposure to the treatments they give to patients.

“We often use bronchial dilators to dilate airways, and we are potentially chronically exposed to those drugs,” Walsh says. “When [respiratory therapists] are away from work and not exposed to those, you wonder if they have exacerbations or problems getting worse.”

Walsh submitted comments similar to those expressed to *Hospital Employee Health* to public health officials and partners creating the National Occupational Research Agenda for Respiratory Health.⁶

In another comment on the proposed agenda, **Jonathan Rosen**, industrial hygiene consultant at AJ

Rosen & Associates in Schenectady, NY, said NIOSH should continue to fund and support research that would lead to “a better healthcare disposable N95.”

In addition to better respirators, more research is needed on respiratory protection for first responders and EMTs, who could have close contact with people who may be infected with airborne pathogens, he wrote.

“They also are increasingly called to respond to drug overdoses, which may include potential exposure to fentanyl or its analogues,” Rosen said in the comments. “Research has not evaluated the policies and practices in prehospital programs and among rank and file EMS workers. This is an important gap in a high-risk population that should be included in the agenda.” ■

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Soul-searching: Spiritual Counseling for Healthcare Workers

‘People come from 10,000 different places’

Healthcare work takes an emotional toll, sometimes raising agonizing spiritual questions about suffering and death. Religious and spiritual leaders in hospitals can give healthcare workers a safe space to ask unanswerable questions and process frayed emotions.

One such person is **Matt Norvell**, MDiv, BCC, pediatric chaplain at Johns Hopkins University Hospital in Baltimore. *Hospital Employee Health*

asked Norvell about some of the challenges of this kind of work, which helps healthcare workers regain their emotional and spiritual footing in difficult times.

HEH: How is your program set up? Is it nondenominational?

Norvell: Generally, hospital chaplain programs — and this is certainly true of ours — are intended to be generalized spiritual support. They are certainly nondenominational

and they are also intended to provide support for anybody of any faith background or of no faith background. For example, a few years ago we renamed our department from “Pastoral Care” to “Spiritual Care and Chaplaincy.” We are trying to cast the net as wide as possible and broadly define spiritual support.

HEH: Have you had any pushback on that change?

Norvell: As I understand it

nationally, many places are kind of backing away from the word “pastoral” because it has some specific Judeo-Christian history to it. People outside of those traditions may feel a little bit like, “that is not for me.”

The term “spiritual,” at least for us, has been more accepted. In my experience, people can get on board with some kind of spirituality — more people have that in common than any particular religion or denomination. From that perspective, it has been fine. My experience with staff is that so much of it is the individual comfort level. People get to opt in or self-select to be a part of this.

HEH: What kind of spiritual and religious issues do healthcare workers come to you with?

Norvell: Certainly, there is the day-to-day patient cases that really affect them.

Not long ago, we had a young child who was in an accident and was almost brain dead, had a very poor prognosis. A couple of nurses came to me. They were very distressed. They were worried [and asked] “What are we doing in the care of this child — are we increasing suffering?” One asked, “How do we know when someone’s soul leaves them?” I don’t know that I had a clear answer for that, but as you can imagine, this kind of stuff goes all across the hospital.

People bring their own personal religious and moral convictions to the job, and those get challenged by particular patient cases. Generally, the people that I end up providing spiritual support for are those who have a regular faith-based or religious practice outside of work. It makes a lot of sense for them to reach out to a chaplain for support.

HEH: What about healthcare workers in crisis who describe

themselves as spiritual rather than religious?

Norvell: A sizeable portion of the population are people who consider themselves spiritual but don’t have a particular church or identified religious practice. They may ask even more cosmic questions like, “How could a good God allow something like this to happen? What is my role in supporting this person or this family?”

“THERE IS A LOT OF VALUE IN HAVING SOMEONE SIT WITH YOU AND SAY, ‘THIS IS HORRIBLE, AND I DON’T KNOW THE ANSWER TO IT, EITHER.’”

I spend a lot of time just sitting with folks and allowing them to process some of the big questions that come up in the course of their job. Sometimes I provide a little counsel, advice, and direction, but most of the time it is giving people a safe space to ask the questions they are not necessarily comfortable talking to co-workers or supervisors about. They need somebody a little bit outside of the direct healthcare arena to be able to listen to them and offer some feedback.

HEH: These are profound questions. How do you respond to that? Or do you vary your response according to where you think the person is coming from spiritually?

Norvell: A lot of it is how well I know the person. I talk to them a little bit about their background and

their context. Different religions and different Christian denominations come at these questions from different directions. It’s my role and my hope that I can support them in thinking about it from their tradition, as opposed to imposing whatever my personal stance might be.

Once in a while someone will say, “But, really, what do you believe, chaplain?” In that particular case [of the child], I said I don’t know when somebody’s soul shows up and I don’t know when somebody’s soul disappears. In that instance — which is that this kid is never, ever going to have any discernible interaction with the rest of the world — then it’s my hope that their soul has gone, because I would hate to think of them being somehow “caught” there.

Again, we are talking about stuff that we just have no way of knowing. It does provide some support, some sort of cathartic opportunity for a staff member to feel safe enough to ask that question. There is a lot of value in having someone sit with you and say, “This is horrible, and I don’t know the answer to it, either.” Some of it is just normalizing that the questions are valid.

HEH: You mentioned that new residents coming into Hopkins have to set up a personal wellness plan.

Norvell: Right now, everybody is ramping up for new residents to start, so there are a lot of orientations going on around the hospital.

The movement in the last few years has been people talking about personal wellness and self-care. People here are building into the curriculum things about compassion fatigue, personal wholeness, and taking care of your mind, body, and spirit. People are really building this into their residency training programs. To me it’s fantastic. We are finally recognizing that these people are human with

human needs and challenges, and we are going to try and support that.

For example, someone may say, “I’m Buddhist and I have this particular practice that is very helpful to me. That is a part of my wellness plan.” So when I talk to them about that, I can support them. Then there are some people who come to me and say, “I have no experience with religion or spirituality, but I need to figure out something that is going to help me stay afloat emotionally.”

I have had to define spirituality for myself as I am supporting other people. My baseline definition is it is that which helps to lift and sustain a person’s spirit. What are the things that depress and defeat that? We look for the resources that can help lift somebody’s spirit. They may be reading a particular strain of fiction or helping somebody be in touch with nature. The goal from my corner is to help people be holistically

healthy using their own spiritual and emotional approach. How can they be who they want to be?

HEH: In addition to individual counseling, what spiritual or religious services does your department provide for employees?

Norvell: We as a hospital and a department systemically provide spiritual support through regular worship opportunities. Since we have a priest on staff, we have regular mass here. We have a pretty solid group of Muslims, mainly employees, but all people are welcome. The Judah service is on Friday afternoons.

When people come to us with requests to have some sort of a service, say a funeral for an employee, we do whatever we can to support people. It is just trying to honor and respect all of these people that we work with and all the variety of their backgrounds. People come from 10,000 different places and what is

going to work for one may not work for another. So, this is to a certain extent trying to provide sort of a menu of ways to provide spiritual support, and hopefully one of those will connect with what the individual needs.

HEH: This may be more a hospital policy than spiritual guidance, but what about accommodating religious beliefs that may conflict with work practice?

Norvell: Those are accommodated on a hospital policy basis and they work it out with their department. In instances where a person might have a religious objection to providing a procedure or something like that, the hospital has a conscientious objector policy built in. Obviously there are emergency situations, but generally it is designed so the person can say, “I am not comfortable participating in this” in enough time to allow somebody else in that role to step in. ■

Survey: New Nurses Face Violence, Verbal Abuse

One-quarter report physical assault

How bad is the level of violence in healthcare? A shocking one-quarter of new nurses report being physically assaulted and 70% report experiencing verbal abuse.

“These are nurses who are just out of school so they cannot have practiced anywhere longer than 2.5 years at the time of our survey,” says **Lynn Unruh**, PhD, RN, LHRM, a professor at the University of Central Florida in Orlando.

‘Disturbing’ Results

Unruh and colleagues surveyed newly licensed registered nurses

(NLRNs), selected from the Florida Board of Nursing data, to study any links between the work environment and workplace violence and injuries.¹ Almost half of the 414 nurses who responded worked in community nonteaching hospitals.

Nearly all worked an average of 38 hours per week in 12-hour shifts, and 62% worked day shifts. Many participants cared for an average of five patients in recent shifts, the researchers reported.

These reports of verbal abuse may reflect the fact that the nurses are new to the field and unaccustomed to the stressful work culture.

“A lot of times new nurses are not

necessarily treated with the gentleness that they might perceive they need,” Unruh says. “Their preceptor or doctors might be a little brusque with them and they may interpret that as verbal abuse — and it very well may be.”

The survey did not ask the source of the verbal abuse, meaning it could be patients, patient families, and co-workers.

“We need to be much more sensitive to new nurses and training new nurses than we have been,” she says.

The majority of violence in healthcare typically is patient to healthcare worker, but the survey did

not specifically determine the source of the violence reported by 25% of the nurses.

“That is pretty disturbing,” Unruh says. “The physical violence is most likely from patients or family members because it is much less likely a colleague would be physically abusive.”

In any case, the finding that 25% of new nurses report violence within the first few years on the job is disconcerting.

“I worked as a nurse for many years and I experienced this to some

degree, but it was actually much later in my career,” she says. “I don’t recall ever having any ... violence problems when I was a new nurse. Over the accumulation of a number of years I had some incidents, but 25% is high.”

Most of the other findings in the study generally correlate with past nursing studies, although there were some outliers.

“What is new about these findings is the discovery of the extent to which injuries and violence are part of NLRNs’ workplaces,”

the researchers reported. “These are problems likely to create dissatisfaction with work and the profession, and could lead to leaving one or both. Given the need to better retain NLRNs in their jobs and in the profession, these issues must be addressed.” ■

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Vaccinated Healthcare Worker Acquires Measles Amid Outbreak

Large outbreak traced to fear of vaccine

A healthcare worker with a history of measles vaccination still acquired the disease when treating unsuspected cases in the early stages of a large measles outbreak in the Minneapolis area last year, says **Julie LeBlanc**, MPH, CIC, healthcare epidemiologist at Children’s Minnesota.

The transmission occurred at the beginning of an outbreak that would ultimately result in 75 confirmed measles cases in the community of the Twin Cities. An ED nurse with documented receipt of two doses of the measles, mumps, and rubella (MMR) vaccine was infected after prolonged contact with two cases that were not suspected of having measles.

Another reported hospital-acquired case of measles was the mother of a patient, LeBlanc says. Both resulted in mild illness, but added to the chaos as the hospital responded to the outbreak in the community.

“The healthcare worker did not work while symptomatic, and once you are four days past the rash phase you are not contagious anymore,” LeBlanc says. “So once that timeline is met and there are no longer any symptoms, then that person is allowed to come back to work.”

As measles vaccination is not 100% effective, the policy at the hospital is for healthcare workers treating known or suspected cases to wear an N95 respirator regardless of immunization status.

“You wear an N95 if you are medically cleared and have done the fit-testing, or wear a PAPR [powered air purifying respirator],” she says. “Once we knew we had measles, staff really understood their role in identifying any potential suspect case and getting airborne precautions implemented. We had good compliance.”

The hospital policy requires measles immunity on hire. To

meet this, the CDC requires new employees to receive two doses of the MMR vaccine or show proof of immunity. Healthcare workers born before 1957 may be presumed to be immune, according to the CDC. However, in the event of an outbreak, the CDC recommends that healthcare workers born before 1957 receive two doses of MMR vaccine.

“In the outbreak, there was really a broad message to staff that they could potentially be exposed with as many cases as we were seeing,” LeBlanc says. “[We said] make sure that you are immune. If you have any question in your mind, work with employee health services to ensure that you meet the policy.”

The outbreak was sparked by unvaccinated children in the area’s large Somali population. There have been past outbreaks associated with the population, some of whom did not vaccinate their children due to antivaccine groups pushing the

debunked connection between MMR receipt and autism.

The parents and older children were largely vaccinated, but the younger Somali children were largely unvaccinated, says **Patricia Stinchfield**, MS, RN, CPNP, infectious disease nurse practitioner

and senior director of infection control at the hospital.

“We really realized the impact of the antivaccine groups when we looked at our vaccine records and we saw the oldest kids were vaccinated, the middle kids had one MMR, and the youngest kids had no MMR but

every other [childhood vaccine],” she says.

“There are some antivaccine groups in Minnesota. They met with the Somali imams and basically told them to tell their mosque members that MMR causes autism. That myth and the fear took hold.” ■

Two Healthcare Workers Die of Ebola in Congo

Outbreak appears to be contained

As of June 20, 2018, the Ebola outbreak in Congo has been largely contained, but at the cost of the lives of two healthcare workers.

As this issue went to press, the last confirmed case-patient in Congo developed symptoms on June 2, 2018, and died on June 9, the World Health Organization (WHO) reported.¹

From April 1 through June 18, there have been a total of 60 Ebola cases, including 28 deaths. The total includes 38 confirmed, 14 probable, and eight suspected cases.

“Five cases were healthcare workers, of which four were confirmed cases, and two died,” WHO reported.

Of 1,706 contacts of cases registered to date, 244 contacts remain under active follow-up as of June 18.

It was not known at press time whether the healthcare workers who acquired Ebola had received the experimental vaccine that has been implemented on an emergency-use basis.

Since the launch of the vaccination intervention on May 21 through June 17, a total of 3,137 people had been vaccinated in Congo. The vaccine, called rVSV-ZEBOV, was found to be highly protective against the virus in a trial

conducted by WHO in Guinea in 2015. The vaccine has not yet been licensed by the FDA, and there is no recommendation for pre-exposure vaccination of U.S. healthcare workers.

“U.S. HEALTHCARE FACILITIES SHOULD CONTINUE TO SEEK TRAVEL HISTORIES AS A ROUTINE PART OF INITIAL PATIENT TRIAGE AND ASSESSMENT.”

In a triumph of genetic engineering, the vaccine consists of an animal vesicular stomatitis virus seeded with the protein of Zaire Ebola. It provokes a human immune response to the Ebola virus.

In a “ring” vaccination approach, contacts with an Ebola case include those living in the same household or those who were visited by the patient in the three weeks prior to diagnosis. Further, “contacts of contacts,” including neighbors or

extended family members, also may be vaccinated.

“The ring is not necessarily a contiguous geographic area but captures a social network of individuals and locations that may include dwellings or workplaces further afield, where the index patient spent time while symptomatic, or the households of individuals who had contact with the patient during the illness or after his or her death,” WHO stated. “Experience suggests that each ring may be composed of an average of 150 persons.”

Vigilance in the U.S.

In the U.S., healthcare facilities are advised to be vigilant for travel cases linked to the outbreak.

“U.S. healthcare facilities should continue to seek travel histories as a routine part of initial patient triage and assessment,” says CDC spokeswoman **Kate Fowlie**. “In the context of the current outbreak, travel to the Ebola-affected health zones in [Congo] or contact with an individual with confirmed Ebola within the previous 21 days should trigger further symptom evaluation.”

Now is a good time for facilities to review their status as frontline, assessment, or treatment centers,

and confirm that current health department contact information is readily available, she adds. The CDC recommends a strategy of “Identify, Isolate, and Inform,” which calls for immediately isolating suspected Ebola cases and alerting the facility’s infection preventionist and the health department.

For personal protective equipment (PPE), CDC recommends following its guidance¹ for U.S. healthcare settings developed during the 2014-2015 outbreak. Some 11,000 people — including one in the U.S. — died during that outbreak, which also involved the Zaire strain of the Ebola virus.

Active surveillance activities are ongoing in Congo, including daily follow-up of contacts of cases in the community and at healthcare facilities. Infection prevention and control supplies, including PPE and

disinfectants, have been provided to health facilities throughout the region.

In addition to the experimental vaccine, WHO is providing technical advice on the use of investigational therapeutics, which are being used for the first time to treat some cases as approved by an ethics review board.

As of June 19, 26 countries have implemented entry screening for international travelers coming from Congo, but there are currently no restrictions of international traffic in place. WHO continues to monitor travel and trade measures in relation to this event.

The index case for the current outbreak in Congo was reported on April 4. No Ebola cases were being treated in the U.S. as this report was filed, but the CDC deployed eight experts to the region to assist in the outbreak. The agency also posted a

Level 1 Watch travel notice for Ebola in Congo.

“We are monitoring the outbreak and are not currently recommending people avoid travel,” Fowlie says.

Although the risk to most travelers is low, visitors to Congo should avoid contact with blood or body fluids, funeral or burial rituals that require handling a dead body, raw bush meat, and wild animals. The 2014 outbreak was thought to have begun with a child who was playing in a hollow tree full of bats, which can asymptotically carry the virus. ■

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CDC Rethinking Exposures in Healthcare Worker Guidelines

Updating infection control for healthcare personnel

The CDC is seeking a balanced approach to new infection control guidelines for healthcare workers, trying to avoid overkill without sacrificing the necessary protections for a broad range of pathogens.

“If you underidentify, transmissions can happen,” says **David Kuhar**, MD, medical officer in the Division of Healthcare Quality Promotion at the CDC. “If you overidentify, that can lead to work restrictions and post-exposure prophylaxis for people who don’t need them.”

Originally published in 1998,

the CDC recommendations for infection control in healthcare personnel are undergoing a systematic update that will provide recommendations for occupational exposures with more than 20 pathogens that can be acquired in healthcare settings.

Emphasizing that this is a somewhat theoretical framework designed to generate discussion and feedback, Kuhar recently presented the following seven occupational exposure definitions to the CDC’s Healthcare Infection Control Practices Advisory Committee (HICPAC):

• **Percutaneous Injury Exposure:** A percutaneous injury (e.g., needlestick) with inoculation of potentially infectious body fluids that may include blood, tissue, secretions, or others;

• **Mucous Membrane Contact Exposure:** Mucous membrane contact with potentially infectious body fluids that may include blood, tissue, secretions, or others;

• **Non-intact Skin Contact Exposure:** Contact of exposed skin that is chapped, abraded, afflicted with dermatitis, or otherwise compromised with potentially infectious body fluids that may

include blood, tissue, secretions, or others;

- **Intact Skin Contact Exposure:**

Unprotected direct contact with an infectious source person or his or her environment;

- **Face-to-Face Exposure:**

Unprotected, close, face-to-face;

- **Close Proximity Exposure:**

Unprotected contact within six feet of an infectious source person;

- **Long-distance Exposure:**

Unprotected contact with infectious particles suspended in the air at a distance greater than six feet from the source.

There is a wealth of contingencies in this approach, including pathogen-specific factors that may vary by the duration of some exposures, Kuhar explains. Likewise, potentially infectious body fluids can differ among pathogens. Options for post-exposure prophylaxis will vary, and work restrictions also are largely dependent on the source of exposure.

To reiterate, the one consistency in all of the definitions is they are regarded as “unprotected exposures, with ‘unprotected’ encompassing whether or not they were wearing, or not appropriately using, recommended personal protective equipment,” he says.

“The idea is to have a consistent way to try to approach this between pathogens,” he adds. “Some of them are very different from one another, but we want to try to take a consistent and understandable approach. We will also provide examples where we can for guideline users.”

There is limited science on how some of the occupational pathogens are transmitted, meaning achieving some consistency will be challenging. The term “strawman” was used in describing the exposure groups to HICPAC, emphasizing that this is an early iteration of a theoretical model.

“We just wanted to put forward a draft of a set of definitions that cover the spectrum of infectious exposures in healthcare,” Kuhar says. “We wanted to put something out that covered the whole spectrum — to give the committee something to react to. But we were clear that we are not married to this if people thought we should take a different approach.”

“THE AT-RISK INTERACTIONS THAT INVOLVE PROVIDING CARE FOR A PATIENT MAY BE DIFFERENT EVEN BETWEEN DISEASES THAT ARE TRANSMITTED SIMILARLY.”

Kuhar and colleagues will apply these definitions to a range of pathogens and see if the system is workable.

“Our plan is to apply this to several different pathogens that we intend to cover in the guidelines, such as measles, tuberculosis, *Staph aureus*, and others that are transmitted in different ways in healthcare settings,” he says.

Overall, the feedback has been positive, as there is some consensus on the need for consistency and clarity in describing exposures, he says.

“We received some feedback of the need for examples of procedures and interactions when providing care for patients, which may vary for diseases that are transmitted,” he says.

“The at-risk interactions that involve providing care for a patient may be different even between diseases that are transmitted similarly. So our examples are probably going to have to be pathogen-specific.”

A novel addition is the concept of long-distance exposure as another way to look at airborne transmission.

“The idea was to capture exposures to contaminated air at distances greater than six feet from the source — things that we often think of as airborne transmission relevant to TB and measles,” he says. “For a number of reasons, we didn’t call it airborne transmission, as that may come with some preconceptions that are not quite accurate.”

How are the exposure definitions different from what has been in previous CDC guidelines?

“The ones that are subtly different are the ones that are describing exposures to a person,” he says. “Sharps injuries, touching people — those are fairly well-recognized kinds of exposures and consistent with how we previously thought about it. However, distance from an infectious source is something that there has been previous questions about, something where there has been a lot of variability in exposure definitions over the years.”

The CDC is planning to draft the guideline in two major sections, one of which will be the infrastructure for occupational health services for infection prevention.

“The second section is the individual pathogens, where we are talking about the epidemiology and control of roughly 20 to 25 pathogens that are transmitted in healthcare settings among healthcare personnel,” Kuhar says.

The draft of section one has been completed and is in CDC clearance. After that, it will be published in the

Federal Register for public comment.

“It will then come back to HICPAC to review the public

comments and update the guideline as needed,” he says. “Then it will go back through CDC clearance.

I think from start to finish we are talking about roughly a year to [final] publication of that section.” ■

A Quiet Place: Sleepless Healthcare Workers

Tired staff may not nap if work culture unsupportive

There is a general consensus that healthcare workers on 12-hour night shifts may struggle with fatigue, even to the point of being at risk of an accident on their way home. In that sense, sleep deprivation goes beyond the risk of personal injury or patient errors.

“It’s a public health problem,” says **Marian Wilson**, PhD, of the Sleep and Performance Research Center at Washington State University in Pullman.

But the solution is complicated, as a study by Wilson and colleagues found that simply establishing a fatigue mitigation policy may not solve the problem if the work culture does not support breaks and napping.

The researchers assessed sleep quality, sleepiness, and use of workplace break opportunities in 1,285 healthcare workers via an online questionnaire. Two hospitals were surveyed, including one with a fatigue mitigation policy. Overall, 68.9% of respondents reported generally taking breaks of at least 30 minutes and 21.7% had access to a quiet place to rest.

“The presence of a fatigue mitigation policy was not associated with reduced sleepiness,” they concluded.¹ “However, accounting for hospital and shift characteristics, employees with access to a quiet place to rest while on break had significantly lower self-reported sleepiness scores.”

Paradoxically, workers taking breaks of at least 30 minutes reported greater sleepiness than those not

taking breaks — a finding that may be associated with “sleep inertia.”

“Part of the problem is we don’t know exactly what kind of a break you need to be both refreshed and safe,” Wilson says. “Another problem is that if you take a nap break on the night shift, initially when you wake up you can be a little groggy. You may suffer some greater performance deficits due to sleep inertia.”

In addition, tired healthcare workers may not take breaks if there are not adequate relief staff or clear support for the practice in the work culture.

“Even if you have this in policy, that may not be enough to change the culture or the behaviors of the staff,” she says. “This was a relatively new policy when we did the study. We believe, based on other information and research, that you would have better results if you also focused on the culture of nurses’ and healthcare employees’ willingness and ability to take breaks.”

Policies, rather than stating that there is “permission” to take a break, may need to be worded as “we expect you to,” she says.

“The culture needs to be changed just as it has in the trucking industry

and with airline pilots,” Wilson says. “We recognize that performance fails when you are too fatigued. It is not normal to the human body to be working night shifts. Biology is against staying awake all night.”

With 12-hour shifts increasingly common, Wilson reminds that performance deficits tend to occur at about the six-hour mark.

Beyond the work culture issues, there is little standardization of what type of rest space is needed to provide relief.

“One question we want to explore in future research is what these break rooms really look like,” she says. “In many hospitals there is a lot of variation in those rooms depending on what unit you are working on. What should be the standard for a rest break room? What should facilities offer, and what should they look like?” ■

REFERENCE

1. Wilson M, Riedy SM., Himmel M, et al. Sleep quality, sleepiness and the influence of workplace breaks: A cross-sectional survey of healthcare workers in two US hospitals. *Chronobiology International* 2018: <https://doi.org/10.1080/07420528.2018.1466791>.

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CE QUESTIONS

- 1. With healthcare workers emerging as a major risk group to occupational asthma, the CDC is emphasizing that respirators have proven clearly effective at preventing asthma.**
 - a. True
 - b. False
- 2. What percentage of new nurses reported violence within the first 2.5 years of work?**
 - a. 8%
 - b. 15%
 - c. 25%
 - d. 33%
- 3. Which of the following is true regarding the healthcare worker who acquired measles during an outbreak in Minneapolis?**
 - a. The worker had no history of immunization.
 - b. The worker was exposed to unsuspected cases.
 - c. The worker was wearing a respirator that was not fit-tested.
 - d. The worker was immune-compromised.
- 4. According to David Kuhar, MD, overidentifying occupational exposures can lead to unnecessary work restrictions and post-exposure prophylaxis. Conversely, what is the risk of underidentifying exposures?**
 - a. Transmission of pathogens
 - b. Overreliance on personal protective equipment
 - c. Blurred lines between community and hospital infections
 - d. Unnecessary worker furloughs

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.