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INSIDE

Science trumps candidates: MMR vaccine, shot schedule safe

Will 'dangerous' debate talk hurt public, HCW vaccination rates?

By Gary Evans, Senior Staff Writer

As vaccine-preventable diseases continue to resurge and threaten both patients and healthcare workers, 23 million television viewers — an all-time record for CNN — recently heard reckless comments on vaccine safety by men who aspire to the highest office in the nation.

Three Republican presidential candidates — two of them physicians — made comments at the Sept. 16 GOP debate that either gave new life to the old lie that vaccines are linked to autism, or suggested that childhood shots are unsafe because too many are given at the same time.

The comments were immediately condemned by the medical community, with the American Academy of Pediatrics (AAP) calling them both false and "dangerous." However, there is some concern that the high-profile discussion will reinvigorate the anti-vaccine movement in the U.S. and give pause to healthcare workers who are being strongly urged to overcome historical resistance and receive all recommended vaccines.

VACCINE SPECIAL REPORT PART 2

In the last issue of *Hospital Employee Health*, we featured coverage of the bold decision by the American Nurses Association to urge that all healthcare workers be immunized with all recommended vaccines unless they have verified exemptions. With that campaign barely off the ground, high-profile anti-vaccine comments during a recent GOP presidential debate spurred a sharp rebuke by a medical community that found itself back on the defensive on vaccine safety. ■

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Indeed, it was the resurgence of measles — in part because people were shunning the MMR vaccine because of fears of autism — that prompted the American Nurses Association to recommend that nurses and their healthcare colleagues be immunized for all recommended vaccines. *(See* Hospital Employee Health*, Oct. 2015.)* After the considerable fallout following the debate, the ANA reminds healthcare workers that science overwhelmingly supports the current medical consensus about vaccines. "ANA's hope is that healthcare professionals are 'smarter' and seek to research information so that they can be advocates [of vaccine safety]," says **Ruth Francis**, MPH, MCHES, program specialist in the ANA's nursing practice and work environment department.

In any case, the medical community could not let the debate comments stand, and some of the varied and passionate responses included a pediatric infectious disease physician's vivid description of sick children before many vaccines were available. *(See related story, page 126.)* Other rebuttals came from the highest levels of public health.

"Study after study has concluded that there is no risk [or connection] between vaccines and autism," said **Tom Frieden**, MD, director of the Centers for Disease Control and Prevention. "There is, though, a very serious problem of autism. The discussion of vaccines and autism unfortunately has, at times, interfered with our ability to study further what is causing autism so we can both prevent it better and provide better services to the children and families who have autism."

Frieden's comments were made one day after the debate at a Sept. 17 influenza meeting and press conference held by the National Foundation for Infectious Diseases (NFID). The director made the subtle point that the CDC is the agency collecting reports and documenting the increase in autism, leaving unsaid the question of why would an agency try to "hide" or deny a link between vaccines and autism while simultaneously reporting an increase in the childhood disease. In terms of the scheduling of childhood shots, Frieden said that is discussed and set in open meetings by the CDC's Advisory Committees on Immunization Practices (ACIP).

"[ACIP] works in a completely transparent fashion," Frieden said. "All of the meetings, all the documents are open to the public. There are individuals and entities represented on ACIP from all sectors of society, including patient groups. And this is not just the most effective way of setting vaccine policy. It's a model for countries around the world. Because let's be frank — for most vaccines, there are some people who think that there's something bad about them. And there is hardly a vaccination program that's been run in any country, anywhere in the world, ever, that hasn't had some rumors circulating about it. The best disinfectant for rumors is transparency."

Fear and prejudice

Shortly after the debate, the Autistic Self Advocacy Network issued a statement that said, "Politicians continue to talk about an autism epidemic — despite the fact that science suggests that autism has always existed at its current rate within the general population. Autistic people are not new — and

neither are our unmet needs. … Vaccinations do not cause autism — but the use of autism as a means of scaring parents from safeguarding their children from life-threatening illness demonstrates the depths of prejudice and fear that still surrounds our disability."

The vaccine safety issue was originally seized on by some to explain the dramatic increase in autism over the last few decades. However, it appears that much of this trend has been due to changing definitions — "diagnostic substitution" — that has increased the number of intellectual disabilities defined as autism. This type of surveillance artifact accounted for a 64% increase in autism diagnosis from 2000-2010, researchers recently concluded.[1] However, critics have pointed out that diagnostic substitution does not explain all of the increase, and vaccine researcher **Paul Offit**, MD, of the Children's Hospital of Philadelphia, has observed that the autism issue may cast a shadow over vaccine safety until the real reasons for the disorder are completely understood. Complicating matters, the CDC is expected to tighten the autism definition in the near future, winnowing out other intellectual disabilities that have heretofore fallen under the broad category. As employee health professionals are well aware, a more restricted clinical definition will invariably lower the number of reported autism cases. If this occurs, we should see another round of controversy as critics accuse the CDC of manipulating the data.

All the while, the research showing that vaccines do not cause autism continues to accumulate. A study published this year in the *Journal of the American Medical Association* found no link between MMR vaccine and autism after looking at thousands of patients.[2] There was no link even among children already at higher risk for autism due to an existing diagnosis in an older sibling.

"We were able to follow over 95,000 children from birth to at least five years of age." says lead author **Anjali Jain**, MD, a medical consultant with the Lewin Group in Falls Church, VA. "We then looked at these kids to see which ones were vaccinated with MMR vaccine during that time period. We also looked at which kids developed autism spectrum disorder during that time period. We were able to compare their risk of developing autism relative to them having received the MMR vaccine. We found there was no harmful association between the receipt of the vaccine and development of an autism spectrum disorder."

Trump links autism, vaccines

What was actually said at the Sept. 16 GOP presidential debate to prompt all this reaction?

Candidate **Donald Trump** said, "Autism has become an epidemic. Twenty-five years ago, 35 years ago, you look at the statistics, not even close. It has gotten totally out of control. I am totally in favor of vaccines. But I want smaller doses over a longer period of time. …[Y]ou take this little beautiful baby, and you pump — I mean, it looks just like it's meant for a horse, not for a child. We've had so many instances, people that work for me. Just the other day, two-and-a-half years old, a beautiful child went to have the vaccine, and came back, and a week later got a tremendous fever, got very, very sick, now is autistic."

Candidate **Ben Carson**, MD, a pediatric neurosurgeon, rejected the autism-vaccine link. However, he took a conciliatory tone that some found far too tepid when the leading candidate had just made a statement that is patently false and potentially life-threatening by justifying parents who deny vaccines to their children. "The fact of the matter is we have extremely well-documented proof that there's no autism associated with vaccinations," Carson said. "But it is true that we are probably giving way too many [vaccines] in too short a period of time."

Candidate **Sen. Rand Paul**, (R-KY), MD, an ophthalmologist, then added: "I'm all for vaccines. But I'm also for freedom. I'm also a little concerned about how they're bunched up. My kids had all of their vaccines, and even if the science doesn't say bunching them up is a problem, I ought to have the right to spread out my vaccines a little bit at the very least."

Theater of the absurd

The physician candidates should have rebuked Trump more forcefully for the autism comments and only confused the issue more by endorsing the false notion that there is some risk to children due to the timing of the immunizations, says **William Schaffner**, MD, longtime vaccine advocate and professor of preventive medicine at Vanderbilt University School of Medicine in Nashville.

"First, there is no doubt that there is no connection between vaccines and autism. That's number one and must be stated strongly," he tells *HEH*. "It is disheartening that two physicians were part of that debate and did not strongly make the point that vaccines are not associated with

autism. Some of that was said, but it was not said with the explicitness and the force needed."

Suggesting that there is a link between autism and vaccines has now been so thoroughly discredited that Trump's comment should have been treated with the absurdity it deserved, Schaffner notes.

"If one of the candidates had said that the moon is made of cream cheese I think it could have been said by the other candidates, 'No, that is not correct,'" he says. "'We now have ample information brought back by the astronauts that the moon is essentially a great big rock. It is not made of cream cheese.'"

Though his equivocal tone could have been more about politics than medicine, Carson did at least refute the autism link. However, he then doubled down, as did Paul, on the pediatric immunization schedule.

"The conversation slipped into the issue of stretching out the routine childhood immunization schedule and that's where the train went completely off the rails," Schaffner says. "Because those physicians offered commentary that seemed to support stretching out the immunization schedule, for which there is no good reason, no evidence and it only keeps children susceptible to the diseases the vaccines are designed to prevent for longer periods of time."

This contention was born out by an Institute of Medicine (IOM) report that concluded, "Upon reviewing stakeholder concerns and scientific literature regarding the entire childhood immunization schedule, the IOM committee finds no evidence that the schedule is unsafe. The committee's review did not reveal an evidence base suggesting that the U.S. childhood immunization schedule is linked to autoimmune diseases, asthma, hypersensitivity, seizures, child developmental disorders, learning or developmental disorders, or attention deficit or disruptive disorders."[3]

However, it is somewhat understandable why parents may be concerned that the timing and number of shots may be harmful.

> "IF ONE OF THE CANDIDATES HAD SAID THAT THE MOON IS MADE OF CREAM CHEESE, I THINK IT COULD HAVE BEEN SAID BY THE OTHER CANDIDATES, 'NO, THAT IS NOT CORRECT.'"

They are not, the IOM concluded, noting that the schedule (in 2013) protects children from 14 pathogens by inoculating them at the time in their lives when they are most vulnerable to disease. Under this schedule, which applies to those younger than 6, children may receive as many as 24 immunizations by their second birthday and may receive up to five injections during a single doctor's visit, the IOM reported. Existing mechanisms to monitor vaccine safety, including several surveillance and reporting systems by CDC and the Food and Drug Administration, provide a safety net, the IOM added.

Another IOM report was cited at the aforementioned NFID meeting, as **Wendy Sue Swanson**, MD, a pediatrician, said the institute reviewed over 1,000 studies and found no link between vaccines and autism.[4] "[Likewise], we have not a single study that demonstrates spacing out or delaying vaccines provides any benefit," she added.

Swanson then read a statement from the AAP on the GOP debate: "Claims that vaccines are linked to autism, or are unsafe when administered according to the recommended schedule have been disproven by a robust body of medical literature. It is dangerous to public health to suggest otherwise. There is no 'alternative' immunization schedule. Delaying vaccines only leaves a child at risk of disease for a longer period of time; it does not make vaccinating safer. … Vaccines are one of the safest, most effective and most important medical innovations of our time."

That said, the IOM vaccine report did find some adverse reactions associated with some of the routinely administered vaccines, particularly for varicella (chickenpox). *(See related story, page 125.)*

As previously reported in *HEH*, a key factor in the erroneous autism vaccination link was the publication of a later-retracted study in *Lancet* that falsely suggested MMR (measles, mumps, rubella) vaccine administration triggered onset of autism in children.[5] However, there has been longstanding resistance to vaccines among both patients and healthcare workers that has nothing to do with autism.

Many trace this back to the 1976 swine flu debacle, when a pandemic to rival the 1918 Spanish Flu was thought to be on the verge of an outbreak in the U.S. The 1976 H1N1 "swine flu" pseudo-pandemic was a public health disaster, as the feared flu never materialized and a

newly developed vaccine given to 40 million people was linked to paralysis and fatalities due to the rare autoimmune disease Guillain-Barré Syndrome (GBS). There were several hundred cases of GBS that included a reported 25 deaths, prompting the enduring observation that the vaccine killed more people than the disease did (1 death, 13 hospitalized). In the aftermath, the director of the CDC was replaced and President Gerald Ford — who was photographed getting the swine flu shot to motivate the public — lost the 1976 election.

The level of GBS seen in 1976 has not been found with a seasonal flu vaccine, but public health officials cannot rule out that a small number of GBS cases may be occurring annually in those immunized.

"Safety monitoring of seasonal inactivated influenza vaccine (IIV) over the course of many years has not detected a clear link to (GBS)," ACIP stated this year.[6] "However, if there is a risk of GBS from current IIV, it would be no more than 1 or 2 cases per million people vaccinated. This is much lower than the risk of severe influenza, which can be prevented by vaccination."

Every year about 3,000 to 6,000 people in the United States develop GBS whether or not they received a vaccination — that's 1 to 2 people out of every 100,000 people, ACIP noted.

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IOM review: No vaccine-autism link, but rare adverse events linked to some routine shots

Varicella vaccine has a pox of problems

An analysis of more than 1,000 research articles concluded that few health problems are caused by or clearly associated with vaccines, but there are some adverse outcomes of note, the Institute of Medicine concluded in a comprehensive 2011 report on the issue.[1]

A committee of experts convened by the IOM to review the scientific literature on vaccines found evidence of 14 rare outcomes, including seizures, inflammation of the brain, and fainting. The panel also found some data on associations between specific vaccines and allergic reactions and temporary joint pain. The evidence underscored that there are no links between immunization and autism or Type 1 diabetes.

The IOM committee reviewed the safety of some commonly used vaccines, including those for varicella zoster, influenza, hepatitis B virus, human papillomavirus, hepatitis A, measles, mumps, rubella (MMR) vaccine, the meningococcal vaccines, and tetanus-containing vaccines that do not carry the whole-cell pertussis component. For the vast majority (135 vaccine-adverse event pairs), the evidence was inadequate to accept or reject a causal relationship. In many cases, the adverse event being examined was an extremely rare condition, making it hard to draw any definitive conclusions, the IOM reported.

The IOM found no evidence of the following five vaccine–adverse event relationships of particular concern:

- MMR vaccine and autism,
- MMR vaccine and type 1 diabetes,
- DTaP (tetanus) vaccine and type 1 diabetes,
- Inactivated influenza vaccine and Bell's palsy, and
- Inactivated influenza vaccine and exacerbation of asthma or reactive airway disease episodes in children and adults.

Pox problem

The IOM committee concluded that the evidence convincingly supports a causal relationship between some vaccines and some adverse events. As a live vaccine, the varicella zoster vaccine is linked to four specific adverse events, all due to infection from the vaccine virus strain:

• Disseminated varicella infection (widespread chickenpox rash shortly after vaccination);

• Disseminated varicella infection with subsequent infection resulting in pneumonia, meningitis, or hepatitis in individuals with demonstrated immunodeficiencies;

• Vaccine strain viral reactivation (appearance of chickenpox rash months to years after vaccination);

• Vaccine strain viral reactivation with subsequent infection resulting in meningitis or encephalitis (inflammation of the brain).

In addition, less comprehensive evidence indicated a causal relationship for other vaccine–adverse event interactions. In these cases, the evidence is strong and generally suggestive, but not firm enough to be described as convincing, the IOM noted. These include:

• HPV vaccine and anaphylaxis (allergic reaction);

• MMR vaccine and transient arthralgia (temporary joint pain) in female adults and children.

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Pediatrician: We demonize vaccines at our peril

Don't forget the suffering patients hospitals saw before vaccines

Following anti-vaccine statements made by Republican presidential candidates at a Sept. 16 debate, **David W. Kimberlin**, MD, co-director of pediatric infectious diseases at the University of Alabama at Birmingham, wrote an opinion piece that was published in a local newspaper and provided to *HEH* upon request. Editor of the American Academy of Pediatricians prestigious *Red Book* guide and a pediatrician at Alabama Children's Hospital, Kimberlin strongly refuted any link between the MMR vaccine and autism and compared delaying vaccinations to driving around with your child not buckled in a safety seat. Here is an excerpt of his article:

"If you walked through the halls of Children's of Alabama, or any similar pediatric hospital across the country, just 10 years ago, children with severe dehydration due to rotavirus would have stared at you through sunken eyes. Twenty or 30 years ago, you would have seen children struggling to breathe or on ventilators with the classic rash of measles or chickenpox as the telltale sign of what was causing their lungs to fail. Or you would have seen babies with their arms and legs jerking uncontrollably from the seizures in their brains due to meningitis caused by bacteria such as *Haemophilus*, pneumococcus, or meningococcus.

Thirty years before that, you would have seen children in iron lungs because polio had destroyed the nerve connections in their spines and they could no longer breathe on their own. The lucky ones survived only to go home in a wheelchair because their legs were paralyzed. If you had visited the nursery 40 years ago, you would have seen babies with cloudy eyes, tiny heads, distended bellies, and skin that looked like a blueberry muffin — all because their mothers contracted German measles, or rubella, during the pregnancy.

We don't see these things anymore. Alabama's children, like those from across the country, are protected from these ravages because of the safe and effective vaccines they receive during childhood. When our grandparents and great-grandparents were children, about one in five babies born died before 5 years of age, mostly from infectious diseases. The medical miracles that are vaccines protect our children from such horrific fates.

But there is one catch with all of this: For vaccines to work, they have to be used — and used by large enough numbers of parents to prevent the vaccine-preventable diseases from gaining a foothold in a community and starting an epidemic. The vast majority of parents understand this and trust their pediatrician when she recommends that all the childhood vaccines be given on time. But a small number of parents hesitate, leaving their own children at risk and putting other children in danger as well. These parents love their children; there is no doubt about that. But they get sidetracked

by false claims that question the safety of vaccines… [or] the schedule by which vaccines are recommended for children.

Young children's immune systems are designed to be able to handle not only the number of vaccines that we give early in life, but actually much more. For example, during the common cold, an infant is exposed to approximately 30,000 viral proteins, or antigens, over two to three days. Over the first 18 years of life, a total of approximately 150 vaccine antigens are given to fully protect against all vaccine-preventable diseases. Babies get colds all the time and never have any problems. Giving 150 antigens over 18 years is a breeze compared with what we humans can handle! When presidential candidates (or anyone else) suggest that vaccines should be given but just on a slower schedule, they only risk children coming down with a life-threatening illness during the window of time between when the vaccine should have been given and when it was given. It would be like leaving your home for a 10-mile drive and not buckling your child into the car seat, then pulling over 5 miles into the trip and doing so — all that has been accomplished is putting the child at risk of dying in a car accident for the first 5 miles." ■

Healthcare workers urged to be vaccinated against seasonal flu

Public health officials think they have a better match this year

After last year's poor flu vaccine efficacy, public health officials think they have a much better match for the 2015-2016 season and are urging healthcare workers to be immunized to protect themselves and patients.

To drive home that point, a physician recently told a personal anecdote about possible healthcare-worker-to-patient flu transmission at a seasonal flu vaccine forum held by the National Foundation for Infectious Diseases (NFID) in Washington, DC.

"I was asked to see an older patient, who had been in the chronic care portion of our facility for about six months," said **Kathleen Neuzil**, MD, professor of medicine and director of the Center for Vaccine Development at the University of Maryland School of Medicine. "We diagnosed him with a pretty severe influenza pneumonia. Then we started to ask the question: How did he get the flu? He's not out there going to the store. The only way he could have gotten influenza is because somebody brought it to him. That could have been a healthcare worker. It could have been a family member or a friend visiting him. And so, for young and middle-aged healthy adults, protecting others should be as compelling a reason to get the influenza vaccine as protecting yourselves."

During the 2014-15 flu season an H3N2 variant strain emerged that eluded the H3N2 coverage in the vaccine, resulting in a severe flu season.

"The 2014/2015 season had the highest hospitalization rate among seniors that we've ever documented," said **Tom Frieden**, MD, director of the Centers for Disease Control and Prevention. "There were also 145 documented deaths from influenza among children last year. We know that the actual number is much higher, because not all flu deaths are diagnosed and detected as having flu."

Prevailing flu strains globally are tracked before the seasonal flu vaccine is made, but influenza is notorious for mutating.

"Unfortunately, last year it changed when the flu vaccine was already being made," Frieden said at the NFID forum. "So at that point, there was nothing really that could have been done practically. Along with manufacturers and other entities, we're cutting down the time it takes to make a flu vaccine so that we can start making it later in the season. … Influenza is always changing. So far, what we've seen in the Southern Hemisphere and over the summer in the U.S. suggests that this year's vaccine should be a good match against this year's circulating influenza. But only time will tell for sure."

With a stock of 171 million doses, there should be ample vaccine available.

"Overall, the flu vaccine is usually about 50% to 60% effective," he said. "So it's not nearly as effective as most of our other major vaccines, but it's far more effective than anything else you can do to prevent the flu. Last year, the vaccine effectiveness of flu vaccine overall was quite low,

and for H3N2 strains was very low; only about 13%," Frieden said. "I will say that for healthcare workers, it's particularly important to get vaccinated yourself. … We're also concerned by the proportion of people vaccinated among those who work in long-term care facilities, such as nursing homes. Prior studies have suggested that if the people who work in nursing homes don't get a flu vaccine, the [residents] are much more likely to get the flu and become severely ill."

Mismatched vaccine has some protection

Of course nursing home residents should be immunized as well unless medically contraindicated. This recommendation may have saved a few lives last year when residents immunized with the subpar flu vaccine still managed to survive an outbreak of H3N2 influenza A at a nursing home in Canada.

"Even with the challenge of the 2014/15 vaccine drift, the likelihood of contracting influenza was lower in immunized compared to unimmunized residents, although the difference was not statistically significant," investigators reported.[1] "Lack of detection of a significant effect may be explained, however, by low power given the small sample size."

Overall, 32 of 45 nursing home residents had received the influenza vaccine more than two weeks prior to the outbreak. Twenty-two of the 45 residents developed influenza-like illness. The attack rate was higher in the unimmunized residents (62%) compared to the immunized residents (44%). Similarly, the hospitalization rate was higher in the unimmunized (25%) than in the immunized (7%).

The drifted H3N2 virus is included in the 2015-16 vaccine, which was based on an analysis of the primary viruses circulating in the Southern Hemisphere and the U.S.

"There were 199 analyzed specimens," Frieden said. "Of those, most [118] were the H3N2 type that is closely related to this year's vaccine strain. Another 20 were the H1N1 that's still circulating from back in 2009 — also, very closely related to what's in the vaccine strain. And then there were 61 influenza B strains that were evenly matched between two different strains that are included in the quadrivalent vaccine. Also, all of the strains analyzed were susceptible to the antivirals — oseltamivir, zanamivir and peramivir."

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Going to a passive needle safety system reduces injuries and costs

New devices for subcutaneous meds never expose HCWs to needles

Switching from active to passive needle safety device dramatically reduced needlesticks in an 11-facility healthcare system, creating cost avoidance in reporting, treating, and follow-up that justified the additional expenditure for the devices, reported **Ashleigh J. Goris** , RN, BSN, MPH, CIC, manager of infection prevention and control at Missouri Baptist Medical Center in St. Louis.

The hospital is part of the BJC HealthCare system, where active safety engineered devices were widely used for subcutaneous delivery of medications. The active devices, which require the user to slide a shield over the needle after use, accounted for roughly 35% of the total number of needlesticks in the health system, Goris said recently in Nashville at the 2015 conference of the Association for Professionals in Infection Control and Epidemiology (APIC).

"These were devices that require an active motion by the nurse or provider of the medication — an active motion typically towards the needle point," she said.

Given the needlestick problem, the decision was made to go to a completely passive device for subcutaneous medications.

"Passive safety engineered devices do not require any active motion or changing of hand position of healthcare providers who administer medication," Goris says. "[The] devices automatically and instantly retract the needle from the patient into the barrel of the syringe once the medication is delivered. By design the device is safer during use, after use, and prior to disposal because the needle is never exposed

outside of the patient."

The passive device was implemented at the BJC system's largest academic facility, with rather striking results. "We did a nine-month trial at our largest facility and in four of our medical surgical units there, and also one of our ICUs, our needlestick injury rate went down to zero," she said.

Based on those results, the decision was made to implement the passive devices systemwide.

"The existing active safety devices were removed from all of our facilities and replaced with the same size passive retractable needles, specifically a .5 ml, a 1 ml and most recently a 3 ml," Goris says.

The cost impact was immediate, as swapping out the devices led to a net expenditure increase of $21,000. However, that cost was more than offset as the systemwide needlestick rate fell 31% in one year.

"Cost saving or cost avoidance due to needlestick injuries was evaluated at our facilities," she says. "These consisted of occupational health department hours for both nursing and administrative staff when needlestick injuries were reported. That included the time to report and also respond to healthcare providers. It included the laboratory tests and the analysis needed for both source patients and employees for up to 12 months depending on the nature of exposure. It also included exposed employee hours for reporting and testing. It included HIV post-exposure medications, typically a 28-day regimen."

During the 24-month pre-implementation period, 404 needlesticks with active devices were reported, with a rate of 0.58 injuries per 100,000 productive employee hours. During the 12-month implementation period, 160 needlesticks were reported for a rate of 0.46 injuries per 100,000 productive hours. Goris caculated an overall cost savings/avoidance of $11,000.

Of course, there is no cost value to assign for the absence of anxiety and dread that can accompany a needlestick exposure to a patient infected with a bloodborne pathogen, let alone a subsequent seroconversion. It might be priceless. ■

Violent threats to healthcare workers include patients, hospitalized criminals

OSHA fines Bergen $13k; Inova locks down with armed criminal loose

Though we certainly wish otherwise, these are dangerous times in healthcare due to escalating violent behavior toward healthcare workers and threats to patients.

For example, federal labor officials recently cited Bergen Regional Medical Center in Paramus, NJ, for allegedly failing to protect employees from violent patients. In a 3-month period this year, healthcare workers at Bergen were victims of violent patients in eight incidents, including one in which a nurse suffered a laceration and bruises attempting to stop an attack on a patient, the Occupational Safety and Health Administration reported on September 3, 2015.

Employees at Bergen reported incidents that involved patients barricading workers in a room, threatening them and exposing them to bloodborne pathogens. Several employees experienced being bit, punched, kicked, and threatened by patients, OSHA reported.

After the aforementioned nurse complained to OSHA, inspectors went on site and found evidence of eight incidents of workplace violence from Feb. 22 to June 12, 2015. OSHA cited the facility on August 18 for one general duty clause citation for failing to keep the workplace free of hazards. OSHA issued one repeated citation for incorrectly recording workplace injuries on the OSHA 300A illness and injury reporting form. Proposed penalties total $13,600. Bergen Regional requested an informal conference with OSHA's area director after receiving the citations. The 1,070 bed facility provides long-term, behavioral health, and acute care.

Prepare to protect

Foreknowledge is power and training is essential to prevent and minimize violent threats, which include active shooter incidents and the occasional admission of an injured or sick criminal. It was this latter scenario that set off a dangerous series of events in March of this year at Inova Fairfax Hospital in Falls Church, VA. A convicted bank robber who was being treated at the hospital stole a guard's gun. A shot was fired, and he held the guard

hostage before fleeing. The prisoner is thought to have carjacked two vehicles after leaving the hospital, and he was captured in a Washington, DC, neighborhood after a nine-hour manhunt involving hundreds of officers.

The incident prompted a five-hour lockdown of the facility. The facility's preparations for such an event helped minimize the impact, says **Greg Brison**, the hospital's director of emergency management and security.

A key part of that preparation was that workplace violence training is required for employees at least once annually. That training includes information specific to responding to shots fired in the healthcare system. Inova Fairfax also works closely with local law enforcement and other emergency responders. In fact, it allowed them to use a new patient care center for training before the hospital moved in any patients, and they used a scenario very similar to what later happened.

The hospital had conducted full-scale drills as well as tabletop exercises to test its planning for an active shooter, including a meeting held just the day before the shot was fired. The Inova Fairfax incident illustrates how quickly a violent incident can put hundreds of people in jeopardy and disrupt a healthcare facility, Brison notes. No one was injured at the hospital during the incident, and patient care resumed as smoothly as could be expected after a long lockdown.

"There's no question that our planning and the extensive training for our employees made a difference in the outcome," Brison says. "This is the kind of thing you hope never happens, but if it does, you want your people to know what to do and how to stay safe."

Employee health professionals can glean a strategy or two in reviewing some key aspects of Inova's emergency planning. The prisoner incident affirmed the value of much of the facility's planning, but it also highlighted some needs that had not been considered, Brison says. He offers this advice based on the facility's experience and planning.

• **Provide access and information to local law enforcement ahead of time.** During an emergency, it might be difficult for anyone to meet police officers at the front door, let them in, and then guide them through the facility. Provide a way for police to gain entry on their own, such as keys or key cards, along with detailed floor plans they can use on arrival.

• **Standardize names of entryways.** Inova Fairfax has numbered all entry points, starting with the main entrance as Door 1 and then working around the building clockwise with sequential numbers. The number is marked prominently on the entryway. This system will improve communication with police who can be told to go to Door 5, for example, rather than having them struggle to find "the west wing entrance near radiology."

• **Security should know where prisoner patients are at all times.** It is not enough for security to know that an inmate is in a certain unit. Security should know exactly what room, and staff members should notify security whenever the patient is moved somewhere else.

• **Serve only finger food to prisoners.** Even plastic eating utensils can become effective weapons, so prisoner patients should be designated for only meals that require no utensils, such as a sandwich. Any staff members delivering meals should know of this restriction so they don't routinely include a utensil packet or comply when the prisoner asks for one. If you decide to provide utensils, you must have a strict accounting of them afterward.

• **Use high-visibility clothing for prisoners.** As a result of the prisoner escape, Inova Fairfax will no longer provide standard hospital gowns for anyone under police custody. Those patients now wear bright orange gowns to make them easier to spot if they escape and also to serve as a warning to staff that this person could be hostile.

• **Enable after-hours security officers to access security video.** It is common for nighttime security officers to be limited in their access to security camera recordings, and it frequently requires a manager to come in to the facility obtain them. When a violent person still might be on the campus, security officers must be able to gain access to those recordings without delay so they and local police can identify and track the person.

• **Have backup command centers.** For much of the lockdown, Inova Fairfax leaders could not get to their command center because it was in an area of the hospital not yet cleared by police. They now are establishing a backup command center on the

COMING IN FUTURE MONTHS

- Definitive Ebola report on the two U.S. occupational infections
- Nurses using lift equipment in school, demanding it on the job
- EPINet reinvents itself
- Newly licensed nurses at risk if working overtime, night shift

opposite end of the building, with the same communication capabilities and resources such as job action sheets.

• Arrange police escorts for necessary clinical care. Even in a lockdown, patients might have a clinical emergency. The staff members responsible for those patients cannot remain in place as they are supposed to during a lockdown, so police should be prepared to escort them and guard them as they work. This system is best accomplished by discussing the need with police ahead of time so they can have adequate personnel on hand.

• Arrange for off-site parking. Parking might seem a mundane issue when people are in jeopardy, but it quickly became a problem that threatened to hinder the response of staff and local law enforcement. The Inova Fairfax shooting happened at 3 a.m., and the hospital's shift change is 6:30 a.m. Additionally, outpatients begin arriving soon after, so about 2,000 people and cars were arriving while the hospital campus still was locked down. Inova Fairfax is developing a plan for designated parking areas in an emergency and a method for notifying those coming to the facility. The plan also will include a way to transport critical staff to the facility from those off-site parking areas.

• Prepare for media arriving at your campus and other areas. The plan should call for public relations staff and security officers to be on hand, not just at the hospital campus, but also at any other area where staff members are likely to congregate after evacuation. Reporters will go to those areas to interview staff, so public relations representatives should be there also to help control the public message. Any designated off-site parking area for incoming staff and patients must have media relations and security present. ■

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

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CNE QUESTIONS

1. The Centers for Disease Control and Prevention said if autism was being caused by vaccines, it would be no than one or two cases per million people immunized.

A. True
B. False

2. The American Academy of Pediatrics issued a statement in response to vaccine comments made at a presidential candidates debate that said:

A. claims linking vaccines to autism are dangerous
B. there is no alternative immunization schedule
C. delaying vaccines only leaves a child at risk of disease for a longer period of time
D. all of the above

3. An Institute of Medicine vaccine analysis found some adverse reactions associated with some of the routinely administered vaccines, particularly the vaccine for which of the following?

A. measles, mumps, rubella
B. polio
C. varicella
D. pertussis

4. Tom Frieden, MD, director of the Centers for Disease Control and Prevention, said the 2014-15 flu season had the highest rate of hospitalization ever documented by CDC for which group?

A. Seniors
B. Children under age 6
C. Otherwise young and healthy people
D. Healthcare workers

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