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Opioid Shortage Could Increase Diversion Risk

Some divert, and many others simply ignore injection safety

By Gary Evans, Medical Writer

The national shortage of opioid medications is contributing to drug diversion incidents by healthcare workers, as scarcity leads to hoarding of vials, and new and unfamiliar products make tampering less detectable, said **Kimberly New**, JD, BSN, RN, executive director of the International Health Facility Diversion Association.

"Be aware that the opioid shortage may be changing the [diversion] landscape," she said recently in Minneapolis at the annual conference of the Association for Professionals in Infection Control and Epidemiology (APIC).

> DRUG THEFT BY ADDICTED HEALTHCARE WORKERS HAS GIVEN RISE TO RECURRENT OUTBREAKS OF HEPATITIS AND RESULTED IN TENS OF THOUSANDS OF PATIENTS BEING ADVISED TO SEEK TESTING FOR BLOODBORNE PATHOGENS.

Drug theft by addicted healthcare workers has given rise to recurrent outbreaks of hepatitis and resulted in tens of thousands of patients being advised to seek testing for bloodborne pathogens.

"The diverter will find a syringe that is prefilled with fentanyl and inject themselves," said **Jan Davidson**, MSN, RN, CNOR, CASC, director of the Ambulatory Surgery Division of the Association of periOperative

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Registered Nurses (AORN). "Then they fill up the syringe again — often just with tap water or saline — and put it back for patient use."

Diversion incidents have compounded the longstanding problem of unsafe injection practices by clinicians who should know better, she told APIC attendees. Data presented by Davidson showed unsafe practices, such as reusing needles, are still shockingly common.

While such practices may be the result of some combination of ignorance and apathy, workers involved in unsafe practices are typically not trying to steal drugs. The addicted healthcare worker, in contrast, may divert drugs and contaminate syringes and needles until an outbreak among patients reveals the behavior.

An Epidemic and a Shortage

Meanwhile, the national opioid epidemic has resulted in public health and regulatory actions that have reduced the availability of the drugs.

For example, hydrocodone has been reclassified as a Schedule II opioid, and many states have tightened requirements for physician review of prescription drug monitoring programs. As a result, shortages have been reported of common opioids such as morphine, hydromorphone, and fentanyl.

At the APIC conference, New described a similar situation, with the added twist that the shortage could actually contribute to more drug diversion by healthcare workers.

"Many facilities are having a lot of trouble now getting the opioids that they need," New said. "One facility I worked with in Florida said we will be out of hydromorphone in the next two months if something doesn't change. Many facilities have gone now from a 2 mm morphine syringe to a 10 mm."

That can raise the temptation to preserve drugs that would normally be wasted, creating pockets of opioids for drug diverters.

"Multidosing — we are seeing people holding on to stuff as they conserve," New said.

"People delay drug wasting. They try to hold on to it just in case something comes up and they may need to use a little more. People are carrying around opioids for extended periods of time."

While this is being done to ensure pain medication is available for patients, these breaks in normal practice may be a temptation to divert drugs.

"At one facility I worked with, the nurses are required to walk down to the pharmacy to get a morphine syringe, and then they carry it back up," New said. "That is a lot of time to be unsupervised with an injectable. A lot of things could happen in that time."

As various manufacturers try to meet the opioid demand, new products are coming into clinical settings, she added. Healthcare workers may be unfamiliar with the tamper protections, which were actually removed by a nurse in one facility New investigated.

"A new syringe from a new manufacturer was given to a particular unit because they couldn't get them from their regular manufacturer," she said.

The new syringes had a tamper-evident feature, but nobody knew

about it beforehand because they had not worked with the product.

"A charge nurse made sure she was right there when they were stocking it, and she pulled the tamper-evident feature off of every one of them," New said.

Despite all the publicity drug diversion has received with high-profile arrests and outbreaks in recent years, it too often remains the unspoken elephant in the room at many facilities, she said. Having looked for diversion and consistently found it for years in all manner of settings, New still is often told that it is not a priority because the organization has never had any incidents.

"That couldn't be further from the truth," New said. "If you have controlled substances in your facility — it doesn't matter where you are or whether it is an outpatient or inpatient setting — you will have drug diversion. It is a fact."

Reusing Needles

The flagrant unsafe injection practices are perhaps more shocking than the theft of drugs by addicted clinicians. For example, in a 2017 study, 12% of physicians and 3% of nurses indicated reuse of syringes on more than one patient occurs in their workplace. "Nearly 5% of physicians indicated this practice usually or always occurs," the researchers found.[1]

A survey of work practices by the Accreditation Association for Ambulatory Health Care (AAAHC) was similarly disturbing.

"It is mind-boggling to me that people would actually reuse a syringe and a needle when the cost is minimal to use a new one," said Davidson, who is an AAAHC surveyor. Indeed, consider that public health and infection control groups have been emphasizing for years that needles and syringes are single-use devices and should never be reused on different patients. These often are underground outbreaks, which may go undetected unless a health department becomes aware of cases of, for example, hepatitis C infections in people with no risk factors.

Typically, these clusters are traced back to reuse of a needle after medication was administered to a hepatitis C virus (HCV) patient. Infected blood can aspirate into syringes and multidose vials, putting patients downstream at risk of cross-transmission.

"Between 1998 and 2014, more than 700 patients contracted hepatitis B virus or HCV, or were infected with bacterial pathogens due to unsafe injection practices," Davidson said. "In an 11-year period between 2001 and 2012, 150,000 patients received notifications with recommendations that they undergo blood testing because of an exposure to a pathogen through unsafe injection practices."

In 2017, the AAAHC conducted a safe injection practices study over a six-month period. Data were collected from 20 primary care organizations and 90 ambulatory surgery centers. Respondents reported compliance with national guidelines on safe injection practices, medication storage and preparation, and disposal of single-use medications.[2]

"Each organization voluntarily submitted about 3,300 routine uncomplicated injections," she said. "So, any nonroutine or complex cases were excluded from their study."

Of the 90 ambulatory surgery centers and office-based surgery organizations in the study, just over three-quarters reported that when withdrawing medication from a single- or multiuse vial, all three of these recommended measures were used:

- disinfect the rubber septum of the vial using 70% alcohol;
- use a new, sterile needle;
- use a new, sterile syringe.

In addition, the survey included 20 primary care facilities that scored higher, with 87% of respondents saying they performed all three of the measures.

"Most of the complaints and issues were failure to clean off the rubber septum prior to withdrawing the medication, and failure to clean off the hub of the IV tubing prior to injecting," Davidson said. "The biggest one, I don't know how many of you have an OR background, but anesthesiologists love to carry around in their pocket prefilled syringes without a label. That was probably one of the biggest 'a-ha' moments for us."

Culture Change?

While Davidson emphasized risk assessments and education, an infection preventionist in the audience said the longstanding problem speaks more specifically to the values and work culture of anesthesiologists.

"Most of the outbreaks really go back to anesthesia, and we talk about education," said **Jeanne Pfeiffer**, DNP, MPH, RN, CIC, FAPIC, FAAN, a clinical professor in the University of Minnesota

School of Nursing. "Education is only 50% effective in changing behavior."

Saying she first noticed anesthesiologists predosing syringes — only some of which were labeled — when she became an IP in 1979, Pfeiffer said the problem needs to be addressed in a root cause analysis.

"Education is not going to change this," she said in the discussion period after Davidson's talk. "It is a value system in anesthesia that we have to get to. I don't know if anybody has the answer to this."

Davidson concurred, saying, "I don't mean to throw anesthesia under the bus, but they really are the primary problem. It's a little better now with the [dispensing machines] in the rooms, but they still like to prefill a syringe and carry it around it their pocket."

"That's not acceptable," Pfeiffer answered. "We wouldn't let anybody else stay in practice who did that."

It has to be addressed at the peer review level, Davidson said.

"Two weeks ago, I did a survey in Syracuse, NY, and questioned an anesthesiologist who had a pocket full of fentanyl," she said. "His response was, 'Who are you to tell me how I can practice?' So, they get a deficiency, but …"

Pfeiffer said anesthesia has to take on this issue at a professional level. Attempts to get a comment on this issue from the American Society of Anesthesiologists (ASA) were not successful as this story was filed.

However, the ASA guidelines for safe injection practices clearly state, "Do not administer medications from a syringe to multiple patients, even if the needle or cannula on the syringe is changed. Needles, cannulae, and syringes are sterile, single-use items. Do not reuse for another patient or to reaccess a medication or solution."[3] ■

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Stay in Your Lane: A Framework to Define Your Practice

Know when to refer, consult, or manage a problem

Infection prevention is a diverse and demanding job, and IPs with a Swiss-knife skill set may understandably be asked by colleagues to take on all manner of problems and projects.

Sometimes, the answer must be "no."

"Practice saying 'no' out loud," said **Rachael Snyders**, MPH, BSN, RN, CIC, lead infection prevention consultant at BJC HealthCare in St. Louis. "Don't use a harsh tone, but don't use a hesitant tone or be overly polite — strive for a steady and clear 'no.'"

Snyders and BJC colleagues recently described their "stay in your lane" framework to help IPs navigate these difficult work situations in Minneapolis at the annual conference of the Association for Professionals in Infection Control and Epidemiology. They went through a series of questions IPs can use to guide decisions on whether a given issue falls in their scope of work.

In the current healthcare landscape, much does. IPs face multiple — sometimes conflicting — priorities. There are issues of regulatory compliance, infection surveillance, data collection, staff education, and a host of other duties that can vary widely by the IP and institution. In that regard, to the degree possible, try to clearly outline your responsibilities and make sure senior management is aware of all you are doing.

"Let's be entirely clear — managing time is not the same as managing expectations," said **Patricia Kieffer**, RN, BSN, CIC, FAPIC, an IP consultant at BJC HealthCare. "IPs have to consider others' expectations of us. We

have to be realistic in our time commitments and what we tell people we can do to help them."

The idea for the framework arose out of the threat of heater-cooler devices to open heart surgery patients, which was the subject of a public health warning in 2015. The problem is complex, with slow-growing infections traced back to the design of some of the machines and the presence of relatively obscure waterborne pathogens in circulating water used in them. The BJC infection preventionists were involved from the outset, but the complicated response expanded to several other issues, not the least of which was that some of the machines may have been contaminated during the manufacturing process.

"As we started getting more information about this, the recommendations kept evolving, and so did our involvement," Kieffer said. "What was the role of the IP? This is when our medical director said, 'Ladies, stay in your lane.'"

Thus was born the idea to apply a more thoughtful process to these types of situations, allowing IPs to look at a problem and decide in a systematic way whether it is in the lane of their program. This scope will vary widely by individual and facility, but the key is to really look at your duties carefully in making these decisions, Kieffer said.

"Our jobs demand objectivity, even when evaluating the level of involvement in everyday issues that may turn into big projects," she said. "This framework is to help you apply an objective approach to decide how you are going to get involved in some of these issues."

There certainly will be gray areas and exceptions that individual IPs will have to address, so the framework was not presented as a panacea or an academic approach developed through rigorous peer review. "We made this up," Kieffer quipped.

"Remember that the responses are going to vary," she said. "Small facilities will answer these questions differently than large facilities. If you are the sole IP at a facility, you will answer these questions differently than a team of IPs."

The framework has the benefit of a common-sense application in the real world, and hinges on three basic questions. Before getting to those, though, Kieffer suggested looking at the situation and asking at the outset, "What is the risk of doing nothing?" Consider the consequences if you choose to remain uninvolved or refer the problem to a different department, she advised.

Your decision also may be informed by your sense of the background noise at work and the perceived importance of the issue being raised, she added. While that is a subjective measure, a clear-cut piece of information is whether the issue includes some regulatory or compliance requirement involving groups like the Centers for Medicare & Medicaid Services or The Joint Commission.

"You may have to at least consult on those issues, and many times you may end up managing those," she said.

Three Questions

Given those considerations, look at the issue objectively and ask this question: "Does it present a real or perceived infection risk to patients?"

"If the answer is 'no,' then that is likely an issue that you can refer out," Kieffer said. "If the answer is 'yes,' then you need to move on to the next question." That question is: Does it fall into your IP plan or roles and responsibilities? "If it is in your IP plan and risk assessment, it is likely that your involvement is going to be more than if it is outside of that scope," she said.

Stay in Your Lane Framework

Ask these three questions

Infection preventionists at BJC HealthCare in St. Louis created a framework to help IPs better determine whether a given issue falls within their role and responsibilities or should be referred to another department.

The framework is based on these three questions:

- **Does it present a real/perceived infection risk to patients?** If the answer is "no," refer the issue to another department. If the answer is "yes," ask this question:
- **Does it fall into your IP plan or roles and responsibilities?** If the answer is "no," refer out. If the answer is "yes," ask this question:
- **Are control measures within your scope?** If the answer is "no," consult on the issue. If the answer is "yes," investigate and manage the issue. ■

If not, again consider referring it to another department. If the answer is "yes," however, move on to the final question.

"'Are control measures within your scope?' That sometimes is a tough question to answer," she said. "If the answer is 'no,' you may have to consult on it. If the answer is 'yes,' it may be one of those topics that you end up managing."

Referring an issue to another department or colleague should be done diplomatically, and some involvement in making the connection may be required.

"When you say 'no' and are referring that person down another path, you may have to provide an alternative person, another department or resource," she said. "Just because we are referring it doesn't mean we can't help find the right person to answer the question."

Consulting on the issue is a step removed from managing it, but it involves more investment of time and resources than a referral.

"You are not going to manage the team, but you are going to be a part of it," Kieffer said. "You are going to contribute to whatever intervention may be necessary, and you are going to provide information and data."

Answering 'yes' to all three questions usually means the IP will manage the problem and take a leadership role in any interventions.

"Managing the issue means you are going to own it," Kieffer said.

This responsibility could include establishing the interventions and communicating with key stakeholders.

"This doesn't mean you have to do this in a silo," she said. "It means that you have a team of people who are looking at this. Just because you are managing this doesn't mean you have to do it by yourself."

The framework can be used to address an emerging problem or to look back on a past situation and review your response. Looking back at the heater-cooler problem, Kieffer said IPs initially withdrew to their lane, but ended up taking a management role when the situation changed.

"Did it present a real or perceived infection risk? Yes, it did," she said, running through the framework questions. "We had patients who were infected and getting really sick."

Likewise, the incident fell within the IP plan and role, which includes preventing surgical site infections, she said.

However, when it came to the questions of whether the control measures were within the scope of the infection control program, the extent of their responsibility had been reached. They continued to consult on the issue, but were not managing it.

"We told the IPs in our facilities to talk to clinical engineering and OR staff and make sure they were following the recommendations," she said. "We tried really hard not to manage it at that point. We wanted to stay in our lane." However, when the CDC subsequently recommended that facilities notify all cardiac patients who may be at risk of the infections, the IP role again became front and center.

"We opened an incident command center and a call center led by infection prevention. We answered calls from patients who were calling in and we had an algorithm we worked through," she said. "We managed it, but you see how it changed as time went on. That may happen with some scenarios and real-life situations that you are presented with as well."

Dr. Noncompliance

In another scenario, an IP receives a call from an RN manager concerned about "Dr. Noncompliance," a physician who is not following infection control measures for patients in contact precautions, Kieffer said.

Looking at the framework, is it a real or perceived infection risk? "It is, right? If people are not following contact precautions, they are going to transmit organisms," she said.

Similarly, it falls within the IP plan, and the control measures are within the scope of the program. "We felt that they were because one of our roles and responsibilities is to make sure that people are being compliant with contact precautions," she said.

So, in this scenario, the IP would talk to the physician about the issue. However, if the situation persists, the IP may need to refer the matter up to the medical staff director, she said. The framework can be used as an educational tool and a way to at least work through situations hypothetically.

"We wanted to give you some tools to start managing people's expectations," Snyders said. "We know that culture change is not going to happen overnight."

Implementing the framework certainly comes with many caveats, and the framework will vary based on a variety of local factors and resources. "The hard part is going back to your facilities and talking to your co-workers, colleagues, and managers," Snyders said. "You may even have to talk to the C-suite about why you are starting to say 'no' to some of these requests."

Consider using the approach gradually to work through the ideas, maybe first applying it to workers

you have a good relationship with to test out the concept and field the initial reactions.

"If everyone is used to the IP doing everything, they will not get used to you 'staying in your lane' overnight," she said.

Use the framework and your list of roles and responsibilities in your program to educate others about what an IP does.

In responding to requests for assistance with issues and problems, Snyders recommends taking inventory of your current "bandwidth," the time and resources you can commit. Consider bartering to get help in IP areas for assisting in the projects of others. In addition, you may compromise by contributing a measured amount of your time and resources, while clarifying you have other commitments and priorities.

"Show a willingness to pitch in if there are small ways you can contribute to the project," she said. "You can be part of the team without completely managing the program."

If you must say "no," go ahead and give your reason, she recommends. "Be honest," she said "Oftentimes I am guilty of this. You beat around the bush a little bit, saying you can't do something, but you don't really say why. Give the reason for saying 'no,' and I think it will really help foster a culture of transparency."

Obviously, the framework goes out the window in "all-hands-on-deck" situations. That could include a surprise accreditation or regulatory inspection, she noted.

"And if you are the only person with access to data — even if it isn't IP-related — you may still need to get the data," she said. On the other hand, some IPs may find it is hard to give up control of things even if they clearly fall outside their scope of duty.

"If it's not yours, let it go," she said. "We struggle with this a lot. The majority of us in this room probably identify as Type A personalities. Sometimes it's best to let things go and let others take ownership."

Ultimately, the work culture and administrative leadership of a facility will determine whether such a framework could be used and accepted by colleagues.

"We think that gaining leadership buy-in is the key for this framework working for you and within your facility," Snyders said. "When you are talking to leadership, keep patient safety at the center of the discussion, but remind them you are not the sole person responsible for that." ■

Does Your Boss Know All That You Do?

Make sure your scope of work is clearly outlined

Does your administration know all the duties and responsibilities you perform? As part of defining your role and knowing when to "stay in your lane," make sure you are getting credit for all that you do. Doing so will bolster your case if you must say "no" to additional duties.

"Put everything you do in your IP plan," said **Rachael Snyders**, MPH, BSN, RN, CIC, lead infection prevention consultant at BJC HealthCare in St. Louis. "There are going to be things that you do that are not infection prevention-related. That may not be technically in an IP lane, but if you're doing it, put it in your plan so you get credit for it."

Snyders and colleagues described their program recently in Minneapolis at the annual conference of the Association for Professionals in Infection Control and Epidemiology (APIC). Citing APIC as the source, they listed the following tasks as some of the typical duties many IPs perform as part of their infection control programs:

- collection and analysis of data;
- evaluation of products and procedures;
- development and review of policies and procedures;
- consultation on infection risk assessment, prevention, and control strategies;
- education of healthcare workers on interventions to reduce infection risks;
- education of patients and families;
- implementation of changes managed by various regulatory and accrediting agencies;
- application of epidemiological principles to improve patient outcomes;
- antimicrobial management and stewardship;
- participation in research projects;
- maintaining high-quality services in a cost-efficient manner. ■

Legionella: Be Proactive to Avoid 'Pain' of Inspections

CMS requirements now in force

Infection preventionists who have put water management programs on the back burner could be in a world of pain if they encounter a case of Legionnaires' disease — let alone an outbreak.

Public health officials and other authorities may show up on site with a demand for data and documents that may not be immediately available, warned **Frank Sidari**, PE, BCEE, technical director of the Special Pathogens Laboratory in Pittsburgh.

"They will ask, 'Do you have a recent risk assessment? Are you following a water management plan?'" he said recently in Minneapolis at the annual conference of the Association for Professionals in Infection Control and Epidemiology. "If the answer is 'no,' they may say you must put together a water management plan and a risk assessment. And it is due by Friday."

The scenario got the attention of the IPs in attendance, but it is not out of the realm of possibility. Last year, the Centers for Medicare & Medicaid Services issued a memo mandating that:

"All covered facilities have water management policies to reduce the risk of growth and spread of *Legionella* and other opportunistic pathogens in building water systems. … Conduct a risk assessment to identify where *Legionella* and other opportunistic waterborne pathogens could grow and spread in the water system."[1]

Facilities that are not in compliance in these areas could get dinged by a surprise visit or one prompted by the report of a *Legionella* infection. This can be labor-intensive, as you may have to hire a consultant, conduct risk assessments, and implement water safety programs under time constraints. Instead of a preferred stance of proactive measures, you are now responding retroactively under the pressure of public health scrutiny.

"As soon as there is a case, they will wonder if you have done any water sampling," Sidari said. "They will want you to submit this, and it usually goes well beyond proactive testing. When you are testing on your own, you can take a few samples from a few locations. Once [CMS] becomes involved, you may have to collect all sorts of samples."

Making matters worse, you may end up "chasing zero," as inspectors look for the presence of *Legionella* in any and all samples.

"Being proactive avoids all this," he said.

Proactive Approach

To avoid this painful scenario, form a water management team and develop a plan for detecting and mitigating risk of *Legionella* to your patients. *(See related story, page 105.)*

"To do a good risk assessment, you really need to understand if you have *Legionella* growing in your building, what type, and how extensive is the colonization," he said.

This may result in recommendations for short- or long-term actions to manage the risk.

"From the engineering side, risk assessment looks at your water system to understand if it is operating properly," he said. "Is there some wing where you can't get hot water to work? So, the risk assessment not only looks at *Legionella*, but how your water system is operating."

Another aspect of risk assessment is the vulnerability of the patients using the water system. As IPs are aware, the primary threat to high-risk patients is developing pneumonia after inhaling *Legionella* in aerosolized water from, for example, a shower, sink, or water feature like a fountain.

As part of a water management plan, begin a periodic water testing program for *Legionella*, knowing that *Legionella pneumophila* is the species responsible for more than 90% of infections. *L. pneumophila* has 15 serogroups, but the one that causes the most disease is *L. pneumophilia* serogroup 1.

"Testing can help you determine what kind of *Legionella* may be in your water system," Sidari said. "Serogroup 1 is a concerning one for disease."

Still, the CDC recommends using a testing method capable of detecting all types of *Legionella*.

"Standard culture is the gold standard," he said. "Order cultures for your environmental samples. It gives you all the information you need, and it is capable of detecting all *Legionella* species."

It is also important to ensure the right clinical tests are being performed on patients, including the urinary antigen test that picks up *L. pneumophila* serogroup 1.

While virtually any building water

system could contain *Legionella*, roughly speaking only about half of them do. That means you need to test to see if your building has *Legionella*, but periodic testing can be done at select distal sites, he said. There is no established threshold of *Legionella* in a given water sample that predicts disease. A dose rate for the pathogen to manifest as disease has not been established.

Rather, the key is the frequency of the pathogen detected in distal sites and water outlets throughout the supply system. The benchmark that has emerged in the literature, and is now codified in New York state law, is 30% of hot water supply sites testing positive for *Legionella*. Greater than 30% of outlets positive corresponds with increased risk of disease, he said.

"So, the more frequently people are exposed to *Legionella*, the chance for disease increases," Sidari said.

This underscores why eliminating all *Legionella* from the entire water system is not necessary to prevent disease. However, hospitals performing *Legionella* environmental testing with an eye on the 30% benchmark are more likely to prevent cases of hospital-acquired Legionnaires' disease, he said.

"Your mission should be to prevent Legionnaires' disease," he said. "You can have a positive result here and there [in the water system], but staying under that 30% threshold has been shown to prevent disease."

Constant vigilance is required because intricate hospital plumbing systems seem almost designed to grow *Legionella*.

"If you told me as an engineer to design a reactor to grow *Legionella*, I would put together a building," Sidari said. "Lots of pipes, lots of places for biofilm, sediment, and corrosion. Lots of warm water systems great for *Legionella* to grow in."

In addition, there have been some unintended consequences with "green" efforts to conserve water and the massive shift away from soap and sinks to ubiquitous alcohol hand rub dispensers in hospitals. The water flow is slowed, and some sink water faucets are rarely used. Depending in part on the efficacy of your municipal water system treatment, these factors could contribute to *Legionella* growth. To assess risk, test the hot water at key sites by collecting a sample right when you turn it on.

"The first draw of hot water gives you the idea of the worst risk," Sidari recommended. "Take that from representative locations in each of your water systems. If you just have one water system, you can spread out your samples."

For example, tests of water containing *Legionella* show a 98% positive at first draw, declining to 69% positive after the water has run for two minutes, he said. Similarly, test equipment like ice machines at "worst-case," which could mean right before the next scheduled maintenance.

"You don't want to sample your ice machine right after you clean it," he said. "What is the worst quality of water samples? Right before you service."

These measures will prevent cases of *Legionella* and give you evidence of a proactive program to show the powers that be, whether inspectors or hospital administration.

"If you are not looking for *Legionella* and not actively putting together a water safety program, you can have a problem sneak up on you," Sidari said.

"Most of the time when I get a call it is from somebody who has a case or an outbreak. They have not been testing their water. They do not have a water safety program and have not been proactive." ■

REFERENCE

1. CMS. Center for Clinical Standards and Quality/Survey & Certification Group. Requirement to Reduce Legionella Risk in Healthcare Facility Water Systems to Prevent Cases and Outbreaks of Legionnaires' Disease (LD). Ref: S&C 17-30-ALL. June 02, 2017: http://go.cms.gov/2r3ue6B.

Key Pieces of a Hospital Water Management Plan

They may not need "a minor in plumbing," but infection preventionists should familiarize themselves with their facility water systems and work with colleagues in engineering to ensure an outbreak of *Legionella* is not percolating in pipes, advised **Frank Sidari**, PE, BCEE, technical director of the Special Pathogens Laboratory in Pittsburgh.

In now requiring water management programs for *Legionella*, the Centers for Medicare & Medicaid Services (CMS) is essentially enforcing the 2015 recommendations by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE),[1,2] Sidari said recently in Minneapolis at the annual conference of the Association for Professionals in Infection Control and Epidemiology.

"The CMS has now taken that voluntary standard and put

enforcement teeth into it," he said. "Now, they are saying if you don't follow ASHRAE 188 in healthcare, there are potential penalties, dings, and checkmarks." There also is a lot of complementary guidance and overlap in the *Legionella* toolkit issued last year by the CDC.[3]

The first step in the process is to form a water management team. "Again — this is a team. One person probably does not have all of this information," he said. "It is facility engineering, risk management, or quality folks. It is yourselves, with understanding of *Legionella* and Legionnaires' disease. It may include outside experts that help you fill in the gaps."

With your team in place, adopt a water management program that reflects the ASHRAE industry standard and the CDC toolkit, he said. Some of the key elements and issues of a water management program include:

Water systems/flow diagrams. These should include the potable and non-potable water system schematics.

"Could you tell a health department inspector how the water gets to patient rooms on the 7th floor?" Sidari said by way of example. "Is there a pump somewhere on the 5th floor that serves all of the upper floors? The water safety team needs to really understand how the water flows through. Understanding that and coupling it with the information you have on your patient population will help you better assess risk."

Water system analysis/control measures. Evaluate where hazardous conditions may occur and decide where control measures should be applied.

"Put together control measures, including temperature, chlorine levels, cooling towers," he said. "How often are you cleaning the decorative water feature?"

Monitoring/corrective actions. Establish procedures for monitoring whether control measures are within operating limits and if not, take corrective actions.

"If the temperatures drop or the chlorine levels are out of whack, what are you going to do to get back on track? This all becomes part of the program," Sidari said.

Confirmation. Establish procedures for verification to confirm the program is being implemented as designed. Follow this with validation to make sure it effectively controls the hazardous conditions.

"I think the most important piece of this is the confirmation step," he said. "There are two pieces to it. One is verification — are you actually implementing your water safety program? This is where I see folks struggle. They will put together a great water safety plan, but they don't know if it is actually being implemented correctly."

That means going beyond checking the box and having a stack of papers, he added.

"Don't just assume that some group, or engineering, is taking care of this. The confirmation step to verify is important," Sidari said.

The validation component should be met by your water testing program. "The only way to validate that your water safety program is working is to test for *Legionella* and see if you are controlling it."

Documentation: Establish documentation and communication procedures for all activities of the program. You will be glad you have this if a CMS inspector calls.

"When the health department shows up, you can say, 'Here's our program and monitoring,'" Sidari said.

"We have been testing quarterly for the last two years and here are our lab results. Here are our corrective actions." ■

REFERENCES

1. CMS. Center for Clinical Standards and Quality/Survey & Certification Group. Requirement to Reduce Legionella Risk in Healthcare Facility Water Systems to Prevent Cases and Outbreaks of Legionnaires' Disease (LD). Ref: S&C 17-30-ALL. June 02, 2017: http://go.cms.gov/2r3ue6B.
2. ASHRAE — Legionellosis: Risk Management for Building Water Systems (ANSI Approved) Standard 188-2015. 2015
3. CDC. Developing a Water Management Program to Reduce Legionella Growth & Spread in Buildings: A Practical Guide to Implementing Industry Standards. June 5, 2017: https://bit.ly/2tWhxR2.

Empowering Patients to Prompt Hand Hygiene

Novel approach: Physician calls for hand hygiene in the plan of care

In the seemingly endless array of interventions to improve compliance with the cardinal principle of infection control — hand hygiene — we have seen both carrots and sticks, electronic monitoring and the spying of secret observers.

But if the highest calling in the profession is to protect patients, what if they are the ones asking the providers to wash their hands? It's been tried before with mixed results,

but researchers in an ongoing study are adding a new feature.

A physician involved in the study went through the following script when first meeting the patient, explaining that hand hygiene was part of the treatment plan.

Motivational Dialogue

"I as your doctor would like to remind you that our team is committed to your health. One of the ways is cleaning my hands. (Demonstrates use of hand sanitizer.) Hand cleaning is an essential part of your care and keeps you from getting an infection. All healthcare providers, including doctors and nurses, should clean their hands before touching you as a part of your treatment plan. When you do not see them clean their hands, I am asking you to remind them to clean their hands prior to touching you. Do you have any questions? Will you repeat what I just told you? Just remember: All you have to do is raise your hand and say, 'Clean hands, please.'"

The number of patients asking providers to clean hands increased by 63% after the intervention, suggesting that the approach promoted self-advocacy for hand hygiene, said **Patti Grota**, PhD, CNS-M-S, CIC, FAPIC, assistant professor of nursing at UT Health of San Antonio.

"[The physician] actually demonstrates the process of hand hygiene while delivering the message. Telling them, 'This is part of your care,'" she said. "The substance of this intervention is really based on empowering the patient. Handing off the power to them, and saying I am demonstrating that this is important."

The study is ongoing, but Grota presented some preliminary data on oncology patients recently in Minneapolis at the annual conference of the Association for Professionals in Infection Control and Epidemiology.

"We chose this particular group because they are in treatment, they are followed at their clinics, and they are immune-compromised and at high risk of healthcare-associated infections," she said.

Hand hygiene compliance has been a historical bane for IPs, with healthcare workers about as likely to comply as a flipped coin turning up heads. Of course, many facilities are well above this 50-50 rate, but IPs report that it is difficult to "sustain the gain" with any given intervention.

While recorded compliance rates from observations or other surveillance measures may look impressive on paper, The Joint Commission is looking less at documents and more at worker practices. As of the beginning of this year, surveyors observing someone failing to wash their hands may issue a citation to the facility.

"Now, our compliance rates [on paper] aren't nearly as meaningful, because if they observe someone not using hand hygiene, you can be cited," Grota said.

The primary intervention with the script takes less than 90 seconds, so the method would be feasible if the study supports its efficacy.

However, it is difficult to empower patients who may have personal, cultural, or other issues that make them reticent to address their healthcare provider this way.

"The context is very complex when you start talking about empowerment of patients," she said.

For example, Grota told of a conversation with an epidemiologist who knows full well the cause and effect that can lead to a healthcare infection. The epidemiologist said she was lying on a surgical table, feeling acutely vulnerable before a procedure, and noticed that the surgeon had not washed his hands.

"She couldn't ask him," Grota said. "She was vulnerable because he was doing the surgery. We have to create a safe, secure environment for this so patients are willing to take a risk."

'Looked at Me Like I Was Crazy'

Patients may fear that the provider may take offense, potentially affecting their care. Some of the comments by study participants include:

- "I do not feel comfortable because I didn't want to insult the healthcare provider."
- "I felt much more comfortable asking healthcare providers to wash their hands after participating in the study. It is all about how you ask."
- "It took me a few times before I didn't feel intimidated to ask."
- "I asked a doctor and he looked at me like I was crazy. I felt bad. I was scared to ask again later."

Indeed, a lot seemed to depend on the reaction patients got the first time they asked the question, and some of those getting a negative reaction did not ask again.

"These are things that they told me in the interviews that they had experienced," she said.

"Even though it is very qualitative data it begins to guide and direct us toward what we need to address when we talk about empowering the patient."

The sample represents a vulnerable population of primarily Hispanic women who were not highly educated. Most had knowledge of hand hygiene differences, but mistakenly thought it was permissible for healthcare workers to walk into their room with gloves already on.

HOSPITAL INFECTION CONTROL & PREVENTION

"There was the possibility the culture at the clinic was impacted, since patients toward the end of the study reported that hand hygiene of the healthcare providers improved," she said.

"As we continued the study over several months, there was some cross-pollination in the clinic and more healthcare providers were washing their hands."

The intervention has promise, in part because it hinges on establishing a relationship with a primary healthcare provider who emphasizes the importance of hand hygiene at the start of the treatment plan, she said. ■

CME/CE QUESTIONS

1. **A 2017 study found that which percentage of physicians said reuse of syringes on more than one patient occurs in their workplace?**
   a. 5%
   b. 8%
   c. 12%
   d. 15%

2. **Of *Legionella*, *Legionella pneumophila* serogroup 1 causes the most disease in humans.**
   a. True
   b. False

3. **In testing water sites within the hospital, what percentage of positive results is the threshold for increasing risk of *Legionella* infections?**
   a. 15%
   b. 22%
   c. 30%
   d. 33%

4. **In a study of empowering patients to prompt hand hygiene by providers, which was a key feature of the intervention?**
   a. Healthcare workers reminding each other to wash hands.
   b. Asking for clean hands was part of the treatment plan.
   c. Patients given pocket containers of alcohol rubs.
   d. Patients reporting which workers did not wash hands.

CME/CE OBJECTIVES

Upon completion of this educational activity, participants should be able to:

1. Identify the clinical, legal, or educational issues encountered by infection preventionists and epidemiologists;
2. Describe the effect of infection control and prevention issues on nurses, hospitals, or the healthcare industry in general;
3. Cite solutions to the problems encountered by infection preventionists based on guidelines from the relevant regulatory authorities, and/or independent recommendations from clinicians at individual institutions.