HOSPITAL EMPLOYEE HEALTH

THE PRACTICAL GUIDE TO KEEPING HEALTHCARE WORKERS HEALTHY

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INSIDE

RELIAS MEDIA

Mass Flu Shots of More than 8,000 Healthcare Workers in One Day

Initiative included multiple sites and a drive-through lane

By Gary Evans, Medical Writer

Through a wide-reaching mass flu immunization effort that doubled as an emergency drill, a healthcare system in Delaware recently vaccinated a staggering 8,035 employees in a single day.

Such an effort takes considerable planning and administrative support, but there are a multitude of positives — not the least of which is readying a large portion of your staff for flu season before the annual virus starts circulating.

ChristianaCare healthcare system in Wilmington, DE, started its "#HitMeWithYourFluShot" campaign in the 2018-2019 influenza season, mass-vaccinating 7,868 employees. They followed suit in October 2019 for the 2019-2020 season, topping the prior total in an 18-hour vaccine marathon from 3 a.m. to 9 p.m.

The one-day blitz included vaccinating on site at two hospitals, and sending mobile vaccination units to affiliated institutions in neighboring states. Overall, the outreach included 100 nearby locations in Delaware, Pennsylvania, Maryland, and New Jersey. That included the two hospitals in Wilmington and Newark, NJ. Mobile teams dropped off vaccination kits or administered vaccines so caregivers in remote sites could be vaccinated quickly and easily. These locations included primary care, specialty care, medical

> OVERALL, THE OUTREACH INCLUDED 100 NEARBY LOCATIONS IN DELAWARE, PENNSYLVANIA, MARYLAND, AND NEW JERSEY.

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aid units, imaging, laboratory, rehabilitation services, and nonclinical sites.

A novel addition this year was a drive-through option, allowing workers who were not on shift to receive the vaccine without leaving their cars. Employees were encouraged to preregister for their flu shot in the weeks leading up to the drill, which improved the efficiency of the exercise. Those not vaccinated during the one-day campaign were slated for follow-up immunization.

Hospital Employee Health asked for more details about the mass immunization campaign in an interview with **Marci Drees,** MD, MS, FACP, DTMH, FSHEA, ChristianaCare chief infection prevention officer and hospital epidemiologist.

HEH: Why did you use this mass vaccination approach for healthcare worker flu shots?

Drees: We have had a pretty intensive flu campaign prior to the last two years, but it was spread out over three weeks. We had put into place a tracking system so that we knew who was vaccinated [in-house and affiliated sites and clinics]. We had that in place for five or six years prior to this event. There have been other hospitals that published similar plans to dual-purpose your flu campaign into a vaccination drill. We took some lessons from what we read, and put our own spin on it.

We are pretty geographically diverse, so having everyone come to one spot to get vaccinated — which is what some of the other institutions have described — was not going to be very feasible for us. We did it our own way by having several different locations plus a traveling team that went to all of our outpatient and ancillary sites across four states. They brought vaccine if there were staff that were able to vaccinate at the location. We also had a traveling vaccination team that went around to the nonclinical sites, where there was no one physically there who could administer vaccine. Most people who were vaccinated got it on campus because that is where most of our staff are on any given day. Delaware is pretty small state. We are right at the juxtaposition of the four states. It's a complex system in terms having to get where you need to go, but it is not a huge [geographic area].

HEH: How do you set up the program for those who will be vaccinated within the hospital? Did you go around with vaccination carts?

Drees: For the two physical hospitals, we set two locations at the bigger one, and one at the smaller one. We have multiple tables, and there were very few times throughout the day that there were lines, because we had staffed up appropriately. For the outpatient sites, we had to know how many people needed vaccination so that we could drop off a package, vaccine, syringes, alcohol swabs — everything they needed to vaccinate their own staff. Or, the traveling vaccine team would come through [and immunize people]. We were able to find out ahead of time how many staff needed vaccine.

HEH: Does this one-day campaign generate a lot enthusiasm that helps with staff participation?

Drees: I think it does. We talk it up a lot. [Marketing] did a great job in terms of publicity. You have to make it fun. A radio station came in, we had therapy dogs, and tons of stuff that people could do while they were waiting. The other thing is we had a lot of nurses and pharmacists

volunteer to give vaccines. We also had a lot of hospital leaders come down to help, and that was nice. It's fun — you get to see staff you don't see every day.

HEH: Did staff have to get out of their cars for drive-through immunization?

Drees: No; you just roll up your sleeve. We thought it might be a nice opportunity to get some of our people who were off that day. They might have their kids with them, and they don't want to park and come in. We put it in back of the employee parking lot, and we got a lot of positive feedback. The longest wait was 25 minutes, but people were happy with that option. That was a big success for this year; that was something new.

HEH: Can you report this mass immunization effort as an emergency preparedness drill to The Joint Commission?

Drees: Yes. It helps us with that regulatory accreditation, but we really did need to understand how we would do this on very short notice. We took six months to plan our first event, and the second time it got a little bit easier. There are a lot of lessons learned. For example, nobody had a true master list of where all our staff work. Different departments had different lists. From an emergency management perspective, you need a master list. That was a great lesson learned from the first time.

We have primary care clinics with outpatient labs, outpatient radiology, and physical therapy. No one person at that physical location had a reporting system for all of those different types of clinical sites. You have to communicate four different time times for four different clinics, but they all are physically at the same place. That was a lesson learned last year. This year, we made sure there was some kind of site contact that was responsible for communicating for all of the different services at a given physical site. That really streamlined things.

It has been nice to partner with emergency management. It is a ton of work, so the fact that we have support from the very top is really essential. We never know when flu is going to hit; some years it hits earlier than others. But by the middle of October, we have two-thirds or three-quarters of this done. It is nice to have a jump start on that.

HEH: Would this kind of drill be appropriate training for the next influenza pandemic, or the kind of mass prophylaxis that would be necessary after a large exposure or bioterrorism incident?

Drees: I was here in 2009 when we had the last pandemic. I think the bigger issue then was we didn't have vaccine. The question was how you prioritize [vaccine] to the patients, the staff, and to which staff. Who are the people at a higher risk of complications? It gets very tricky. This is slightly different, but I think we still learned things by having this drill. It doesn't have to be a vaccine, necessarily; it could be a mass prophylaxis with antibiotics. It would be the same process, so I think it is useful for other things.

HEH: Does your healthcare system mandate seasonal flu immunization for healthcare workers?

Drees: We do not. We allow people to decline. We have what I call a "mandatory declination" process. They are required to participate in the process. We typically have less than 5% decline. That is pretty good herd immunity for flu. I know facilities that mandate vaccine have about 99% [compliance] because they fire people. This is a little more lenient, but we still get the results that we need.

HEH: Do you conduct annual education to overcome antivaccine sentiment and myths?

Drees: We always perform education. We put together web-based learning that we push out in September. For the last couple of years, we have done kind of a [basic] version for people who know they are going to be vaccinated and just wanted to know where and when. Or, they can choose a longer version that goes into the types of vaccines and any safety concerns. We probably have 200 frequently asked questions, all grouped by category, based on questions we have received. We make sure that is updated each year.

Those who do decline must give a reason. We also look at what department they are in. If there is a department that has a little lower vaccination rate, we target them for some advertising materials and try to get some of their own staff members to be models for the fliers. It really emphasizes that someone they know is supportive of the flu vaccination.

HEH: For those who decline vaccination, do you enforce mask requirements during flu season?

Drees: They must participate in the [vaccination] process, and we give them a date of Nov. 30 to complete that. We then push out to managers [whose employees] are not vaccinated and they know that they have to wear a mask. Once flu starts circulating in the community, we will put out a notice saying now is the time to start masking for anyone who is unvaccinated for any reason. We typically get another rush, at that time, down to employee health of people who want to get vaccinated. They don't want to wear a mask, so they come down and get it, but we do have people who wear masks all winter long. ■

Sharps Injuries: Emotional, Statistical Challenges

Preliminary data from EXPO-S.T.O.P. 2018

The emotional toll of needlesticks and sharps injuries to healthcare workers often is overshadowed by the sheer numbers and statistical analysis.

Terry Grimmond, FASM, BAgrSc, GrDpAdEd, a microbiology consultant and one of the principal investigators in the EXPO-S.T.O.P. (EXPOsure Survey of Trends in Occupational Practice), recently shared a story. The ongoing study of sharps injuries and exposures in healthcare workers is supported by The Association of Occupational Health Professionals in Healthcare (AOHP).

"You can't put a cost on the emotional impact of sharps injuries," he said at a recent AOHP webinar. "I will never forget a healthcare worker came to me just suffering after she sustained a deep, penetrating injury with a bloody needle. She sobbed and sobbed. She had just been married. She and her husband were trying to have children, and she kept on saying to me, 'They tell me we've got to stop trying until I know my results. How am I going to tell my husband?'"

Grimmond was joined at the webinar by **Linda Good**, RN, PhD, COHN-S, manager of occupational health services at Scripps Health in San Diego. They discussed trends and preliminary data from the 2018 EXPO-S.T.O.P. survey.

Grimmond and Good suggested the increase in needlesticks in recent years may be due in part to the use of the number of hospital beds as a denominator. As an alternative, the survey is moving to the number of full-time equivalent (FTE) staff, which they think will be a more accurate reflection of sharps injury rates.

"We believe beds or average daily census may no longer be the most suitable denominator because of changing hospital admission patterns," Grimmond said. "There are now more day patients in our hospitals and fewer overnighters. Your workload increase is not being reflected in occupied beds."

More than half of all patients are now seen on an outpatient basis, Good added. "That is a lot of patients, a lot of healthcare personnel taking care of them, and probably a fair number of sharps injuries," she said. "But these are no longer being properly captured when we use average daily census because they are not there overnight."

With occupied beds decreasing throughout the United Sates, it can give a false impression that sharps injury rates have risen markedly since 2001. "If you use FTE it actually shows that sharps injuries have decreased since 2001, at least somewhat," Grimmond said.

600 Exposures Daily

Still, the current rate shows there are 600 exposures daily in U.S. hospitals. "Only 27% of U.S. healthcare workers work in hospitals," he said.

While the investigators are improving the survey to get a more accurate read, they emphasized that needlsticks remain a large problem that has not been mitigated by various new treatments for bloodborne infections like HIV and hepatitis.

"There are 60 pathogens that can be transmitted by needles — 26 viruses, 18 bacteria, three fungi, and 13 parasites," Grimmond said. "Two HCWs in the last eight years have died of malaria from a needlestick injury."

Presenting 2018 data from 174 hospitals in 33 states, Grimmond said, "We are relieved to say that 2018 is showing a leveling. If you use FTE, it shows the rates have decreased this year compared to last year."

Overall, it appears that small hospitals and large hospitals at opposite ends of the spectrum experience high rates, while those in the middle tend to report fewer exposures.

"We think the smaller hospitals — under 1,000 FTE — probably report more injuries," he said. "Everybody knows each other; no shame, no blame. But in larger hospitals, there truly is a higher risk because of more sharps being used."

In 2018, nurses represented 38.9% of all sharps injuries. "Overall, nurses' sharps injury rates are lower than in 2015, and we believe this suggests greater access to safety devices in clinical units as distinct from the OR," Good said.

Indeed, 42.8% injuries occurred in the OR, but physician rates are difficult to determine because many are not hospital employees and do not necessarily have to report.

"In OR procedures, the percent of sharps injuries are actually rising," Grimmond said. "In 2018, for the first time, it was above 40%. Twenty years ago, surgery was about 20-25% of all reported injuries because there were so many sharps injuries in clinical units. Now, with greater use

of safety-engineered devices, there are less injuries in those units and the OR is proportionally going up."

Most injuries in surgical procedures are sticks with suture needles. There has been a push in recent years to use blunt surgical needles, but many surgeons prefer standard sharps over the safety designs.

"Occupational health practitioners need to be better partners with OR managers, infection preventionists, and surgical leaders in assisting with device evaluation for alternatives," Good said.

Good also reminded that healthcare workers remain vulnerable to blood splash exposures to the eyes and other mucous membranes. Many eye exposures occur because the healthcare worker is not wearing eye protection.

While many sharps devices are designed to prevent needlesticks, many of them are not activated before disposable, Grimmond said. In research for an upcoming paper, he opened 2,000 sharps containers at 29 U.S. hospitals. He found that 11% of hollow-bore needles were conventional and did not include safety features. Of those with safety designs, 4% were not activated to protect the worker. In addition, 5% of needles were recapped before disposing, which is no longer recommended because it can lead to needlesticks.

"We are still using far too many standard, hollow-bore needle devices," he said. "Also, more than half of injuries related to sharps safety devices occurred during or after activation of the device. We need to use safety devices that are less dependent on manual activation. We need to be looking annually at better devices."

When a sharps injury occurs, take a close look at the worker and the circumstances of the accident. "Make sure workers know how to properly use safety devices, including new staff, interns, residents, students, and agency personnel. Is there a safer, next-generation alternative?"

Never accept the common explanation that exposures are just part of the job. "I push back on that," Good said. "If exposures were just inevitable or part of the job, we would see pretty much the same rates in all hospitals. This study refutes that by allowing us to identify hospitals with very low exposure numbers. Each year, we reach out to the occupational health professionals at these hospitals and ask them to tell us what they are doing to get such exemplary results."

Some common themes at these successful institutions include personalized coaching for someone who has been injured, transparency and communication about the program, and sharing success stories with administration. By the same token, if poor practices are observed, they are discussed at a staff meeting in case other workers are doing the same.

"Make sure the devices you are using have been evaluated by the staff," Grimmond said. "They will be more likely to use them correctly if they were involved in their selection. Secondly, try to move away from mechanically activated devices and toward semi-automatic and automatic devices." ■

An Unusual and Persistent Needlestick

Lab worker furloughed for four months

A lab worker sustained a needlestick exposure to the Vaccinia virus (VACV) — an *Orthopoxvirus* used in biomedical research — and was removed from work for four months, the CDC reported.[1]

In December 2018, a healthy, 26-year-old female laboratorian was injecting VACV into the tail of a mouse when she sustained a needlestick injury to her left index finger. The lab worker rinsed the wound with water and was advised by a supervisor to visit the local ED. A few months earlier, the lab worker was advised of the risks of working with VACV, but declined immunization with the ACAM2000 vaccine.

"Between days two and nine post-infection, the patient was evaluated by two community physicians; neither advised her to observe contact precautions to prevent autoinoculation or secondary transmission," the CDC reported. Despite this lapse, the VACV did not spread from the wound site to others, and the patient did not self-inoculate by, for example, touching her eyes.

Ten days after the needlestick, she presented at occupational health clinic with swelling and a vesicular lesion at the injury site. The treating physician contacted CDC and the San Diego Health Department, which advised monitoring her for evidence of worsening infection.

"On day 12, she was treated at a university-based emergency department for fever, left axillary lymphadenopathy, malaise, pain, and worsening edema of her finger," the CDC reported. "Healthcare providers were concerned about progression to compartment syndrome, joint infection, or further spread."

Complicating the situation, the specific VACV strain could not be determined. Thus, the severity and progress of the infection could not be predicted. The patient received a single 6,000 IU/kg dose of vaccinia immune globulin intravenous, and started a 14-day course of twice-daily oral tecovirimat.

"She also received clindamycin and cephalexin because of concern about possible secondary bacterial infection," the CDC reported. "Within 48 hours of treatment initiation, the fever and lymphadenopathy resolved, and the local pain and edema decreased."

The occupational health office furloughed the patient from lab work for approximately four months, citing the local necrosis of the wound site and the risk for VACV transmission. Again, no secondary transmission or autoinoculation occurred.

Investigators determined that a genetically altered strain of VACV could have been involved in the needlestick. The patient was injecting multiple groups of mice with different strains, and did not recall which strain she used when the needlestick injury occurred.

"Although the patient had declined vaccination when it was initially offered, during this investigation she reported that she did not appreciate the extent of infection that could occur with VACV when vaccination was first offered," the CDC concluded. "She also cited the challenges of managing the infectious lesion at the vaccination site and potential vaccination adverse events as factors contributing to her initial decision to decline vaccination."

The CDC recommends vaccination for laboratorians who work with replication-competent VACV, unless vaccination is medically contraindicated. Counseling before working with VACV should include benefits of vaccination, risks of working with VACV in the laboratory, vaccination-associated adverse events, care of the vaccination site, and contraindications to vaccination.

> THE CDC RECOMMENDS VACCINATION FOR LABORATORIANS WHO WORK WITH REPLICATION-COMPETENT VACV, UNLESS VACCINATION IS MEDICALLY CONTRAINDICATED.

"However, laboratories working with VACV set their own policies," the CDC concluded. "ACAM2000 is a live-virus vaccine that produces an infectious vaccination site lesion. Appropriate vaccination site care requires careful monitoring of the site and adherence to infection control precautions until the crust separates and a new layer of skin forms."

While laboratorians may wish to avoid the vaccine in lieu of these site management requirements, accidental inoculations may be a worse alternative. "[These] often occur in fingers or eyes, causing infections that present special concern for complications, and clinical management can be difficult," the CDC warned. "In addition, laboratory exposures, unlike vaccination, do not have a controlled route of exposure or controlled dose."

Hospital Employee Health sought further comment on this unusual case from CDC corresponding author **Erin R. Whitehouse**, PhD, MPH, in the following interview.

HEH: Can you comment on what type of lab this was, and the significance of using genetically modified strains of VACV? Was increased virulence a likely factor in the severity and duration of this infection?

Whitehouse: To protect the identity of the laboratory worker, we are not providing details about the laboratory itself. Vaccinia has been used for experimental vaccines and oncology research because it has a large, stable genome made of DNA, which makes it relatively easy to add genetic material (called generic inserts). We did not have reason to suspect that these inserts were more virulent to humans based on a review of scientific literature and an understanding of the purpose of the genetic insert. There is still much we do not know about how specific genetic changes to viruses, including VACV, might impact human health.

HEH: Can you elaborate on the "misconception among laboratory workers about the virulence of VACV strains?" Is this incident a cautionary tale of what can happen if a lab worker declines vaccination?

Whitehouse: Western reserve VACV is a replication-competent strain, which means it can replicate and cause infections in humans. In many laboratory strains, the thymidine kinase gene has been removed, which was thought to decrease the virulence of VACV.

However, as noted in the *Morbidity and Mortality Weekly Report*, most laboratory-acquired vaccinia infections have been in VACV strains with the thymidine kinase removed. Because of the misconception that the thymidine kinase removal prevents infection, laboratorians may underestimate the impact of being infected with a strain of VACV. The specific risks of infection and adverse events from genetically modified strains of vaccinia are not well-known. Laboratorians also may underestimate their risk of having a laboratory accident, such as a needlestick. Laboratory workers should be clearly counseled on the potential risks of working with genetically modified vaccinia and encouraged to make a decision about vaccination in consultation with their physician.

HEH: Regarding the "importance of providing laboratorians with pathogen information and post-exposure procedures," could that have prevented the situation of the two community physicians not seeming to understand the implications of the infection?

Whitehouse: We cannot comment on what might have happened in this scenario, but it is important that laboratories have clear post-exposure procedures and ensure that laboratory workers exposed to vaccinia have follow-up by a healthcare provider familiar with vaccinia. CDC and state and local health departments are available 24/7 to provide consultation for any healthcare provider who has a patient with a VACV exposure and would like additional information.

HEH: Can you comment further on the importance of these contact precaution measures to avoid secondary transmission and autoinoculation?

Whitehouse: It is important to monitor for lesions, and keep any lesions covered. Once lesions develop on the skin, they are infectious until the lesion forms a crust, the crust falls off, and new skin is present at the site. VACV is transmitted through direct contact with lesion material or through fomites (i.e. towels, bedding, clothing). A person can transmit VACV to other sites on his or her body through autoinoculation, or to other individuals. Post-exposure monitoring is important to help protect the person who has been exposed, as well as others. If a person is monitoring the infection site and covering any lesions that appear, then the risk of transmission is very low.

HEH: The worker apparently was worried about managing the inoculation site of a live-virus vaccine, but you underscore there may be a greater risk of "accidental inoculations" that often occur in fingers or eyes. Can you elaborate on this point, and the risk-benefit of VAVC vaccination?

Whitehouse: ACAM2000, a smallpox (vaccinia) vaccine licensed in the United States, is used for laboratorians working with *Orthopoxviruses,* including VACV. ACAM2000 contains a live VACV that causes an infectious lesion at the site of vaccination (typically the outer upper arm). The site is infectious until a crust forms, falls off, and new skin is present at the site, which typically takes four to six weeks. Appropriate vaccination care includes keeping the site covered to prevent infection to other parts of the body or to other people. Importantly, this is a known strain of VACV where the adverse events from vaccination are monitored through the Vaccine Adverse Events Reporting System at CDC, and by the military for military personnel. Thus, the risk of adverse events from vaccination are well-documented. As mentioned previously, the specific risks of infection from genetically modified strains of vaccinia are not well-known. In addition, the sites of accidental inoculations often are in areas like the eyes or fingers where there are higher risks of complications and that may be more difficult to cover to prevent further infections.

HEH: Were this lab's policies typical or an outlier? It seems the worker was not adequately informed of the risk of VAVC, and unaware what to do after the exposure.

Whitehouse: We do not have enough information to comment on this. CDC does provide recommendations for vaccination of laboratory workers and others who may be at risk of occupational exposure with VACV through the Advisory Committee for Immunization Practices. However, laboratories set their own policies about vaccination.

HEH: Why was it necessary to furlough the worker for four months?

Whitehouse: The treating physician made determinations about the laboratory worker's return to work based on her clinical status. We do not have enough details to comment specifically on all the factors related to her time off of work. However, VACV lesions are infectious until the scab has completely fallen off and new skin is present, a process that took several months in this case. Another contributing factor was the location on her finger, given that laboratory work with mice involves precision and fine motor skills. ■

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Patient Handling Challenges for the OR Nurse

AORN guidelines stress equipment needs, ergonomic science

While the operating room is on the cutting edge in innovative technology and procedures, the ability to safely handle and reposition patients too often is stuck in the past. The Association of periOperative Registered Nurses (AORN) is emphasizing the risk of injury to healthcare workers in moving and handling surgical patients, and has issued guidelines and toolkits to address the issue.

"It's estimated that almost half of all nonfatal occupational injuries experienced by perioperative nurses are musculoskeletal, and more than one-quarter of these are back injuries," AORN emphasized in a recent report.[1]

Mary Ogg, MSN, RN, CNOR, a senior perioperative practice specialist, outlined the challenges at a recent AORN Resources webinar. "Injuries continue to rise for healthcare workers because of the increasing prevalence of obesity in our patient populations," she said. "Our patients' weight and size is increasing every year."

These musculoskeletal disorders (MSDs) may include injuries to spinal discs, muscles, nerves, tendons, ligaments, and joints. "The lower back, shoulder, and upper extremities are typically involved in MSDs, with a gradual or chronic onset," she said. "Most injuries are the result of overexertion, repetitive motion, manual lifting, and pushing and pulling."

In a poll taken during the webinar, some 85% of participants said they have suffered an MSD, or know a co-worker who has been injured. Ogg also cited a study that that surveyed 116 operating nurses from eight different hospitals. Two-thirds reported MSD pain, with 53% pain in the lumbar, 38% cervical, and 21% in the knees and legs.[2]

"Many other respondents reported pain in more than one region," she said. "The authors postulated that MSDs are the most common cause of long-term absence from work, which they defined as more than two weeks."

Physical stressors include moving or lifting patients and equipment, prolonged standing, and awkward postures sometimes necessary for procedures. "Many of the patients undergoing surgical procedures are completely or partially dependent on their caregivers due to the effects of general or regional anesthesia," she said. "Patients who are unconscious cannot move, sense discomfort, or feel pain, and they must be protected from injury. This also requires the team to manually lift the patient's extremities several times during the procedure."

Lift Equipment Needed

Specialized lift equipment is needed for the unique OR environment, as devices used on hospital floors may not be adaptable to the surgical suite. For example, ceiling lifts for patients must be designed and installed in a way that protects the surgical field from contamination. Since this typically occurs during new construction or renovation, many ORs in the U.S. do not include ceiling lifts, Ogg said.

"You have to take into account the other things that are hanging from your ceiling, such as lights and booms, and all the different lines that go through the ceiling," she said. "To my knowledge, right now, there are not many ORs with ceiling lifts. There are a few installed across the country."

Many ORs still use rollerboards to transfer patients, but these are considered somewhat outdated. AORN is working with industry to implement updated equipment, Ogg said. If rollerboards with friction-resistant sheets are used, they should be long enough to extend down the entire length of the patient body, she said.

"Although rollerboards assist us with transferring patients, they may not be an ideal solution," she said. "There is still a lot of pulling and pushing and awkward postures associated with moving that patient from the OR bed to a stretcher."

That means more staff may be needed to safely move a patient, but adequate staffing to maintain that capacity is a challenge. Air-assisted lateral transfer devices that lift the patient through a hoverboard effect require fewer staff for use.

"The air transfer devices are great for moving a patient from one surface to another," Ogg said. "I have seen them used quite well for lateral positioning, and maybe even into supine. It just depends on your needs. Probably one of the most cost-effective things is a slide sheet to help you move the patient laterally from one bed surface to another."

In another survey question asked during the webinar, 83%

of participants said they use rollerboards, and almost half of respondents use air-assisted lifts.

"'There are some other technologies that are out there now, including a lift that is incorporated in a boom arm. But again, that would need to be added during renovation or new construction," she said. "In the OR, we have multiple needs. There is not going to be one tool or piece of equipment that will solve all of our needs."

AORN Guidelines

AORN has issued safe patient handling and guidelines that incorporate ergonomic principles. "The science of this guideline is grounded in ergonomic principles," she said.

Adapted from general guidelines by the American Nurses Association, the AORN Safe Patient Handling and Movement (SPHM) guidelines are designed to meet the unique needs of perioperative setting. The guidelines include the following recommendations for the healthcare organization and the perioperative team.[3]

• **Establish a formal, systemized SPHM program.** "The perioperative program team should perform an initial comprehensive assessment of the safe patient handling needs, current equipment, and handling technology available," Ogg said. "[Review] adverse events data to determine the needs, priority, and frequency for reassessment."

• **Incorporate ergonomic design principles in the planning and design of the surgical suite.** "The design team should include the perspective and input from frontline [workers] and the perioperative teams," she said.

• **Collaborate in the selection, installation, and maintenance of safe patient handling technology into the perioperative setting.**

"What are your patient characteristics and procedure types?" Ogg said, suggesting questions to consider. "What are the staffing patterns in your facility? Do you have any existing patient handling equipment? In considering equipment, [determine] if it is efficient, reliable, and know what maintenance requirements are."

• **Collaborate to establish education, training, and competency verification in SPHM techniques and equipment.** The AORN guidelines emphasize ergonomic principles, which should not be confused with the "body mechanics" training, Ogg emphasized.

"Body mechanics is defined as a system for positioning a healthcare worker's body during patient handling and movement to prevent musculoskeletal injuries," she explained. "Despite the fact that even perfectly implemented body mechanics do not protect nurses from injury, these practices continue to be widely taught in our schools of nursing. There is no scientific evidence that support body mechanics or manual lifting techniques as protection against back and other musculoskeletal injuries."

• **Assess the patient and the perioperative environment, and develop a plan for SPHM.** "We start with a patient assessment," she said. "The OR team should identify high-risk tasks associated with transferring the patient, positioning the patient, retraction, and equipment-handling activities."

This AORN recommendation includes ergonomic tools and algorithms that outline various patient handling tasks, how many employees are needed, and when mechanical lifting devices should be used. For example, the ergonomic tool for lateral transfer of a patient from a stretcher to an OR bed includes the number of people needed to safely move patients and when to use equipment. If the patient weighs less than 53 pounds, lateral transfer can be safely accomplished with one team member and an anesthesia professional using a draw sheet. If the patient weights 53 to 105 pounds, two team members and an

anesthesiologist can safely move the patient using a draw sheet. Patients weighing 105 to 157 pounds require four team members using a lateral transfer device.

"If the patient weighs more than 157 pounds, you should use assisted technology such as the air transfer system or a mechanical lift to move that patient," Ogg said. "The number of team members needed to perform this is dependent on the type of technology used. Often with the air transfer device you may only need two team members."

• **Provide an injured employee with reasonable accommodations for post-injury return to work.** Noting that healthcare workers often work in pain, Ogg said the "organization should establish a process to match the physical capability of the perioperative team member to those physical demands of the job."

• **Establish a quality assurance and performance improvement program.** "A comprehensive evaluation of the program should include injury incidents and severity, perioperative team member performance, and patient outcomes and injuries," Ogg said. "Team members should report and document hazards, near-misses, incidents, and accidents related to safe patient handling according to your organization's policy." ■

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Antivaccine Movement Pushing States on Immunization

A variety of challenges, exemptions, delay tactics

Employee health professionals should be aware that the national antivaccine movement is lobbying state legislatures to restrict or limit use of vaccines critical for public health. Such antivaccine sentiments are largely responsible for the 1,261 measles cases in 2019 as of Nov. 7.[1]

That is the most since 1992, and comes two decades after measles was declared eradicated in the United States due to routine administration of the highly effective measles, mumps, rubella (MMR) vaccine. Vaccine avoidance based on misinformation — including the thoroughly rebuked falsehood linking autism to the MMR shot — threatens herd immunity and vulnerable populations that cannot be immunized. The Association for Professionals in Infection Control and Epidemiology (APIC) is staying abreast of this trend, and advising vaccine advocates to speak up if they see such laws appear on their state dockets.

This effort is not limited to the MMR vaccine, as the antivaccine movement is lobbying state legislatures to widen exemptions against childhood school immunizations and other mandates. A recent U.S. poll found that 45% of respondents have doubts about the safety of vaccines. The primary reasons for these doubts included "past secrets/wrongdoing" by the pharmaceutical industry and the government. Also cited were social media interactions and content, information from medical "experts," and advice from family and friends. Somewhat surprisingly, given that the majority of states have exemptions for some version of religious or philosophical beliefs, only 4% of those doubting vaccine safety cited religious beliefs as the reason.[2]

"There are about 45 states that have some kind of religious or personal belief exemption in addition to a medical exemption," said **Richard Capperell**, APIC associate director of public affairs. "Overall, we saw about 200 [state] bills dealing with vaccines this [legislative] cycle, and we expect to see just as many next year."

That is due in part to antivaccine activists lobbying state legislators, some of whom sympathize with their cause and/or see an opportunity for political gain, Capperell said at a recent APIC webinar. The ongoing vaccine fight at the state level includes proposed laws to provide broader exemptions for school immunizations, and legislation and delay tactics to spread out or undermine the childhood immunization schedule, he said.

Capperell said there is concern with efforts that would place the burden on schools and healthcare facilities to justify vaccination or spurious "informed consent" bills that would require providers to overstate the risk of vaccine contraindications. However, the U.S. measles outbreaks have led to some pushback from vaccine advocates, as there are now five states that allow only medical exemptions to childhood vaccinations: California, Maine, Mississippi, New York, and West Virginia.

"New York and Maine are the newest additions to the list this year," he said. "Every year in West Virginia and Mississippi, we are seeing legislation to put the exemptions back on the books. The antivaccine movement is quite vocal in their opposition to vaccine requirements and, unfortunately, they are very effective at getting their folks active when the time comes."

In addition, Washington state has repealed personal or religious exemptions for the MMR vaccine. "Most of the legislation we are looking at is regarding requirements for school and childcare facilities," he said. "These do not include just MMR, but an entire spectrum of vaccines, including meningitis and HPV."

Some states also are trying to expand or restrict employer-mandated vaccinations, which have been most controversial in policies requiring annual flu shots for healthcare workers. "This has long been a top priority for APIC," Capperell said. "We have talked a lot about this regarding healthcare facilities. Most bills opposing employer mandates target influenza vaccines."

Eight states have introduced legislation that would prohibit employers from requiring employees receive certain vaccines: Oregon, Montana, Oklahoma, Minnesota, Iowa, Mississippi, Ohio, and Maine. "One concern is that some of the Midwestern states were actually targeting all vaccines — not just influenza," Capperell said. "[These proposed bills say] for any vaccine, an employer would not be allowed to require vaccination of the employee. That is a little bit of a scary trend we saw."

On the plus side, Texas, Colorado, Arkansas, New York, and New Jersey were considering legislation that would expand healthcare worker vaccine requirements. "But we also saw some states introducing laws either strengthening current exemptions or trying to find new avenues to make exemptions a little more lenient," he said. With most states already allowing some sort of nonmedical exemption, there are efforts to make applying for an exemption easier.

"There is another trend we are seeing as well: making the ability to apply for an exemption easier," Capperell said. "A [proposed Texas] bill made it so all you had to do is go to an online portal and request an exemption."

Several states are drafting variations of bills that would require healthcare providers or school officials to provide information on vaccines. The legislation targets both healthcare facilities and schools. These bills may require a school system to send literature to students reminding them of exemptions.

Other versions of "informed consent" bills for healthcare facilities require that they highlight the rare but real risk of experiencing, for example, an allergic reaction to a vaccine. Some of this proposed legislation requires an explanation of the National Vaccine Injury Compensation Program. This federal program was set up in 1988 after lawsuits against vaccine manufacturers and healthcare providers threatened to cause shortages and undermine national immunization rates.

Such bills essentially emphasize risk over benefit of an established public health measure. For example, informed consent bills may include highlighting vaccine ingredients, emphasizing potential harm rather than the protective aspects of immunization.

"Generally speaking, these bills really kind of exploit the risk of vaccines vs. the actual benefits of being cost-effective, extremely efficacious, and saving hundreds of thousands of lives every year," Capperell said. "The burden is actually put on some healthcare providers because this information can be required to be given days, maybe a week, before a vaccination." ■

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COMING IN FUTURE MONTHS

- An anthropologist studies worker attitudes toward personal protective equipment
- Increased risk of respiratory infections in pediatric HCWs
- Canada adopts controversial guidelines on providers with bloodborne infections
- Follow-up of workers exposed to hazardous medications

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CE QUESTIONS

1. **Why did Marci Drees, MD, say a mass immunization drill would not necessarily be a good way to vaccinate thousands of employees during an influenza pandemic?**

   a. Pandemic vaccine would need to be tested for efficacy before deployment.
   b. Hospitals would have to prioritize who receives the limited supply rather than immunize all.
   c. It would be better to administer antiviral drugs to those who became symptomatic.
   d. A pandemic vaccine would have to be ordered in smaller lots over time.

2. **Citing the shifting trends in healthcare delivery, sharps injury investigators said which may be a more accurate denominator for measuring rates?**

   a. Using physicians only
   b. Using number of hospital beds
   c. Including hospitals only
   d. Using the number of full-time equivalent staff

3. **A person with vaccinia virus:**

   a. cannot transmit the virus after 10 days.
   b. can autoinoculate other body sites, but not infect another person.
   c. develops immunity, but can transmit to someone else until healing is complete.
   d. can both autoinoculate and transmit to others.

4. **Which is least commonly used in the United States to move patients in the operating room?**

   a. Ceiling lifts
   b. Rollerboards to transfer patients
   c. Friction-resistant sheets
   d. Air-assisted lifts

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.