



HOSPITAL EMPLOYEE HEALTH



THE PRACTICAL GUIDE TO KEEPING HEALTH CARE WORKERS HEALTHY

JANUARY 2018

Vol. 37, No. 1; p. 1-12

INSIDE

Holy Grail: Concerns about an H3N2 flu strain that may elude vaccine efficacy lead to calls for a "universal" flu shot. . . . 5

HIV all over again: The national opioid epidemic has triggered an irrational fear that is reminding clinicians of the initial reactions to HIV in the 1980s. . . . 7

Code injured: HCW injuries during emergency resuscitation codes appear to be frequently unreported. . . . 9

NIOSH PPE report: Guidance for those questioning whether PPE supplies are up to date with current performance standards. . . . 11

Healthcare Workers Fired for Refusing Flu Shots

Nurse union challenges Minnesota hospital system

By Gary Evans, Medical Writer

A hospital system in Minnesota has fired approximately 50 healthcare workers for refusing flu shots, igniting a battle with a nurses' union that is filing grievances to restore personnel to their jobs.

As a previously announced mandated policy reached a final deadline for vaccination in November, the workers were dismissed. As a result, some 99.5% of Essentia Health's remaining 13,900 employees had been immunized, approved for an exemption, or were in the exemption process, says **Rajesh Prabhu**, MD, an infectious disease physician and chief patient quality and safety officer at Essentia Health in Duluth, MN.

The hospital confirmed that approximately 50 healthcare workers were terminated, but did not provide more specifics on the cases. Religious and medical exemptions are allowed within the flu

immunization policy based on written documentation, Prabhu tells *Hospital Employee Health*.

"We follow the CDC guidance for what is considered a contraindication to influenza vaccination including allergic reaction to the influenza vaccine or any of its components, or

a severe adverse reaction to the vaccine," he says. "We follow guidance from the Equal Employment Opportunity Commission (EEOC) regarding what constitutes a religious-based exemption."

THE HOSPITAL CONFIRMED THAT APPROXIMATELY 50 HEALTHCARE WORKERS WERE TERMINATED, BUT DID NOT PROVIDE MORE SPECIFICS ON THE CASES.

NOW AVAILABLE ONLINE! VISIT AHCMedia.com or CALL (800) 688-2421

RELIAS
Formerly AHC Media

Financial Disclosure: Medical Writer **Gary Evans**, Editor **Jill Drachenberg**, Editor **Jesse Saffron**, Editorial Group Manager **Terrey L. Hatcher**, and Nurse Planner **Kay Ball** report no consultant, stockholder, speaker's bureau, research, or other financial relationships with companies having ties to this field of study.



HOSPITAL EMPLOYEE HEALTH

Hospital Employee Health®

ISSN 0744-6470, is published monthly by AHC Media, a Relias Learning company
111 Corning Road, Suite 250
Cary, NC 27518
Periodicals Postage Paid at Atlanta, GA 30304 and at additional mailing offices.

POSTMASTER: Send address changes to:

Hospital Employee Health®
P.O. Box 74008694
Chicago, IL 60674-8694

SUBSCRIBER INFORMATION:

Customer Service: (800) 688-2421.
Customer.Service@AHCMedia.com.
AHCMedia.com
Hours of operation: 8:30 a.m.- 6 p.m. Monday-Thursday;
8:30 a.m.-4:30 p.m. Friday, EST.

SUBSCRIPTION PRICES:

U.S.A., Print: 1 year (12 issues) with free Nursing Contact Hours, \$499. Add \$19.99 for shipping & handling. Online only, single user: 1 year with free Nursing Contact Hours, \$449. Outside U.S., add \$30 per year, total prepaid in U.S. funds.

MULTIPLE COPIES: Discounts are available for group subscriptions, multiple copies, site licenses, or electronic distribution. For pricing information, please contact our Group Account Managers at Groups@AHCMedia.com or (866) 213-0844.

ACCREDITATION: Relias Learning, LLC, is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation. Contact hours [1.25] will be awarded to participants who meet the criteria for successful completion. California Board of Registered Nursing, Provider CEP#13791. It is in effect for 36 months from the date of publication.

Opinions expressed are not necessarily those of this publication. Mention of products or services does not constitute endorsement. Clinical, legal, tax, and other comments are offered for general guidance only; professional counsel should be sought for specific situations.

MEDICAL WRITER: Gary Evans

EDITOR: Jill Drachenberg

EDITOR: Jesse Saffron

EDITORIAL GROUP MANAGER: Terrey L. Hatcher

SENIOR ACCREDITATIONS OFFICER: Lee Landenberger

PHOTOCOPYING: No part of this newsletter may be reproduced in any form or incorporated into any information retrieval system without the written permission of the copyright owner. For reprint permission, please contact AHC Media. Address: P.O. Box 74008694 Chicago, IL 60674-8694. Telephone: (800) 688-2421. Web: AHCMedia.com.

Copyright© 2018 by AHC Media, LLC, a Relias Learning company. Hospital Employee Health® is a trademark of AHC Media LLC. The trademark Hospital Employee Health® is used herein under license. All rights reserved.

EDITORIAL QUESTIONS:

For questions or comments, call
Gary Evans at (706) 424-3915.

Under a 2016 EEOC ruling, six healthcare workers fired for refusing flu shots for religious reasons won back pay and offers of reinstatement from Saint Vincent Hospital in Erie, PA. The EEOC alleged “discrimination because of religion by failing to accommodate their sincerely held religious beliefs and practices that prevented them from receiving the influenza vaccine.”¹

(For more information, see the story in the February 2017 issue of HEH.)

With prior voluntary policies resulting in a vaccination rate in the 80% range at Essentia, the healthcare system decided to go to a mandated policy, Prabu says.

“The CDC and state public health departments have continued to urge all healthcare personnel to get immunized against influenza,” he says. “Many healthcare organizations, just like our own, have been unable to achieve high levels of immunization without a required influenza immunization program.”

Based on analysis performed prior to implementing the mandate, Prabu and colleagues found that some 600 healthcare organizations that require influenza immunization were achieving much higher vaccination rates.

“We knew that we could and should do better for our patients,” he says. “The CDC reported that Minnesota ranks 44th in the nation when it comes to healthcare personnel flu vaccination.”

Indeed, data collected by the CDC’s National Healthcare Safety Network show that 81.4% of healthcare workers in Minnesota were immunized for flu in the 2016-2017 season. In other states, percentages ranged from Alaska’s low of 75.2% to a high of 97.1% in Colorado.²

The Minnesota Nurses Association (MNA), a union that represents some 2,000 Essentia nurses, announced it will file grievances to win back the jobs and lost wages. The MNA favors allowing worker choice, but is not against flu vaccination per se, says **Rick Fuentes**, MA, an MNA spokesman in St. Paul.

“We maintain that voluntary, incentivized flu shot programs work much better than mandated policies,” he says. “Employees with medical or religious objections to the flu shot, including allergic reactions, however mild, should be exempted.”

The union argues that voluntary immunization programs can result in high participation, even on par with mandated policies. While some may take issue with that claim, a voluntary program at the University of Virginia in Charlottesville has reached high vaccination levels while allowing a broad range of exemptions.

“We have very high immunization rates — upwards of 95%,” says **Joshua Eby**, MD, medical director of employee health at UVA. “Even though it’s not mandatory, we have a highly motivated chief medical officer who puts the word out each year and really motivates the employees to get their flu shots.”

In looking to chip away at that 5% who opt out of flu immunization, Eby found something curious in the exemption records over the years. Workers who opted out gave different reasons for an exemption in different years, suggesting that they were not necessarily subject to ongoing medical conditions or bound to deep-set beliefs. The standard form the hospital has used for years allows

exemption for allergic reactions, anaphylaxis, a history of Guillain-Barré syndrome, or a self-declared personal or religious belief. A physician note only is required for a claim of anaphylaxis.

Eby and colleagues originally termed this pattern “flip-flopping,” but changed it to the more neutral sounding “inconsistent exemption” for a poster presentation at the IDWeek meeting recently in San Diego.³

“Employees who are inconsistent exemptors might choose a personal exemption one year and an allergy exemption another year, and even choose to get the vaccine the following year,” he says. “You wonder how strong that personal belief is.”

The issue is being addressed in general education, but individual employees are not being asked to explain the discrepancy, he says.

“We’re just trying to understand what’s going on and see if we can learn something from it to improve our education,” he says. “We want to respect our employees’ personal beliefs, but we also want to keep in mind the need for safety in the environment we work in. We are not planning on addressing any individuals and we de-identified the data.”

The Imperiled Patient

Against the rights of the one we have the needs of the many, who in this case are frail patients who may be exposed to healthcare workers with influenza. Though some have questioned how much a vaccine of varying annual efficacy really protects patients, the CDC reported in a study last year that 1% of flu cases reviewed were acquired in

the hospital.⁴ Another study found that in hospital settings, inpatients exposed to at least one contagious healthcare worker were five times more likely to develop hospital-acquired influenza-like illness than those with no similar exposure.⁵

A well-known national advocate of the medical and ethical duty to be immunized for seasonal flu is **William Schaffner**, MD, professor of preventive medicine at Vanderbilt University in Nashville.

“WE WANT TO RESPECT OUR EMPLOYEES’ PERSONAL BELIEFS, BUT WE ALSO WANT TO KEEP IN MIND THE NEED FOR SAFETY IN THE ENVIRONMENT WE WORK IN.”

“We do not wish to transmit influenza to our patients,” he says. “The secondary reason, which is also important, is when influenza strikes we in healthcare are committed to being as healthy as we can be, so that we can provide the needed care to patients. The best thing we can do to achieve those two goals is to get vaccinated. We recognize that it is not a perfect vaccine but we should not make perfection the enemy of the good. We can do a great deal of good by using influenza vaccine optimally each season.”

Though battles similar to the one unfolding in Minnesota can be expected, the momentum for mandatory flu immunization programs is increasing as a host

of professional medical groups and associations now advocate the practice.

“You have to define mandates by institution, but there is now a substantial list of 10 to 15 professional organizations that clearly have supported immunization in healthcare and endorsed mandates in some form,” he says.

As other facilities adopt mandated policies, public pressure may be applied to neighboring institutions that have voluntary immunization but worse vaccination rates.

“If local healthcare worker immunization rates become part of the public record, then the hospital leadership is really quite interested in making sure that their institution is somewhere at the top,” Schaffner says. “Local reporters in our neck of the woods have looked at those data, and it is quite clear that institutional leaders do not want to be in the caboose of the train. They will be asked, ‘Why is it that all the other hospitals in the community can do it and you cannot?’ That becomes uncomfortable to leadership and should be uncomfortable to the healthcare workers who work for the institution.”

As a vaccine advocate, Schaffner is generally against non-medical exemptions to the seasonal influenza shot.

“In general — including daycare and school attendance — I’m in that group that thinks that religious and personal belief exemptions should not apply,” he says.

That said, iterations of mandatory policies will differ by institution, with the program adopted at Vanderbilt favoring counseling and communication over outright dismissal.

“Although we do not fire people, we do have a short list of valid

exemptions from healthcare worker immunizations,” he says. “They are principally medical. If our workers in submitting their reasons for exemptions do not fulfill those, they are reviewed by a small committee and then their supervisors offer them counseling in that regard. With this encouraging kind of firm, ‘tough-love’ approach, we have now achieved well over 90% compliance.”

Adopted two years ago, the Vanderbilt flu shot policy requires a fair amount of institutional consensus on the front end regarding the exemptions.

“Then it takes the willingness to put in the time and effort to counsel and persuade the healthcare workers,” Schaffner says. “Each year it becomes easier, and it is just another part of the institutional culture.”

Working Sick

Another nuance to this issue is that healthcare workers who acquire flu may still report for work due to a variety of reasons that include cultural and work pressures.

“Presenteeism — if people have symptoms, but can manage them, they will come to work anyway,” Schaffner says. “There is that great tendency, but immunizing people reduces the risk. There have been studies that also show an immunized healthcare workforce has fewer absentee days.”

Regarding presenteeism, a recently published study⁶ found that 41.4% of 1,914 healthcare workers with influenza-like illness (ILI) still showed up for work for a median of three days, reports lead author **Sophia Chiu**, MD, MPH, of the National Institute for Occupational Safety and Health.

“We reported 44.6% working

with ILI being vaccinated during the season,” she says. “There were 29.2% working with ILI who reported they had not been vaccinated. However, we did not ask them specifically about when they were vaccinated relative to their episode of illness.”

In any case, the findings underscore the importance of clear sick leave policies, with ILI defined in the study as fever, cough, and sore throat.

“WE FOUND
IN OUR
BACKGROUND
RESEARCH THAT
HEALTHCARE
PERSONNEL
WHO ARE
AWARE OF THEIR
INSTITUTION’S
OUTBREAK
CONTROL
MEASURES ARE
LESS LIKELY TO
WORK WHILE
THEY ARE
SYMPTOMATIC.”

“The CDC recommends that people not work until they have been afebrile for at least 24 hours,” Chiu says. “Some of the most common reasons [sick workers] gave is that they could still perform their job duties, and they didn’t feel badly enough to miss work.”

Some of those who worked sick also reported a sense of duty to help their co-workers, and difficulty in finding coverage. Healthcare institutions should identify and address any misconceptions about working while ill, which may be tied

to the work culture and expectations of their colleagues, Chiu says.

“There are cultural and social norms about when we go to work,” she says. “The policy should say, this is when you should stay home. We found in our background research that healthcare personnel who are aware of their institution’s outbreak control measures are less likely to work while they are symptomatic.” ■

REFERENCES

1. *U.S. Equal Employment Opportunity Commission v. Saint Vincent Health Center*. Civil action No. 16-224 Erie. U.S. District Court for the Western District of Pennsylvania, Sept. 22, 2016. Available at: <http://bit.ly/2hjr7WR>. Accessed Nov. 30, 2017.
2. CDC. 2013-14 through 2016-17 Influenza Seasons Health Care Personnel Vaccination Trend Report. Sept. 28, 2017. Available at: <http://bit.ly/2AInVPr>. Accessed Nov. 30, 2017.
3. Richey M, Sifri C, Eby J. Characteristics of Health Care Workers That Decline Influenza Vaccination for Varying Reasons. *IDWeek* 2017. Oct. 4-8, 2017, San Diego.
4. Cummings CN, Garg S, Nenninger EK, et al. Hospital-Acquired Influenza Among Hospitalized Patients, 2011-2015. *IDWeek* 2016. Oct. 26-30, 2016, New Orleans.
5. Vanhems P, Voirin N, Roche S, et al. Risk of influenza-like illness in an acute health care setting during community influenza epidemics in 2004-2005, 2005-2006, and 2006-2007: a prospective study. *Arch Intern Med* 2011;171:151-157.
6. Chiu S, Black CL, Greby SM, et al. Working with influenza-like illness: Presenteeism among US health care personnel during the 2014-2015 influenza season. *Am J Infect Control* 2017;45(11):1254-1258.

Vaccine May Not Cover H3N2 — Is It Time for Universal Flu Shot?

The question of the next pandemic is when, not if

A potential mismatch between the current flu vaccine and a strain of H3N2 influenza that has caused severe infections in the Southern Hemisphere suggests this may be a harsh season in the United States and underscores the need for new vaccine production methods, public health officials emphasized in a recently published commentary.¹

More specifically, flaws in the use of chicken eggs as the primary vaccine production platform likely resulted in the problem, which led to a higher number of severe infections and deaths during the flu season in Australia.

“Given that most of the U.S. influenza vaccine supply is currently produced in eggs and the composition of the 2017-2018 Northern Hemisphere vaccine is identical to that used in Australia, it is possible that we will experience low vaccine effectiveness against influenza A (H3N2) viruses and a relatively severe influenza season if they predominate,” the authors noted. “This possibility underscores the need to strive toward a ‘universal’ influenza vaccine that will protect against seasonal influenza drift variants as well as potential pandemic strains, with better durability than current annual vaccines. Among other advantages, in all likelihood, such a vaccine would not be subject to the limitations of egg-based vaccine technology.”

The Holy Grail of flu prevention, a universal vaccine, would likely be created in cell culture and wouldn’t

be vulnerable to the limitations of egg-based production.

One of the co-authors of the paper, **Anthony Fauci**, MD, director of the NIH National Institute of Allergy and Infectious Diseases, emphasizes that a new universal flu vaccine that would be effective against multiple strains of

“WHAT THIS LESSON TOLD US IS THAT WE CERTAINLY NEED A UNIVERSAL INFLUENZA VACCINE, WITHOUT A DOUBT, TO TAKE OFF THE TABLE THE DRIFTS AND THE SHIFTS, AND THE LACK OF PREPAREDNESS.”

virus is particularly needed before the next flu pandemic hits. The emergence of pandemic flu virus H1N1 in 2009 and the subsequent rush to create a vaccine revealed a vulnerability in the current approach. The antigenic “shift” of flu virus into a pandemic strain — as opposed to the milder antigenic “drift” that occurs seasonally — could result in a virus much more virulent than the 2009 strain.

“We were really fooled,” Fauci said recently in San Diego at the

IDWeek 2017 conference. “While everybody was looking to the Far East, this [pandemic strain] broke out in California and Mexico.”

The first cases appeared in March 2009, and Fauci and other public health experts said a vaccine would be needed by the following winter for the flu season. However, the virus struck in greater numbers much earlier than projected — before the vaccine was available — as children returned to school in the fall of that year.

“The lesson here is the inadequacy in how we respond from a vaccine standpoint to outbreaks. [We told Congress] it’s April, we know what it is, and we are almost certain that we will see this in the following season in the winter of 2009-2010.”

Citing the typical six-month estimate to create a new flu vaccine, public health officials projected that immunization with an H1N1 pandemic vaccine should be possible in October 2009. By then, the virus was widely circulating.

“The outbreak occurred before the vaccine became available,” Fauci said. “What this lesson told us is that we certainly need a universal influenza vaccine, without a doubt, to take off the table the drifts and the shifts, and the lack of preparedness.”

10% Efficacy?

In the commentary, Fauci and co-authors said the immediate concern is the H3N2 virus that hit

Australia and may now strike the U.S. in the 2017-2018 flu season.

“Reports from Australia have caused mounting concern, with record-high numbers of laboratory-confirmed influenza notifications and outbreaks and higher-than-average numbers of hospitalizations and deaths,” they noted. “The number of notifications reached 215,280 by mid-October, far exceeding the 59,022 cases reported during the 2009 H1N1 influenza pandemic, according to the Australian Government Department of Health. H3N2 viruses predominated, and the preliminary estimate of vaccine effectiveness against influenza A (H3N2) was only 10%. The implications for the Northern Hemisphere are not clear, but it is of note that the vaccine for this upcoming season has the same composition as that used in the Southern Hemisphere.”

It appears this paltry 10% efficacy against H3N2 in the current vaccine was caused less by viral mutation in nature than by changes that occurred during egg-based vaccine production.

“[The] egg-propagated vaccine viruses acquired changes in the HA [hemagglutinin] that subsequently altered antigenicity against circulating strains,” they concluded. “This observation lends credibility to the hypothesis that egg-adapted changes contribute to poor influenza vaccine effectiveness.”

Vaccination still is highly recommended, and the level at which H3N2 will ultimately circulate in the U.S. was unknown as the current flu season began.

“However imperfect, though, current influenza vaccines remain a valuable public health tool, and it is always better to get vaccinated than not to get vaccinated,” the

authors concluded. “Although targeted research to improve current vaccine antigens, platforms, and manufacturing strategies may in the short-term lead to enhanced effectiveness of seasonal influenza vaccines, to achieve the ultimate objective of a universal influenza vaccine, a broad range of expertise and substantial resources will be required to fill gaps in our knowledge and develop a transformative approach to influenza-vaccine design.”

Airborne Spread?

Typically, when a novel virus or pandemic flu strain emerges, the CDC recommends more stringent PPE than normally used by healthcare workers. There has been ongoing debate, and sometimes controversy, about whether influenza virus is spread almost exclusively by droplets and source contact, or whether it can spread beyond an index case in the manner of a true airborne virus like measles.

Recent research supports “the idea that airborne infectious particles could play an important role in the spread of influenza,” the National Institute for Occupational Safety and Health (NIOSH) reports.

“Influenza is known to be transmitted through respiratory secretions containing the virus,” notes **William G. Lindsley**, PhD, a research biomedical engineer in the NIOSH Health Effects Laboratory Division. “Airborne transmission of influenza by small aerosol droplets over longer distances is debated in the literature.”

In a blog post² citing NIOSH research, Lindsley argued that healthcare workers and other

patients may need to be better protected from those with influenza if airborne transmission is verified.

NIOSH researchers studied 53 volunteers positive for influenza A.³ They found that 28 (53%) produced aerosol particles containing viable virus during coughing. In addition, 22 (42%) produced aerosols with viable virus during exhalation. Thirteen subjects had both cough aerosol and exhalation aerosol samples that contained the flu virus, Lindsley reported.

“Because individuals breathe much more often than they cough, these results suggest that breathing may generate more airborne infectious material than coughing over time,” he noted. “On the other hand, as coughing involves much higher air velocities than breathing, coughing may spread the virus further in a given location. Thus, both mechanisms for producing infectious aerosols may be important depending upon such factors as the distance from a patient, the timescale, the infectious dose, and the air flow within a room.” ■

REFERENCES

1. Paules CI, Sullivan SG, Subbarao K, et al. Chasing Seasonal Influenza — The Need for a Universal Influenza Vaccine. *New Engl J Med* Nov.29, 2017. DOI: 10.1056/NEJMp1714916
2. Lindsley WG. Flu Virus Generated in Coughs and Exhalations. NIOSH Science Blog, Nov. 9, 2017. Available at: <http://bit.ly/2zS91WQ>. Accessed Nov. 30, 2017.
3. Lindsley WG, Blachere FM, Beezhold DH, et al. Viable influenza A virus in airborne particles expelled during coughs versus exhalations. *Influenza Other Respir Viruses* 2016;10(5):404-413.

Opioid Fears Recall Beginning of HIV Epidemic

Despite confusion, unlikely to be spread via skin contact

The national opioid epidemic has triggered an irrational fear that is reminding clinicians of the initial reactions to HIV in the 1980s. Part of this is being driven by the new powerful synthetic opioids such as carfentanil — an elephant tranquilizer — making their way to the street in a variety of illicit substances.

“The problem is the internet stories that are not necessarily vetted for accuracy, and then they get passed along,” says **Ryan A. Stanton**, MD, emergency physician and medical director at University of Kentucky HealthCare Good Samaritan Hospital in Lexington. “People want to be afraid. There is so much fear mongering: ‘I’m going to walk by somebody who has opioids and I’m going to die.’ We had the same thing back in the 1980s with HIV. People thought you could get HIV from a hot tub or a toilet seat. We do this in the United States. We like to be super scared and dramatic about things, and that is where we are right now with this.”

New consensus guidelines¹ representing a variety of federal agencies emphasize that “misinformation and inconsistent recommendations regarding fentanyl have resulted in confusion in the first responder community. You as a first responder — law enforcement, fire, rescue, and emergency medical services (EMS) personnel — are increasingly likely to encounter fentanyl in your daily activities. Inhalation of airborne powder is most likely to lead to harmful effects, but is less likely to occur than skin contact. Incidental skin contact may occur during daily activities but is not

expected to lead to harmful effects if the contaminated skin is promptly washed off with water.”¹

Hospital Employee Health asked Stanton for his reaction to the PPE guidelines and his perspective from one of the epicenters of the opioid epidemic.

“Looking at this list, it is pretty much common-sense stuff,” he says. “The challenge is that there is so much bad information, like people

“WE DO THIS
IN THE UNITED
STATES. WE LIKE
TO BE SUPER
SCARED AND
DRAMATIC
ABOUT THINGS,
AND THAT IS
WHERE WE ARE
RIGHT NOW WITH
THIS.”

overdosing by touching [the skin of an OD patient]. It just doesn’t happen. It looks like what they are trying to do is clear up some of the bad information while putting in some [basic recommendations] everybody should already be doing.”

The guidelines recommend that responders wear gloves when the presence of fentanyl is suspected and avoid any actions that may cause opioid powder to become airborne. If opioids are airborne, a respirator should be worn, the guidelines state. Stanton says, from his experience, an N95 probably only is necessary for

those entering an area where there is a clear risk of aerosolized opioid powder.

“Theoretically, if it is actually aerosolized there is not enough of a seal on a regular [surgical] mask to provide complete protection,” Stanton says. “Of course, it is going to provide some protection. But you need something that can actually filter out those particles that are in the air, whether it is an N95 in a hospital setting or even higher when you see folks dressed up to go into [opioid] labs. Those are the kind of people that are going to need full protection.”

That said, “there is not anyone I know who is going to avoid rendering care because they are concerned about the type of mask they have on,” he adds. “When I reach in to pull people out of an ambulance, all I am thinking is that there is somebody in front of me dying. That’s what frontline people do.”

Stanton has seen many patients in the throes of opioid overdose in a national epidemic that claimed some 60,000 lives last year in the U.S.² He shared some clinical perspectives on the opioid epidemic in the following interview with *HEH*.

HEH: The recent guidance emphasized that skin contact with opioids poses much less risk than inhaling the drugs, though there seems to be some misconception about this.

Stanton: There have been some studies of the amount [of opioid] it would take to overdose through intact skin. You’re talking a huge amount — basically [the equivalent] of making a glove out of fentanyl patches and having it on your hand for 10 hours.

Even then you would just get the equivalent of 100 micrograms, which is basically what we give most people for pain. The amount it would take to overdose by skin contact would be just astronomical.

HEH: The primary risk to healthcare workers is inhaling aerosolized particles of opioids?

Stanton: The reason people snort things is because the mucosa associated with the nasal pharynx is very vascular, so it's a great way to transition things from the outside world into [the body]. It does concern us if there is aerosolization. Especially if you are walking into someplace that is working with this — that has some powder in the air. You do have the risk there, but for most people just having the basic PPE and the antidote [on hand is sufficient]. It's basically not going to happen with plain old skin contact. For the frontline workers — especially police who may go into some place where [opioids] are being prepared — there is a risk of it being aerosolized. But if that was [frequently] the case we would expect for these dealers and those preparing it to be dead all over the place. They are working with large quantities of it and having no issues, but we fear we are going to get a grain of it on my hand and actually die from it. It doesn't make sense. You don't have drug dealers and distributors in hazmat suits.

HEH: It sounds like the message to healthcare workers and first responders is lower the fear factor and use common sense measures. What about reports of workers — including three nurses in Ohio — collapsing and needing to be administered the antidote?

Stanton: I think we are missing a lot of the rest of the story with these sorts of things and blame it on carfentanil or whatever fentanyl is out

there. I think there is possibly more to the story. Until we can investigate and [analyze] the actual issues, we need to be careful what we blame it on. It causes unnecessary fear, but it also creates the potential that we may miss a real risk out there. We may miss it because we want to jump to the [conclusion] that you may have had a grain of fentanyl on your hand that caused you to become unconscious.

HEH: That's an interesting perspective. There may be other factors we are not aware of?

Stanton: There is potentially something else going on — something else in the environment. Are there potentially other hazards that we are dealing with? So many people getting symptomatic is very unlikely to be from touching some version of fentanyl — especially in the hospital. I think the risk inside the hospital is super low. We are handling fentanyl all the time. It is not carfentanil, but we are dealing with it all the time. We give very powerful medications and you can overdose, but it is not that simple. I have patients come in all the time that have three, four, multiple fentanyl patches on their skin. They may be a littler altered and intoxicated, but they are not unconscious.

HEH: How does the naloxone antidote stop the overdose?

Stanton: The naloxone affects the opioid receptors. That is where you [rate] the potency of the opioid. Morphine, fentanyl, [etc.] all bind to a certain strength. The naloxone has a higher affinity to those receptors. It basically kicks off the opioid and then it binds and serves as a “cap.” It caps off those receptors. The opioid is still there in the system and your body will clear it out over time. The question is, if it is heroin or even fentanyl the length of time the

naloxone can “hold” onto it is about the same time that it takes the body to get rid of drug itself. But if you were dealing with something like methadone, which until a few years ago was the No. 1 cause of overdose deaths, it takes a lot longer for the body to get rid of it. We have to keep dosing them with naloxone or give them a naloxone drip to keep them awake and stable. When people talk about [a drug being] naloxone resistant or “naloxone proof,” they are talking about drugs that are either going to last longer or they have a higher potency and a [binding] affinity that makes naloxone less likely to work.

HEH: What do you do in those type of cases?

Stanton: We don't have to keep people awake in medicine. If you have taken something, we need to provide oxygen to the brain and the heart to keep you alive. I can intubate the patient and we can wait. The opioid itself does not kill anybody. It is the respiratory suppression that kills people. If someone comes into the hospital and I can't wake them up because they have some elephant tranquilizer in them, I just intubate them. I put them on a ventilator and wait. Eventually, they are going to wake up. The problem that we have is the time from when they overdose to the time of the interventions to allow people to breathe. That's why the risk of these [hospital] situations are so low — because rarely are these folks on their own and care can be rendered right away. Even if they overdose, we can provide oxygen to keep their brain or heart going so we don't necessarily need to have the antidote, which is just to wake you up.

HEH: Regarding the tens of thousands of deaths being reported, did those people primarily die before

these medical interventions could be delivered?

Stanton: Yes, or they were not administered in time. By the time they are found [or someone brings them to the ED] the damage is done. Their heart is stopped. They have brain damage from the lack of oxygen. There are people by themselves who overdose in their cars in a parking lot, with their foot on

the brake and the car in drive. They lose consciousness and the car rolls into a light pole or a building. The majority of these people don't want to die when they are using the drugs. They are trying to get the effect that meets that addiction requirement they have. ■

REFERENCES

1. Federal Interagency Working Group.

Fentanyl: Safety Recommendations for First Responders. Available at: <http://bit.ly/2iValk4>. Accessed Nov. 30, 2017.

2. CDC. O'Donnell JK, Halpin J, Mattson CL, et al. Deaths Involving Fentanyl, Fentanyl Analogs, and U-47700 — 10 States, July-December 2016. *MMWR* ePub: 27 October 2017. Available at: <http://bit.ly/2idBfPT>. Accessed Nov. 30, 2017.

Rare or Unreported? HCW Injuries During Emergency Codes

'It is a stressful situation, and when people die it can be really stressful'

When a “code blue” is called for immediate patient resuscitation, healthcare personnel rush to the bedside to instigate life-saving measures that may be physically demanding and go on for a prolonged time. How often are healthcare workers injured when performing a code, and what are the primary risks?

Those were the questions asked by **Stephen M. Vindigni**, MD, MPH, a gastroenterologist at the University of Washington School of Medicine in Seattle. Having observed occupational code-related injuries and heard anecdotal reports, Vindigni undertook a comprehensive review of the literature.¹ Vindigni and colleagues found such reports were few and far between in the medical literature, though he thinks the injuries go widely unreported for a variety of reasons. Code activities include performing chest compressions, assessing and restoring cardiac rhythm, and stabilizing the airway, he says.

“A lot of us, particularly in

internal medicine, pulmonary, critical care are involved in codes quite frequently,” Vindigni says. “The focus is always on the patients, but little has been written for the individuals who perform the codes. We have heard anecdotal stories where providers have been injured during code situations.”

One of the co-authors of the paper incurred severe and prolonged neck pain after performing a code that included repeated CPR and other emergency measures.

“That case was an overnight code, when probably fewer hospital staff were available than usual,” Vindigni says. “It was sort of a routine code, but it was lengthy. There were fewer providers to [assist with] chest compressions and the co-author suffered a subdural hematoma. Basically, a severe neck strain that went on for a couple of weeks without much improvement. It was managed conservatively and in the end was OK, but it was the result of the vigorous chest compressions with multiple rounds of CPR.”

Vindigni is aware of another case

where a provider was running to answer a code, but tripped and fell and suffered knee ligament damage serious enough to require surgery.

“These things happen,” he says. “Those kinds of stories prompted us to review the literature to see if there was anything out there on what the risks are to healthcare providers who are running codes. We were kind of surprised, actually, to find that there really was nothing.”

Though they found few published case reports of code-related injuries, the researchers did manage to quantify a variety of occupational risks during these procedures that include infectious, electrical, musculoskeletal, chemical, irradiative, and psychological harms.

“Infections are much lower than they used to be now that we are not really doing that much mouth-to-mouth resuscitation,” Vindigni says. “We are also using the newer needle [safety] devices. I think the electrical and chemical risks are pretty low. Musculoskeletal is probably the most common and one of the least reported because you might just

go with it and take some aspirin or acetaminophen and move on. Those are probably minor musculoskeletal things like [pain in the] back, shoulder, and neck strain.”

Injured workers may take a day off, but typically will rebound from these injuries and not necessarily report them. Of 6,266 articles reviewed in the meta-analysis, 73 relevant studies shed some light on the risks healthcare workers face when performing codes. The review does quantify risks that are rare but real, but the common misperception to overcome from the outset may be that there is no risk associated with codes and resuscitation. It seems likely that such injuries are frequently underreported or not reported at all in many cases, he notes.

“I think that is very likely,” he says. “We probably hear a little bit more about things like needlestick injuries because the providers may go and seek post-exposure prophylaxis. But you hear very little about the psychological effects of being involved in codes. There is a little bit of stigma, especially if you are in training. If you are an intern or a resident, you don’t want to be the person that goes and complains or is the one with the injury. It’s just part of the process. You’re involved in a code, you’re slugging through your internship or your residency, and self-care sort of falls by the wayside.”

Role for Employee Health

Employee health professionals can help by encouraging reporting of any code-related injuries and reducing some of the mental health stigma. Codes are likely to increase as the patient population becomes

older and more acutely ill. Increased reporting and discussion could lead to some prevention measures for injuries during emergency resuscitation, he says.

“There are definitely things that can be done to help limit the effects or the risks to the people involved in those codes,” he says. “Even little things like making sure that the height of the bed is appropriate for the person providing the chest compressions. Just basic things that we probably don’t reflect on very well after a code.”

“THERE ARE DEFINITELY THINGS THAT CAN BE DONE TO HELP LIMIT THE EFFECTS OR THE RISKS TO THE PEOPLE INVOLVED IN THOSE CODES.”

In that regard, a routine debriefing after a code may be beneficial in processing the psychological effect, he says.

“Talking right afterward could be very helpful because it is very hard to reassemble the entire group of people who were involved in a code at a later date,” he says. “Codes are multidisciplinary. It’s not just the doctors. You have nurses there, you often have clergy, students, radiology, and techs. It can be a very diverse group with a very different level of experience.”

Code discussions and feedback could lead to some practice changes or valuable insights. Many medical centers have code leaders or someone

similar to best facilitate these conversations, he says.

“A lot of times, myself included, we do talk a little about the code afterward, but it sort of stops there,” he says. “Having a person to follow up on those areas where we could have done a little better, areas for improvement [could be beneficial]. There may be some additional research or some type of quality control to actually implement some of the things that are discussed during the code.”

There is the potential for healthcare workers to be somewhat traumatized by the event, particularly if the patient dies — but again, workers may be reluctant to volunteer information about their mental state or report any injuries.

“It is a stressful situation, and when people die it can be really stressful,” Vindigni says.

That said, he does not recommend a team leader ask if anyone was injured during the immediate aftermath of a code.

“There would still be underreporting because no one wants to be the center of attention,” he says. “Sometimes injuries — particularly musculoskeletal — are delayed. You may not feel that muscle strain until hours later, or the next day after the adrenaline calms down.”

The best alternative is a confidential reporting system for healthcare injuries or post-code mental anguish. “There needs to be a way for people to report and communicate injuries in a way that feels comfortable,” he says. ■

REFERENCE

1. Vindigni SM, Lessing JN, Carlborn. Hospital resuscitation teams: A review of the risks to the healthcare worker. *Journal of Intensive Care* 2017;5:59: <https://doi.org/10.1186/s40560-017-0253-9>.

NIOSH Issues PPE Conformity Assessment Document

Employee health professionals questioning whether their supplies of personal protective equipment (PPE) are up to date with current performance standards may want to consult new guidelines issued by the National Institute for Occupational Safety and Health (NIOSH).

“Workers are more likely to appropriately use PPE when they are confident that the equipment will provide the intended protections based on its conformance with appropriate standards,” NIOSH states.¹ “A comprehensive and tailor-made conformity assessment (CA) program is the most effective way to manage risks of a nonconforming PPE and instill this confidence in PPE users.”

We asked the lead author of the document, **Maryann D’Alessandro**, PhD, director of the National Personal Protective Technology Laboratory (NPPTL) at NIOSH, to explain the basics.

HEH: What is PPE conformity assessment, and how is NIOSH involved in this new framework?

D’Alessandro: Conformity assessment is the process of determining if a particular PPE product conforms to an established performance standard. It is an important process within the PPE community because it ensures that products will provide the expected level of protection. Conformity assessment processes increase users’ confidence that their PPE will meet manufacturers’ claims and protect them from workplace hazards. The PPE community has a variety of conformity assessment processes in place so that manufacturers and

consumers can be confident that a product meets specific requirements. For some industries, conformity assessment might also occur after a product has already demonstrated that it meets the requirements. These post-market conformity assessment activities are done to ensure that performance requirements continue to be met during production, distribution, or under use conditions.

Essentially, this new framework provides recommendations and guidance for developing, structuring, and managing PPE conformity assessment in the United States. It can be appropriately tailored and universally applied to all PPE that protects from a variety of risks regardless of the hazard, PPE type, or environment. The framework describes the foundational principles of conformity assessment that allow processes to be developed that are reflective of the worker’s risk and aids practitioners in selecting and purchasing PPE in areas with little oversight.

HEH: Why is this needed at this time?

D’Alessandro: The conformity assessment process for non-respirator PPE in the U.S. is quite variable and engages many different government and non-government entities. Because of this variability, the National Academy of Sciences issued a report in 2011 recommending that NIOSH expand its involvement in conformity assessment processes for non-respirator PPE.

As a first step toward expanding our role, we developed the PPE framework document. In the document, we outline a risk-based

framework that may be used to assess the adequacy of existing conformity assessment processes.

The framework development began with the establishment of a nationwide working group of stakeholders shortly after the publication of the National Academies Report in 2011. The framework has been a need since and prior to that publication. It took this long to work with all of the stakeholders, get the framework peer-reviewed, address the comments, and publish the report.

HEH: What role can employee health professionals in hospitals play to make sure this document is understood and implemented?

D’Alessandro: Understanding the building blocks in the framework will assist both users and purchasers. It is important for every worker to fully understand the standards the equipment should meet and the protections the equipment should provide. If the employees understand how their equipment should protect them, they can assure they are using the equipment properly and can provide feedback to manufacturers and standards developers on the adequacy of their equipment to provide input to future standards and equipment designs. In addition, purchasers should understand fully what the label means before purchasing equipment to ensure users are protected from the exposures on the job. ■

REFERENCE

1. D’Alessandro M. NIOSH. National framework for personal protective equipment conformity assessment – infrastructure. 2017. Publication 2018–102. Available at: <http://bit.ly/2By2xJD>. Accessed Nov. 30, 2017.



HOSPITAL EMPLOYEE HEALTH

NURSE PLANNER

Kay Ball, PhD, RN, CNOR, CMLSO, FAAN

Professor of Nursing
Otterbein University
Westerville, OH

EDITORIAL ADVISORY BOARD

MaryAnn Gruden, MSN, CRNP, NP-C, COHN-S/CM

AOHP Association Community Liaison

Manager of Employee Health Services

Allegheny Health Network
Pittsburgh

William G. Buchta, MD, MPH

Medical Director, Employee Occupational Health Service
Mayo Clinic
Rochester, MN

June Fisher, MD

Director, Training for Development of Innovative Control Technology
The Trauma Foundation
San Francisco General Hospital

Guy Fragala, PhD, PE, CSP

Consultant/Health Care Safety Environmental Health and Engineering
Newton, MA

Gabor Lantos, MD, PEng, MBA

President
Occupational Health Management Services
Toronto

Amber Mitchell, PhD

President and Executive Director
International Safety Center
University of Virginia

JoAnn Shea, MSN, ARNP

Director
Employee Health & Wellness
Tampa (FL) General Hospital

Dee Tyler

RN, COHN-S, FAAOHN
Director, Medical Management
Coverys Insurance Services

CE INSTRUCTIONS

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

1. Read and study the activity, using the provided references for further research.
2. Log on to AHCMedia.com, then select "My Account" to take a post-test.
3. Pass the online tests with a score of 100%; you will be allowed to answer the questions as many times as needed to achieve a score of 100%.
4. After successfully completing the test, a credit letter will be emailed to you instantly.
5. Twice yearly after the test, your browser will be directed to an activity evaluation form, which must be completed to receive your credit letter.

CE QUESTIONS

- 1. While Minnesota ranked 44th on a CDC list of healthcare flu immunization levels by state, which of the following states had the highest level of immunization (97.1%)?**
 - a. Iowa
 - b. Florida
 - c. New Mexico
 - d. Colorado
- 2. In a study, what percentage of healthcare workers worked for a median of three days with influenza-like illness?**
 - a. 32.5%
 - b. 41.4%
 - c. 60%
 - d. None of the above
- 3. Based on the flu season in Australia, public health officials are concerned that the current vaccine may only be partially effective against which influenza A strain?**
 - a. H5N1
 - b. H1N1
 - c. H4N3
 - d. H3N2
- 4. New consensus guidelines for first responders potentially exposed to opioids recommend:**
 - a. washing hands with alcohol rubs to render the drug ineffective.
 - b. wearing a powered air-purifying respirator.
 - c. wearing gloves when the presence of fentanyl is suspected.
 - d. All of the above

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.