

Patient Safety Monitor Journal



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PPE

Reusing N95 masks

FDA says 4 million N95 masks could be reused thanks to emergency orders

by Brian Ward

The FDA issued two [emergency use authorizations](#) (EUA) for decontaminating and reprocessing disposable N95 masks this spring, saying these changes have the potential “to decontaminate approximately 4 million N95 or N95-equivalent respirators per day in the U.S. for reuse by health care workers in hospital settings.”

The decontamination method described in the EUAs involves spraying single-use masks with vaporized hydrogen peroxide (H₂O₂). The concentration of H₂O₂, how long the masks need to be exposed, and the drying times vary depending on the system or products, but the basic steps are:

- Place the used masks inside a room or chamber
- Fill the room with concentrated H₂O₂ vapor
- Drain the gas and let the masks dry
- Reuse and repeat

N95 masks filter out 95% of particulates. Because of their parts, their design, and the melt-blown fabric used to make them, [ramping up mask production to meet current demand is a challenge](#).

Studies have demonstrated that using the H₂O₂:

- Decontaminates the mask material
- Doesn't degrade the mask material's ability to filter particulates
- Doesn't affect mask fit
- Doesn't create toxic byproducts

“Authorizing this sterilization system will make it easier for hospitals to ensure that heroic healthcare workers on the frontlines have the protection they need,” wrote HHS Secretary Alex Azar. “Thanks to rapid work by the men and women of the FDA and President Trump’s vision for an all-of-America response, innovators are giving our healthcare warriors new tools nearly every day to fight the COVID-19 pandemic.”

On the CDC page about [decontamination and reuse of filtering facepiece respirators \(FFR\)](#), the agency says that when the supplies are available, disposable face masks should be used. They note, however, that this has not always been an option during the coronavirus pandemic.

“Only respirator manufacturers can reliably provide guidance on how to decontaminate their specific models of FFRs,” the page says. “In absence of manufacturer’s recommendations, third parties may also provide guidance or procedures on how to decontaminate respirators without impacting respirator performance.”

The FDA EUAs were issued to [Battelle Memorial Institute](#) and [STERIS](#). The former was the first to test the H2O2 method, and the latter currently has H2O2 vaporization units equipped in 6,300 healthcare facilities nationwide.

The study

The hydrogen peroxide method was first tested during a 18-month study conducted by Battelle Memorial Institute, an Ohio nonprofit. Battelle was awarded over \$425,000 from the FDA to conduct the study, which was done between August 2014 and July 2016.

At the time of the study, there was no need to reuse face masks, so the technology was used for decontaminating other equipment and machinery. It wasn’t until March 2020 that [a doctor from the OhioHealth network and her husband](#), an engineer for Battelle, were talking over the dinner table about the mask shortage that the study was put into action against COVID-19.

At the end of each day, those enrolled in the Battelle CCDS Critical Care Decontamination System™ (CCDS™) program send their used masks to the company. Each mask is given a bar code so that the mask is returned to the person who originally wore it. Masks are also marked with the number of times they’ve been reused—Battelle says its system can reprocess masks 20 times, though other systems do it less often.

Operating around the clock, Battelle claims its system can decontaminate over 80,000 masks per day. And on April 10, the company announced it would provide its decontamination [services for free to health-care providers](#). To achieve this, they teamed up with Ohio Senator Rob Portman.

“Battelle is providing critical support to our health-care professionals across the country who are in desperate

need for N95 respirator masks. That is why I got personally engaged to help connect Battelle with the appropriate contacts in the administration as they sought to rapidly scale up the manufacturing of decontamination systems nationwide,” said Portman. “The federal funding results in decontamination services at no charge to hospitals and helps protect frontline healthcare professionals across the country.”

Individuals

Individual facilities and health systems have also started using this method on their masks, such as the Duke Health system in Durham, North Carolina. Duke Health has been using aerosolized H2O2 to sterilize their biocontainment lab for years. Now, all three of its facilities are using the method on masks.

“We had never considered needing it for something like face masks. But we’ve now proven that it works and will begin using the technology immediately in all three Duke Health hospitals,” Matthew Stiegel, PhD, director of the Duke Health Occupational and Environmental Safety Office, said in a [March 26 press release](#).

The [News & Observer](#) reports that Duke’s method hangs masks loosely in racks in a 400-square-foot room, where they are misted with H2O2 vapor for about four hours.

“The ability to reuse the crucial N95 masks will boost the hospitals’ ability to protect frontline health care workers during this time of critical shortages,” added Cameron Wolfe, MD, associate professor of medicine and infectious disease specialist at Duke Health.

Meanwhile in Florida, healthcare facilities aren’t the only places to adopt this technology. The Lake County Fire Rescue put out a [press release](#) in April announcing it would begin decontaminating masks for first responders. Lake County is approximately 1,200 square miles with about 70,000 residents. The agency’s recently acquired H2O2 decontamination unit can sterilize up to 300 masks every three hours, and the masks will be routinely tested by National Institute for Occupational Safety and Health and OSHA officials for safety.

“This will put our first responders at ease knowing that there is a system in place that will ensure an unlimited supply of PPE,” said Lake County Fire Rescue Chief Jim Dickerson. ■

Making your own mask decontamination system

Want to learn more about the nuts and bolts of setting up your own N95 mask decontamination process? Duke Health did a webinar on March 30, explaining how others can do this at their own facilities, with like H₂O₂ concentrations, duration of each step, and room layout. They say what a facility needs to do is:

- “Purchase the equipment (e.g., vaporizer, wire racks, clam-shell containers, bins, etc.).
- Find a room where you can shut off HVAC or find ways to seal using caulking and other means so the high levels of H₂O₂ don't leak out.
- Ability to monitor H₂O₂ levels to assure it is below relevant [occupational exposure limits] OELs (typically 1 ppm).
- Biological indicators to validate each cycle.
- Manage logistics of getting the used N95s to the decon room/facility and then back to users for reuse after decontamination.
- Adequately protect the employees who will be handling the contaminated N95s”

The webinar recording and slides are free and available for on-demand viewing here <https://www.safety.duke.edu/news-events/webinar-n95-decontamination-using-h2o2>.

COVID-19

Field hospital resources

by Brian Ward

The surge of COVID-19 patients has forced health-care facilities to find places outside their walls to house patients who test positive for this highly infectious disease. In late March, New York City's Mount Sinai Health System set up a [68-bed respiratory care unit in Central Park](#). The city's Billie Jean King National Tennis Center also announced that a 350-bed facility was being built there.

Nationwide, [field hospitals are popping up](#) in hotels, convention centers, schools, and even in parks and fields. CMS endorsed this emergency practice in April, [suspending restrictions on care venues during the COVID-19 pandemic](#). The sweeping “[Hospitals Without Walls](#)” initiative allows hospitals to bill Medicare and other government payers for providing services in unconventional settings.

There are several factors that need to be considered when designing a field facility, such as infection control, documentation, security, weather, electricity, and heating, says **Steve MacArthur**, a safety consultant for The Greeley Company. You'll have to deal with the unique life safety implications of the facility's structures, he says.

“They're probably not going to have sprinkler protection or perhaps even smoke detection,” notes MacArthur. “There may be exit signs, but probably nothing like a fire alarm pull station.”

While there may be existing processes that can be adapted for any field hospital, every location you set up in will have different challenges to surmount.

“The fact of the matter is that ‘one size fits none’ is much closer to the reality than anything else,” he says.

As a result of the national emergency declared due to COVID-19, [1135 waivers are now in play](#). These waivers allow facilities to temporarily suspend certain rules and regulations from CMS during a crisis. But they're not a magic wand for all your compliance issues, says MacArthur.

“While the 1135 waiver process can be used to smooth out any compliance bumps, it's still the responsibility of the organization to provide a safe environment, by whatever means necessary,” he says. “Certainly, any time you embark on this type of a response, it requires a great deal of cooperation and coordination with local authorities having jurisdiction to ensure everyone is on board and working together.” ■

The following is a list of resources from trusted sources to help you plan, set up, and maintain a field facility:

- <https://emergency.cdc.gov/shelterassessment>
- <https://asprtracie.hhs.gov/technical-resources/48/alternate-care-sites-including-shelter-medical-care/47>
- <https://www.jointcommission.org/-/media/tjc/documents/resources/patient-safety-topics/infection-prevention-and-hai/covid19/surge-hospitals.pdf>
- <https://www.cms.gov/files/document/qso-20-24-asc.pdf>
- <https://www.ashe.org/templates-submitting-inspection-testing-and-maintenance-waivers-cms>
- <https://www.cnn.com/2020/02/07/asia/wuhan-coronavirus-hospital-design-intl-hnk/index.html>



We're seeking experts

Contact me at bward@hcpro.com or 800-650-6787 ext. 3430.

– Brian Ward, Associate Editor

Environment of care

Creating airborne infection isolation rooms in a crisis

by Brian Ward

When trying to isolate an infectious or immunocompromised patient from the rest of your facility, guidelines and regulations often require using an airborne infection isolation room (AIIR) to keep everyone safe. During the COVID-19 pandemic, however, many facilities have found themselves forced to set up extra patient beds in hospital rooms, parks, stadiums, and convention centers. While not ideal, it is possible even in locations like these to make a temporary working AIIR to help safeguard patients and staff.

Using air pressure controls, air filtration, and exhaust systems, AIIRs protect people within and without by minimizing the spread of contaminants. The air in an isolation room is typically cycled through a HEPA filter 12 times an hour to ensure its quality, explains **Eric Mitchell**, principal and director of mechanical engineering at Goldman Copeland, a New York City-based consulting engineering firm.

“You’re taking all the particles out of the air, you put it through the HEPA filter,” he says. “It takes all the droplets, moisture, and quantitative bacteria completely out of the airstream. Then you can dump it back into the regular building system.”

However, he says it’s not uncommon for some facilities to not have HEPA filters as part of their AIIRs. In cases like that, Mitchell says extra attention must be paid to where the room’s air is being vented.

“You can’t just put an exhaust fan out the window and keep the room negative,” he says. The contaminated air could find its way back into the hospital, or droplets and bacteria could fall on passersby.

Your exhaust should vent on your roof, or at an isolated area on the ground. If it’s on the roof, he recommends having a high exhaust stack to ensure any droplets are blown up and away from people.

Be aware what happens to air inside the isolation room because that also makes a difference when it comes to patient safety and infection control.

“Pay attention to how the air flows in the room, making sure that the clean air flows over the patient with the immune issue,” Mitchell says. “[And for] the

HEPA filter and supply, we make sure there are no particulates that’s going back in [the room] to hurt someone with an immune deficiency. We want to have our clean air flow over the occupants of that room, and then exhaust that air close to the patient who is infectious.”

The major fear is that COVID-19–positive patients can easily infect others in a facility, especially at-risk groups like the elderly or patients with comorbid factors like diabetes, asthma, or heart disease. Thankfully, most healthcare rooms can be readily adapted into AIIRs with minimal cost, says Mitchell, and be compliant with the Facility Guidelines Institute code, provided a HEPA filter is used.

“Even before the current COVID-19 outbreak, there has been a need for isolation rooms and more importantly isolation room conservation and upgrades,” Mitchell says.

Makeshift AIIRs

With 1.25 million U.S. coronavirus cases as of May 5, many hard-hit areas have more patients than available beds. [*On April 7, CMS suspended many restrictions on care venues, allowing facilities to treat patients off campus while still collecting Medicare payments.*](#) But even prior to that, many were already creating field hospitals to house excess patients. In one case, Mount Sinai Hospital in New York City set up tents in Central Park for patients who tested positive for COVID-19.

Turning spaces outside a healthcare setting into AIIR rooms can be fairly simple, says Mitchell.

“Hotel rooms can be retrofitted with exterior-mounted exhausts and HEPA filtration,” he says. “Even large convention centers can be converted using isolation chambers [with the] construction of temporary modular walls or even fabrics.”

Temporary partitions are sold as modular walls, modular booths, or fabric or Plexiglass tents that can be outfitted with a HEPA filter. Portable HEPA filters are readily available, says Mitchell, and can be easily reused in a normal hospital room during or after a crisis.

Mitchell cautions that putting together the purifying and exhaust equipment needed for an AIIR is very hard to do from scratch, and recommends purchasing one rather than crafting one. But if you are in dire need and there isn’t another option, you can create the space yourself.

“Where there’s a will there’s a way,” he says. “If you have a HEPA filter, a fan, and some ductwork, you can make it work.”

Mitchell adds that standard practice is to have one patient per AIIR. However, there aren’t any codes specifically forbidding multiple patients in the space, and in an emergency situation (like a pandemic) you might need to house patients this way.

“As history teaches us, tragic events on a massive scale have a way of changing how we approach design. Examples like 9/11 and Hurricane Sandy have changed the codes and how engineers approach design for safety and loss of property,” Mitchell says. “The current pandemic will undoubtedly change our approach to flexibility in the design of hospital room environment control as well as energy conservation and, most of all, health and safety.”

“With respect to future hospital renovations and facility planning, it would be prudent to incorporate a flexible approach that would allow a typical patient room to be converted to an isolation room with variable airflow controls to achieve the proper pressurization while maintaining comfort control,” he adds.

Much like the current design standards for research laboratories, future planning and designs should make use of variable airflow terminal devices and enhanced zone controls to adjust airflow rates and achieve proper pressurization. Increased use of HEPA filtration and controls could monitor and bypass these devices when not required. ■

Guidance for temporary AIIR spaces

For further information on how to make an airborne infection isolation room (AIIR), the Minnesota Department of Health has a PDF guide on methods to create a temporary AIIR space: <https://www.health.state.mn.us/communities/ep/surge/infectious/airbornenegative.pdf>



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How to use virtual visits to connect coronavirus patients with loved ones

By Christopher Cheney, [HealthLeaders Media](#)

AdventHealth is connecting hospitalized patients and families with virtual visits, including coronavirus patients.

To curb the spread of coronavirus disease 2019 (COVID-19), hospitals across the country have placed strict limits on visits to hospitalized patients. Visitation restrictions have been troublesome for COVID-19 patients, with families unable to see their loved ones for many days or weeks, and seriously ill patients dying without contact with their families.

For COVID-19 patients, virtual visits at AdventHealth have generated significant benefits, says Pam Guler, MHA, vice president and chief experience officer at the Altamonte Springs, Florida-based health system. “This has been meaningful for our patients, their families, and our caregivers. Many caregivers have told stories of creating a moment that has deep meaning not only for families and patients but also has touched their hearts.”

AdventHealth features nearly 50 hospitals in nine states. During the COVID-19 pandemic, physical visits to hospitalized patients have been limited to a single loved one in the case of an end-of-life situation, childbirth, and a child in the hospital.

Virtual visit basics

AdventHealth recently launched virtual visits for hospitalized patients with the distribution of 1,000 Chromebooks and some iPads throughout the health system’s hospital campuses, Guler says. The cost of the initiative was minimal because the Chromebooks were already in hand for another project, which has been delayed, she says. “The investment has been more about helping our team members to understand what they need to do.”

With help from the health system’s information technology staff, Guler has a team of 65 experience leaders who facilitate the virtual visits. In one recent week, the health system conducted 1,350 virtual visits. “Our information technology staff loaded the Chromebooks in a way to make it as easy as possible to use Google Hangouts, Facebook Messenger, and Facetime. We are using Google Hangouts quite a bit for video chats.”

Coronavirus patient virtual visits

AdventHealth has put protocols in place for hospitalized COVID-19 patients to have virtual visits with loved ones, including for end-of-life situations, Guler says.

There are three primary considerations for virtual visits with all COVID-19 patients:

To limit the number of people in a patient's room for infection control, a bedside caregiver in full personal protective equipment brings a Chromebook or other device into the room

The device can be held by the bedside caregiver or placed on a bedside table if the family requests privacy for the virtual visit

After the virtual visit, a disinfectant is used to sterilize the Chromebook or other devices

The protocols for end-of-life situations are more involved, she says. "We have to facilitate calls more when there is an end-of-life scenario and the patient is not able to be an active participant."

The first step is for an experience leader to contact the family and to see whether they want to have a virtual visit. Then the family is asked whether they want to have a hospital chaplain included in the virtual visit.

Once a virtual visit has been arranged, an experience leader initiates the call to the family and hands off the device to a bedside caregiver outside the patient's room. In most cases, the bedside caregiver holds the device so the family gets a full view of the patient.

Although ICU bedside caregivers are experienced in working with the families of dying patients, they have received training to help them facilitate virtual visits, Guler says.

"This is a very deep and meaningful situation and interaction, and we have shared some words the caregivers might say. They may ask the family whether there is anything they can do to be the family's hands as the family is talking with their loved one, such as, 'Can I touch your loved one's hand?' They have protective equipment on, but they can be the hands of the family. The caregivers try to do anything they can to bring a human touch to this virtual experience."

Many family members can participate in an end-of-life virtual visit, she says.

"In one end-of-life situation, we had 15 family members on the virtual chat, along with their family

pastor. The patient could not respond, but the family was able to say some last words. They said how much they loved the patient. Their pastor prayed with them. It was deeply meaningful and facilitated by a caregiver who held the device. In that situation, the caregiver did not need to say anything."

The new normal

AdventHealth plans to continue providing virtual visits for hospitalized patients after the COVID-19 crisis is over, Guler says.

"We want to continue virtual visits in the future. Even in a non-COVID-19 scenario, we often have patients who have family across the country. With this platform now in place, contact does not just have to be through telephone. We are already exploring ways that we can have virtual visits in the future in a non-COVID-19 world." ■

Christopher Cheney is the senior clinical care editor at HealthLeaders.

Patient safety

Worker wellness: Stress reduction and mental health

Anyone who has been to a medical clinic in the last six months has seen healthcare workers at their best—and their busiest.

The COVID-19 pandemic has tested the U.S. healthcare system in ways not seen in modern times, as floods of patients have overwhelmed hospitals and healthcare facilities.

As usual, healthcare workers are being asked to take on some of the hardest work during the coronavirus pandemic. Many are working without the proper PPE and/or enough time to rest, and it's taking a toll. All you have to do is watch the nightly news to see images of exhausted caregivers, some of whom are working nonstop, overlapping shifts to fill the gaps as their colleagues contract the virus.

"[Healthcare] work often requires coping with some of the most stressful situations found in any workplace," says OSHA on the agency's website. "[Healthcare] workers must deal with life-threatening injuries and illnesses complicated by overwork, understaffing, tight schedules, paperwork, intricate or malfunctioning equipment, complex hierarchies of authority and skills,

dependent and demanding patients, and patient deaths; all of these contribute to stress.”

OSHA says excess stress can lead to things such as:

- Loss of appetite
- Ulcers
- Mental disorders
- Migraines
- Difficulty sleeping
- Emotional instability
- Disruption of social and family life
- Increased use of cigarettes, alcohol, and drugs

Stress can also affect workers’ attitudes and behaviors in a way that can lead to mistakes.

Here are some tips for keeping your staff’s stress levels down as they continue to battle the COVID-19 pandemic, and some ways to monitor them for signs of trouble.

Hold regular staff meetings and discussions

You should already be doing this, as it’s a good way of keeping up with OSHA’s requirements. But during a crisis, it’s tempting to put off staff meetings—there’s not enough time, and OSHA likely isn’t checking to ensure they’re being held.

That said, this is the time when your clinic workers need their staff meeting the most—it may be their only “downtime” throughout a busy week. Sometimes all it takes is a quick 30-minute morning meeting with coffee and bagels to check in with your staff.

Keep a sense of optimism and humor

In a profession where sickness and death are a part of the daily grind, it’s important to make sure your staff stays optimistic.

A joke or a positive quote on the whiteboard in the staff room can be enough to raise spirits. Donations of food or coffee from the community can provide a needed lift during a busy afternoon of seeing patients. In some communities, such as New York and Boston, healthcare workers are being greeted after their shifts with applause from first responders and cheering groups of residents in high-rises. Whenever possible, expose your workers to these positive experiences so they can see that their hard work is being noticed.

Institute a time-out policy

Sometimes the best way to relieve stress is to walk away from the situation, take a few breaths, and gain some perspective. A surgeon in the middle of a risky heart surgery can’t do this, but a nurse or front desk worker can usually take five when they need to.

It’s your job as a safety officer to ensure your employees are safe and healthy, so give them the opportunity to walk away from their work stresses for a bit. It doesn’t take much more than setting aside a room or area away from the work environment where they can be alone and unbothered.

Next, make sure they use that break time. Institute a policy where at least once an hour, employees get rotated out of the work environment to take a 10-minute break. Whether it’s a quick walk outside, a read in the break room, or time to take a cool drink of water, ensure these breaks are non-negotiable.

Learn new breathing techniques

Of course, there will be times when it is impossible for your employees to take a break from their responsibilities. That said, they can learn how to take control of their reaction to stress.

Some experts say that breathing exercises can help people relax. Try teaching this belly breathing technique from the University of Michigan Health System at your next in-service training session:

- Sit or lie flat in a comfortable position.
- Put one hand on your belly just below your ribs and the other hand on your chest.
- Take a deep breath in through your nose, and let your belly push your hand out. Your chest should not move.
- Breathe out through pursed lips as if you were whistling. Feel the hand on your belly go in, and use it to push all the air out.
- Do this breathing 3 to 10 times. Take your time with each breath.
- Take note of how you feel at the end of the exercise.

Lend an ear

One of the biggest complaints from healthcare workers, hands down, is feeling like no one listens to them. It could be that there’s no process at work to report safety problems or concerns. Or staff might simply need an

avenue to talk about their feelings—after all, helping other people with health problems can take its toll.

Some healthcare facilities have counselors on call or on staff to help their employees deal with life's issues. Other places have created peer groups where coworkers can talk and relate to each other.

Promote exercise and good nutrition

There is a cliché that people under stress feed their emotions. That holds true in healthcare, where long hours and stressful conditions sometimes make it difficult to eat healthy and exercise.

Some workplaces have turned to organizing employee groups who walk together at lunch or after work or offer an annual wellness benefit or discount at a local fitness club. Some facilities will even organize Zumba classes or other group exercise programs in their conference rooms.

To ensure your employees are eating at least one good, healthy meal a day, why not set up a weekly “lunch bunch” or potluck breakfast or lunch where everyone brings in a healthy dish to share? It's fun, it shows off employees' culinary skills, and it gives your staff a chance to take a break and socialize.

Give them some help in personal life

Financial troubles, family issues, and childcare are stressors that can affect a person's work performance. Give your employees a hand by offering childcare services, or invite a CPA to come in and give them a primer on personal finance. ■

Network seeks to reduce drug diversion, increase reporting rate

By John Palmer

An Atlanta-based nonprofit organization that focuses on drug diversion prevention has launched an online forum that it hopes will change the landscape of the drug diversion problem in U.S. hospitals.

The Healthcare Diversion Network in May 2019 launched the website [HealthcareDiversion.org](https://www.healthcarediversion.org), which it calls a first-of-its-kind forum that aims to build national dialogue and transparency around one of the most critical, yet often unspoken, risks associated with the expanding opioid crisis in the country.

According to **Tom Knight**, chairman of the Healthcare Diversion Network, since going public with the website, the number of reported incidents increased by more than 23% in the first three months. Additionally, since launching, the nonprofit is actively working with 65% more hospitals to track and report drug diversion.

So far, the network has tracked drug diversion at 90 hospitals, 28 nursing homes, and dozens of other types of healthcare facilities, including ambulatory surgical centers, assisted living centers, clinics, compounding pharmacies, medical laboratories, mental health facilities, pain clinics, rehabilitation homes, retail pharmacies, and schools.

“I've worked with several hospitals to detect and prevent drug diversion, and what it really comes down to is transparency and education,” Knight says. “If the healthcare community can come together to reduce stigma and shine a light on drug diversion, we'll be able to make considerable progress in reducing drug diversion in our country.”

The problem at hand

Drug diversion, especially theft by doctors, nurses, or pharmacy staff who are suspected of keeping the drugs for their own use or selling them on the street, continues to be a major problem at U.S. hospitals.

The CDC says the theft of controlled substances such as opioids for providers' own use can cause several types of patient harm, including substandard care delivered by an impaired clinician, denial of essential pain medication or therapy, or risk of infections such as hepatitis C or bacterial pathogens if a provider tampers with injectable drugs.

CDC statistics show that from 1999 to 2017, more than 702,000 people died from a drug overdose, 70,000 of them in 2017 alone. Of those deaths in 2017, almost 70% were from opioid overdoses.

Aside from the devastating toll it takes on human lives, opioid abuse imposes an estimated \$55 billion in societal costs every year, with \$25 billion of that price tag going to aggregate healthcare costs in the United States, based on a 2015 report by Matrix Global Advisors.

Drug diversion has become such a problem in American hospitals that The Joint Commission (TJC) in April released Quick Safety 48, a set of advice and guidelines for preventing drug diversion in facilities. Only a fraction of drug diverters are caught, TJC says,

despite clear signals such as abnormal behaviors, altered physical appearance, and poor job performance.

According to a March 2017 report in *Outpatient Surgery* magazine, the incidence of opioids and other medications going missing from federal hospitals in more than a dozen states—most of them run by the Department of Veterans Affairs—has spiked by more than 2,500 incidents since 2009.

The report said incidents of drug losses at more than 1,100 facilities (which includes seven correctional hospitals and about 20 hospitals serving Native American tribes) jumped from 272 in 2009 to a high of 2,926 in 2015 before dropping to 2,457 in 2016, according to the Drug Enforcement Administration (DEA).

Some experts say an estimated one in 15 healthcare employees may have some sort of addiction, whether to alcohol or drugs, and the healthcare environment often offers them the perfect opportunity to satisfy their addiction for free. In many cases, this results in patients being put in harm's way.

Yet drug diversion is under-recognized and under-reported in many instances, says **Kimberly New, BSN, JD**, a nurse, attorney, and consultant specializing in helping hospitals prevent, detect, and respond to drug diversion by healthcare personnel, and author of the book *Drug Diversion Prevention in Healthcare*.

“So many times, facilities detect diversion, but they allow individuals to resign their position, move on, and they don't necessarily do the appropriate external reporting,” she notes.

In some situations, the diverter will use medicine intended for the patient, either by replacing it with another medication for paperwork purposes or simply injecting themselves with an IV previously used on a patient. Both practices, obviously, can leave both patient and practitioner at serious risk of diseases. In 2016, for instance, New says that hospitals in the U.S. had to notify at least 12,000 patients of potential exposure to bloodborne pathogens as a result of provider tampering or substitution.

The network can help

Knight says that about 10% of healthcare workers will steal drugs from their workplace at some point in their career. He says his nonprofit works with government agencies such as the CDC to help spread awareness, and he has an advisory board with members covering almost every part of healthcare affected by

drug diversion, including hospitals, government entities, patients, and national associations.

“We've found that hospitals have a few misconceptions when it comes to drug diversion,” he says. “First, many hospitals don't realize that they might have a drug diversion problem in their facility. They think that the problem only exists at other facilities and that they are doing everything they need to do to prevent drug diversion in their facility. Unfortunately, that is often not the case. When they learn the scope of the issue and apply that to their own facilities, they are often more interested in being a part of our effort.”

How is that effort put into practice? *HealthcareDiversion.org* provides an online network where healthcare providers, law enforcement, and government agencies can report an instance of drug diversion. The reports are verified and input into a database and map to help providers hire more effectively and provide patients with more ownership over their care.

The incident map is publicly available and searchable. A patient can search for a local hospital to see if any instances of drug diversion have been reported there. As a next step, Knight says the network plans to open submissions to patients and the general public, as well to ensure comprehensive coverage.

To maintain accuracy and integrity, Knight says the network has strict policies for vetting submissions. For example, he says, the name of a person suspected of diversion will not be published unless that information is publicly known and the person has been convicted by a criminal court or a licensure board. Cases submitted anonymously are independently confirmed by a member of the Healthcare Diversion Network, who then reviews publicly available information such as court records or disciplinary actions of state licensure boards.

Knight says that the primary goal of the network is to reduce drug diversion in healthcare by educating healthcare professionals about the problem.

“When healthcare professionals divert drugs, they can cause harm to the patient by providing substandard care, denying them medication, or spreading infections like hepatitis C,” he says. “Reducing and preventing drug diversion will ultimately increase patient safety.”

Visit www.healthcarediversion.org to learn more. ■

John Palmer is a freelance writer who has covered healthcare safety for numerous publications. Palmer can be reached at johnpalmer@palmereditorial.com. This story originally ran on our sister site, www.PSQH.com.

Safety

Anesthesia procedures led by physicians provide highest patient protection

by Christine Doyle, MD, FASA

The problem with suggesting that complex issues can be addressed through “absolute” solutions is that, unless used in algebra, absolutes rarely further their intended goal.

This is especially concerning in healthcare delivery, where evidence-based treatment and management protocols coexist with variations in patients’ biological responses and the subtle nuances of human-delivered care. It’s simply not a “black or white” profession.

That’s why recent missives from organizations such as the American Association of Nurse Anesthetists, suggesting that nurse anesthetists are “the answer to achieving a safer healthcare environment and more cost-efficient healthcare economy,” are so concerning. Using such definitive language, rather than saying “part of the answer” or “an answer,” does little to advance the dialogue around topics such as patient safety, utilization of scarce healthcare resources, or scope of practice.

In my career as a physician anesthesiologist, I have worked with many nonphysician practitioners, and my patients are better for it. Nurse anesthetists implement care plans, stabilize trauma patients, monitor pain management, and provide high-quality patient care. They are well educated, highly skilled, and an integral part of the care team.

But they alone are not the answer; in some cases, neither am I. There are roles for more practitioners in anesthesia procedures, including serving on a team with a shared vision for a strong, patient-focused model of

care. But that care must be led by a physician anesthesiologist.

It’s important to note that the term “physician-led” should not be equated with the medical authoritarianism and paternalism of the past. But because patient safety is and must remain the single most important goal, care teams must be led by the medical professional with the most comprehensive and extensive training. Physician anesthesiologists are the only medical specialty cited as having significantly improved patient safety. In fact, data show physician-led anesthesia care teams experience a 20% reduction in adverse events and 50 times fewer deaths compared to nonphysician-led teams.

In an integrated team culture, the physician’s 12,000–16,000 hours of training is combined with the training, skills, and expertise of the rest of the team to optimize continuous medical assessment and immediate response to the patient’s emergent needs. Surgical environments in the United States are complex and dynamic, and benefit from collective knowledge and holistic care.

Almost 40% of the U.S. adult population, for example, is obese. More than 10% of nonoperative intubations are difficult, and 20% of critical incidents in the ICU are airway related, according to a 2017 study. The essential duties of the anesthesia care team—securing and maintaining the patient’s airway, managing vascular access for infusion of fluids and medications, working with the surgical team, monitoring anesthesia response and vital signs, and prescribing appropriate pain relief—must be assigned by the clinician with the most experience at all of these functions. Issues of scope of practice and labor cannot usurp patient care considerations.

I worry about any movement in healthcare that suggests “the answer” is excluding physicians from care. Obviously, the right clinician should provide the right care at the right time, and we should deploy our resources wisely. But costs do not exist in a vacuum. Expanding nurse anesthetists’ scope of practice without proper physician involvement can lead to increased costs due to overutilization of tests, overprescription of medications, and excess referrals to specialists. In recognition of this, policymakers in West Virginia, Oklahoma, New Mexico, Mississippi, Illinois, Florida, Arkansas, and most recently Alabama have defeated



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– Brian Ward, Associate Editor

proposals to weaken physician involvement in the last few years.

To my physician colleagues, I offer that we should encourage the model of the anesthesia care team. At the same time, the larger healthcare ecosystem must understand that the expertise of physicians cannot be replicated: #MedSchoolMatters. The public, too, must understand why physicians' body of education is important as they entrust the care and well-being of their family, friends, and colleagues to our healthcare system.

As a medical specialty, our collective energy should go toward larger, complex challenges affecting our profession and our patients. We have work to do in fighting the opioid crisis, establishing team-based performance measures, addressing clinician shortages, working for more licensure of certified anesthesiologist assistants, and dealing with ongoing shortages of anesthesia drugs. These, rather than turf battles, are the issues that demand "answers." ■

Christine Doyle, MD, FASA, is a partner in Vituity and practices primarily at O'Connor Hospital, where she is involved in medical staff leadership. She is president of the California Society of Anesthesiologists, is an active member of the American Society of Anesthesiologists, and has achieved Fellowship in the society (FASA). She is board certified in anesthesiology, with subspecialty training in critical care.

Healthcare violence

Reduce your workplace violence with initiatives from VCU Health

The first step is admitting your organization has a problem, says VCU Health's chief quality and safety officer

by Christopher Cheney, HealthLeaders Media

Healthcare organizations carry a heavy workplace violence burden, with about three-quarters of U.S. workplace assaults occurring in healthcare settings, according to OSHA. Workplace violence is especially prevalent in emergency departments—78% of emergency physicians have reported being targets of workplace violence in the prior 12 months.

"There is not one single silver bullet that makes your environment safer," says **Robin Hemphill, MD**, chief quality and safety officer at VCU Health. Over the past five years, Hemphill says the Richmond,

Virginia-based health system has taken several essential steps to address workplace violence: realizing that the organization had a problem, forming a committee to illustrate that the problem was systemwide rather than local, promoting incident reporting, and letting the staff know that abuse is not part of their job.

"A lot of this is selling initiatives to your senior leadership and having them turn around to become your biggest advocates," Hemphill says.

The initiatives are focused mainly on violent patients but also include measures to address staff-on-staff violence. Data shows the efforts are making a difference:

- Using its electronic medical record, VCU Health flags patients who are at risk of becoming violent, and VCU police and security staff round on those inpatients. In January, VCU police and security staff conducted 1,300 checks on potentially violent patients.
- From fiscal year 2012 to fiscal year 2015, 15%–32% of VCU Health assault cases resulted in the employee missing time from work. In the current fiscal year, which concludes in June, 1%–2% of assault cases have resulted in the employee missing time from work.
- In summer 2016, VCU Medical Center launched the Behavioral Emergency Rapid Response Team (BERRT) to address inpatients with urgent behavioral health needs and to help reduce workplace violence. In BERRT's first year, police assault charges at the medical center dropped more than 60%.

Comprehensive approach

Over the past five years, VCU Health has launched more than 50 workplace violence-related initiatives, which include the following:

BERRT: The BERRT program is modeled after VCU Medical Center's medical response team, which responds to medical crises at the bedside. BERRT features psychiatric nurses who are mainly deployed in two scenarios. First, the psychiatric nurses round on patients who have been flagged as potentially violent to see whether there are any additional needs related to patient care plans. Second, BERRT team members respond to in-the-moment situations where a care provider sees potential danger.

“The BERRT team comes to the bedside and helps the care team members to make sure everyone involved is safe,” says **Trina Trimmer, RNC-MNN, MSN**, nursing safety operations and resources director at VCU Health.

Violence Prevention Committee: This panel meets monthly and has about 50 members. Several departments and stakeholders are represented on the committee, including executive leadership, legal, nursing, occupational injury, physicians, psychiatry, risk management, and VCU police.

Emergency department security rounding: Patients are flagged in the electronic medical record at three levels, with Level 1 patients at the least risk of exhibiting violence and Level 3 patients at the highest risk. When Level 3 patients present at the emergency department, VCU Police and security are notified and round on the patients.

Emergency department metal detectors: Installation of metal detectors not only addressed a potential threat but also sent a clear message to patients, visitors, and staff members, says **Lisa Davis, MEd, RN-BC**, nurse manager for VCU Health’s psychiatric nursing consultation service. “When we put the metal detectors in the ED, that was huge. It was very visible and showed that we wanted to take care of people,” she says.

Reporting: In 2018, VCU Health implemented electronic reporting for workplace violence incidents with the launch of the Post Assault Huddle Form. The form gathers data on violent incidents and engages staff members to identify strategies to reduce future risk.

Filing this form triggers electronic notifications, says **C. Taylor Greene**, occupational injury prevention and safety manager at VCU Health.

“One sends a PDF file of the Post Assault Huddle Form to the key stakeholders, including the VCU police, our chief nursing officer, and the supervisor of

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the victim. There's also a notification that goes out to the claimant of the form that thanks them for submitting the report and lets them know what is being done," he says.

Reporting of violent incidents is not mandatory, but it is "strongly encouraged," Hemphill says. "Reporting is not supposed to be a shackle, where you get abused by somebody then get in trouble for not reporting it. We want people to give us this information, but we don't want a punitive response for failure to report," she says.

Signage: VCU Health approved the deployment of zero-tolerance violence prevention signs last fall, Greene says. "The introduction of those signs started at 14 of the primary entrances of our inpatient facilities. We did an additional rollout of a slightly different version of the signs at our 45-plus ambulatory locations," he says.

Visitor identification: In February, VCU Health rolled out visitor badging on a trial basis, Greene says. "It's very similar to what is utilized in school systems, where you come into a facility, drop an ID in a scanner, and get a sticker badge with your picture, the destination you are traveling to, and the time that you arrived. We are using self-expiring badges that say 'void' on them after 24 hours," he says.

Future initiative

An upcoming initiative will focus on peer support for staff members who have experienced workplace violence.

"Although we have seen great progress in the number of the initiatives we have launched and have seen an anticipated increase in reporting, our staff members are now asking for peer support," Trimmer says.

VCU Health wants to move beyond focusing on why patients were becoming violent and what could be done to flag them and introduce intervention resources such as BERTT, she says. "Now, we are hearing our staff members say they want help for the team member who was a victim. The staff wants to know what we are offering for victims. We have initiated a group to work on that issue and we have looked at other organizations to see what they have in place." ■

Christopher Cheney is the senior clinical care editor at HealthLeaders.

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[jkumar@hcpro.com](mailto:j कुमार@hcpro.com)

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