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December brings with it a chill in the air, time with family and friends, and (hopefully) a little holiday break for the hardworking frontline infection preventionists, registered nurses (RNs), sterile processing professionals, and environmental service teams. These professionals make preventing infections the core of their work every day.

The end of the calendar year is a time to reflect on the progress made in the past 12 months and a time to think ahead. Our cover story in this issue, penned by Saskia v. Popescu, PhD, MPH, MA, CIC, on page 18, recaps the top stories in infection prevention this year, including COVID-19 updates, monkeypox, and more.

The end of the year also means conference season! Catch up on news and expert perspective from IDWeek 2022, the Clean Hospitals Day International Conference, and the Association for the Health Care Environment Exchange on page 27. There were some exceptionally interesting presentations, including the latest information on vaccine development for respiratory syncytial virus and the role of virtual reality in training medical professionals.

Speaking of virtual reality, on page 21, author Nancy Bailey discusses the potential applications of artificial intelligence (AI) in infection prevention. “The advantages are many, including consistency, speed, and the ability to handle massive amounts of data. However, although the positive attributes of AI in handling [infection prevention and control] continue to be measured, there are a significant number of challenges involved,” Bailey writes.

Finally, on page 16, we dive into some of the challenges the COVID-19 pandemic imposed on long-term care (LTC) facilities. “Many LTC staff felt they were struggling with and left searching for ethical guidance when enforcing specific infection control measures,” author Anne Courliss-Lane, a former RN now working as an infection preventionist in an LTC facility, writes.

As always, please feel free to send your content ideas to editor Tori Whitacre Martonicz (tmartonicz@mjhlifesciences.com).

Thank you for reading, and happy holidays!

Mike Hennessy Jr
President and CEO
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Water Baby

BY HEATHER SAUNDERS, MPH, RN, CIC

Do you love the lake as much as I do? Or do you prefer being in a river or a creek on a hot summer’s day? The fresh water is one of my favorite places, but I don't like to stay there for long. I would rather travel and live comfortably within the water systems of different buildings. In fact, as a gram-negative bacterium, that’s how I best cause infection in my hosts. For decades, I was able to make individuals sick without anyone discovering who I was. But during a 1976 outbreak, I was discovered after causing the deaths of 36 individuals and sickening 221. All I wanted to do was to live peacefully in the cooling towers of that hotel. It was so comfortable for me there.

Because there’s no vaccine to protect against me, the best option is to reduce the risk I will enter and grow in building environments.

I like to travel from the vastness of fresh waters to the coolness of a building system and finally to the lungs of an unsuspecting passerby. They may be showering or walking through an air-conditioned room when I enter their lungs through their breath. That’s right; you breathe me in. I float through the air, traveling in aerosolized water droplets, just waiting to catch a breath into someone’s lungs. I’ll sit there for a couple of weeks, replicating off their alveolar macrophages. Eventually, they may begin to suspect that something is not quite right. At best, I may cause them fever and muscle aches after a few days that resolve on their own within a week or so. At worst, after a week or two, they may begin to experience flu-like symptoms such as fever, chills, headache, shortness of breath, and cough progressing to pneumonia. Occasionally, I may cause nausea, diarrhea, and confusion. Left unmanaged, I can quickly progress to severe forms of pneumonia, potentially resulting in multiorgan failure and death.

Thanks to antibiotics, the pneumonia I cause is manageable when caught early. Urine tests and lower respiratory cultures can quickly isolate and identify me as the causative agent of infection. A chest x-ray will reveal pneumonia and guide clinicians to appropriate treatments. Healthy individuals usually have no trouble recovering from the havoc I wreak on their body, but 1 in 10 individuals infected with my pneumonia will die.

In health care facilities, that statistic can quickly become 1 in 4 individuals because patients in the hospital are already sick and may have weakened immune systems.

Although I would prefer they not know, it is easy to prevent me from entering building water systems where I pose a threat of infection by keeping them maintained. Because there’s no vaccine to protect against me, the best option is to reduce the risk I will enter and grow in building environments. I love to sit in unused pipes where the water from the tap sits stagnant. With no disinfectant or chlorination to remove me, I continue to grow, awaiting my release. When the water begins flowing again, I can travel with it through the pipes and out of faucets, showerheads, and waterspouts, where aerosolized droplets carry me to my next target. Building owners and health care facilities would be especially wise to have plans to reduce my proliferation.

Who am I?

To discover who I am, visit InfectionControlToday.com/view/dec-2022-bug-month
The United States may be on the precipice of a rude awakening regarding the persistence and devastation of COVID-19. A perfect storm is brewing with the convergence of 3 untoward outcomes: The bivalent booster may primarily elicit imprinted immunity, a deadly brew of immune escape variants is forming, and our public has thrown safety to the wind with few individuals—if any—masking or bothering to optimize their immunity. All of this is in the background of new and disturbing data regarding the dangers of long COVID-19.¹

Data from a recent study² from the University of Michigan showed that the immune response elicited by the new bivalent booster was similar to that of the old univalent booster for “all SARS-CoV-2 variants tested, including BA.4/BA.5.” This finding supports my concerns regarding the bivalent booster and the phenomenon of immune imprinting or “antigenic sin.” In other words, the type of immune response you produce is based upon the virus you were first exposed to (whether through vaccination or infection) and future exposures do little to modify the type of response elicited. Findings from a second study³ from Harvard University also indicated comparable BA.5 antibody titers with the monovalent ancestral and bivalent boosters.

I first discussed this concern in an Infection Control Today® article⁴ regarding data presented before the Centers for Disease Control and Prevention (CDC) September 2022. Association of Professionals in Infection Control and Epidemiology committee meeting. The safety of the booster has never been in question. What is debated is whether it will be any more effective than the booster based upon the ancestral strain. The presented data, which were derived from mice, found that the monovalent BA.5 booster (which is not clinically available) produced a response to the ancestral strain which was similar to that of the ancestral monovalent booster. However, the monovalent BA.5 booster produced a 6-fold increase in antibodies to the BA.5 variant, as the hybrid ancestral/BA.5 booster (which is clinically available) produced a 2.6-fold increase. With these data, one must wonder why the univalent BA.5 booster was not chosen for clinical use. But this finding was in mice. According to the human laboratory data reported by the University of Michigan, the response elicited by the bivalent booster was similar to the response elicited by the bivalent ancestral/BA.5 booster for all SARS-CoV-2 variants.

This is not good news. The immune escape potential of the BA.5 variant and lack of a refined immune response places all of us at risk. What is even more concerning is that if our immune response is imprinted to the original virus we are exposed to, what will happen with the new, even more immune-evasive variants in circulation? Currently, the BQ.1 and BQ.1.1 variants are even more evasive and comprise 27% of all sequenced specimens⁵ in...
the United States. The BA.4.6 and BF.7 are also slowly increasing their proportion in the reported specimens. And the XBB\(^6\) and BA.5.2.6\(^6\) variants are looming; both are circulating in the United States in low percentages. We are faced with a soup of variants,\(^7\) which because of their high infectivity can search out the most suitable host to infect.

Stuart G. Turville, corresponding author of an article in *Nature Microbiology*\(^8\) on the characteristics of variants, posted a graph (Figure) on Twitter derived from the authors’ data on immune evasion.

There are concerns that the BQ.1 and BQ.1.1 variants may be not only more infectious but also more lethal than the BA.1 (original Omicron) variant. To rely almost solely upon a vaccine/booster whose effectiveness appears to be imprinted in the past, to combat a virus that is progressively evading immunity, is unlikely to be an effective plan. We need to enact other strategies, such as masking and curtailing activities in high-risk venues.

To this end, the new CDC commercial entitled “Just in Time: Updated COVID-19 Vaccines” appears to be counterproductive. The commercial is designed to encourage vaccinations. No one is wearing a mask, even in crowded indoor places. The message I fear that is being transmitted is that if you are vaccinated all will be well and you do not have to take other precautions.

I know of 5 individuals who have recently contracted symptomatic COVID-19 after receiving the bivalent booster. All had truly mild symptoms and did not develop long COVID-19. But the latter is always a concern, and it is the reason why we need to remain vigilant even if boosted and to seek medical care if we become infected to obtain an antiviral therapeutic.

Should the new bivalent booster help? The answer is most assuredly “yes,” but it is only 1 layer of armor. We also need to take additional steps. This means continuing to wear masks in high-risk settings and avoiding crowded indoor places. Even with the new bivalent booster, it would be unwise to place yourself, without a mask, in a crowded elevator.

**REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM**

**Hand Hygiene Adherence in the Operating Theater: Data From the Netherlands**

**BY TORI WHITACRE MARTONICZ**

**A scene from the CDC’s “Just in Time: Updated COVID-19 Vaccines” commercial**

Findings from a prospective observational study on health care workers’ adherence to a novel hand hygiene protocol in the operating theater (OT) were published recently in *The Journal of Hospital Infection*.

According to Manon D. van Dijk, Department of Medical Microbiology and Infectious Diseases, Erasmus MC University Medical Centre Rotterdam, the Netherlands, and colleagues, this uniform way of observing hand hygiene adherence (HHA) in the OT enables evaluation of the effectiveness of interventions in the OT and facilitates friendly competition. In the Rotterdam-Rijnmond region, the HHA rate in the OT was below 50% and needed to be addressed in teaching hospitals and among physicians.

Because the Netherlands does not have protocols or observations tools in the OT, witnessing nonsterile health care workers (HCWs) perform HHA proved difficult and a protocol needed to be created.

*Furthermore, regardless of the department or health care setting, hand hygiene observations are often performed by using the 5 moments of hand hygiene as...*
stated by the World Health Organization (WHO), the investigators wrote in the study. “These 5 moments are the golden standard and are in general easy to apply on clinical wards where there is a clear distinction between the patient zone and the health care zone. The patient zone includes everything that is attached to the patient or belongs to a specific patient, while everything that is not patient specific is referred to as health care zone. Health care workers should apply hand hygiene when changing from patient zone to health care zone, and vice versa.”

The study included 9 hospitals in the Rotterdam-Rijnmond region. Because these hospitals did not have specific hand hygiene protocols for nonsterile HCWs in the OT, the investigators created one with the hospitals’ input. Once the protocol was agreed upon, an observation tool was developed and tested. Using the tool, investigators calculated HHA rates by type of hospital and HCW.

The protocol contained 3 sections:
1. Written general hand hygiene rules
2. Written hand hygiene rules specifically for anesthesia and surgery
3. Visual representation of the OT, divided into 4 hand hygiene areas.

Generally, hand hygiene should be performed when moving from one area to another. Across all hospitals, an average HHA rate of 48.0% (95% CI, 45.2%-61.2%) was observed in OTs. The academic teaching hospital received the lowest score at 23.1% (95% CI, 0.0%-45.8%), and the 2 specialized hospitals scored highest at 64.0% (95% CI, 30.6%-89.8%) and 76.7% (95% CI, 62.8%-84.5%). Interestingly, the average HHA scores from anesthesiologists were the lowest, 31.6% (95% CI, 19.2%-62.4%), whereas OT assistants scored the highest, at 57.4% (95% CI, 50.1%-78.2%).

“Nonetheless, adequate hand hygiene in the OT by nonsterile HCW and surgeons (performing non-sterile actions) is of utmost importance to prevent postoperative wound infections. Considering patients undergoing surgery are vulnerable to infection, exposure to infection risks in the OT should be kept as low as possible,” the authors wrote.

Some strengths of this study included the following: enabling uniform hand hygiene observations from one hospital to another, specifically designed for nonsterile HCWs in the OT. This information will help infection preventionists to know which departments need extra assistance. The authors also mention that comparisons between hospitals could lead to friendly competition on which hospital has the higher HHA rate. Competition also increases the rate of HHA in each hospital's OT. Also, as many HCWs work in more than 1 facility, if the protocols were consistent among all the facilities then the HCWs’ HHA could remain high because the infection prevention and control policies are the same, and they do not have to remember different policies.

Some limitations of this study included the implementation of COVID-19 infection prevention protocols. Also, because of COVID-19, 3 hospitals were not included in the final study, which did not allow for as many observations of HHA. Finally, because all the observations were only performed in 1 region of 1 country, more testing is needed to assess whether these protocols would function the same way in other countries and in other styles of OTs.

“However,” the investigators noted, “[because] almost all observations in the OT nowadays are still performed by using the 5 moments of hand hygiene of the WHO, we think that our protocol and observation tool could be a valuable addition to the existing literature.”

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Providing and receiving correct information is vital to alleviate patients’ reservations and fears. The recent monkeypox outbreak has led to concern and misinformation. Infection Control Today® (ICT®) has the answers that health care workers need.

Many patients are concerned about this recent worldwide outbreak. How should health care workers answer the questions that patients ask? Recently, ICT® asked Acey Albert, MD, FACP, how health care workers should answer these questions. Albert is an internist, pediatrician, and director of clinical content at Epocrates.

ICT®: How did monkeypox start? And how does it spread?

Acey Albert, MD, FACP: Monkeypox was first discovered in 1958 in colonies of monkeys kept for research purposes, and it was named because of these outbreaks, even though the true source of the infection remains unknown. It is thought that certain rodents and nonhuman primates may harbor the infection. The first human case occurred in 1970. Until this year’s outbreak, cases in humans occurred only in [individuals] who lived in or visited certain central and west African countries or via contact with animals imported from those areas. Transmission to humans has typically occurred through being scratched or bitten by the animal or preparing or eating meat or using products from an infected animal. [However], this recent outbreak has been a bit different. The initial cluster [was] described in the United Kingdom in May of this year, and the first case had travel ties to Nigeria, where the disease is endemic. This has been typical of previous outbreaks outside of Africa. However, this outbreak then spread via human-to-human transmission, primarily among groups of men who have sex with men.

The disease is spread via close, personal, often skin-to-skin contact and contact with contaminated objects such as clothing, bedding, or towels, according to the Centers for Disease Control and Prevention [CDC]. Unlike COVID-19, the risk of airborne transmission with monkeypox is low.

ICT®: People think that monkeypox is a sexually transmitted disease. Is that accurate?

AA: Yes and no. This outbreak of monkeypox differs from previous outbreaks outside the endemic African countries in that there has been significant human-to-human transmission. [Although] much of this transmission has occurred through intimate and sexual contact, it is important to note that transmission occurs through any prolonged contact with the rash, scabs, or body fluids of an infected person, sexual or not. It can also be spread via fabrics or objects that have come in contact with those skin lesions or fluids and potentially by close, prolonged, face-to-face contact.

ICT®: Many people worry about getting infected by touching someone with monkeypox on public transportation or even from a handshake. Is there a risk of getting monkeypox that way, or does it require closer contact? Also, when is a person infectious and most likely to spread the disease?

AA: Although this is theoretically possible, it hasn’t really happened in this outbreak. Most of the cases involve closer, more prolonged contact. We know monkeypox is contagious from the time symptoms start until the last lesions have completely healed and a fresh layer of skin has formed. However, because the first lesions typically occur in the mouth or in parts of the body not readily visible (such as the area around the anus) and because the rash in this outbreak can occur without the typical preceding symptoms (eg, fever, muscle aches, swollen lymph nodes), people may not know their symptoms have started. Research is ongoing to determine whether people without symptoms can spread monkeypox virus.

ICT®: What are some precautions people should take to avoid monkeypox?

AA: First and foremost, monkeypox can be prevented by the exact same hand hygiene measures (eg, handwashing, hand sanitizer) we reintroduced to people...
during the early stages of the COVID-19 pandemic. In the setting of this outbreak, it is also important to avoid close, skin-to-skin contact with anyone with the disease or skin lesions consistent with monkeypox. Contact with objects or materials used by people with monkeypox should also be avoided. For those at high risk of coming in contact with the illness, 2 vaccines, Jynneos and ACAM2000, are available, and immunization providers can be located via mpoxvaxmap.org.

ICT*: What should health care practices be doing to prevent monkeypox from spreading?

AA: The most important thing is to remember that the symptoms in this outbreak mimic other diseases clinicians are used to seeing, such as herpes, syphilis, and chickenpox. Hence, they need to ensure they are maintaining a high level of scrutiny of any patient presenting those symptoms and properly screening those cases. They also need to pay extra attention to communications from their public health departments at a local or state level, because those are the entities that are key to testing, preventing, and [managing] monkeypox. We must also remind ourselves of the lessons we learned for COVID-19, [such as] ensuring practices have adequate personal protective equipment on hand and keeping the same precaution used during the pandemic, [such as] using gowns, gloves, goggles, and masks, and regularly reviewing the latest CDC guidelines.

ICT*: Do you think the outbreak could evolve to an epidemic or even a pandemic?

AA: The case numbers and trends here in the United States don’t seem to indicate that either will happen. We seem to be on a sustained downward trend, with cases peaking in mid-August, just a couple of weeks after the peak in first-dose vaccination administration. Although this outbreak was significantly larger than previous outbreaks in humans, the case numbers just aren’t large enough to declare an epidemic or pandemic. To date, there have been over 65,000 cases worldwide and just shy of 25,000 here in the United States. Compare that with COVID-19, which, as a pandemic, infected over 95 million here in the United States alone.
IN THE NEWS

Hot Topics in Infection Prevention: COVID-19, Ebola Outbreak, and Monkepox Infection

BY SASKIA V. POPESCU, PHD, MPH, MA, CIC

From rising COVID-19 numbers to moneybox and Ebola, this winter is looking worrisome. As in public health, we often try to avoid the "quiet" word in infection prevention and control (IPC). Because the moment one of us says it’s been quiet lately is usually when the outbreak around 3 PM on a Friday starts. Since COVID-19, however, our definition of "quiet" has changed. IPC life never slows down, and even when it does, that’s just time for us to catch up on case investigations, rounding, projects, and all the things that have been piling up while we’ve been putting out fires. To help reduce stress, here are a few highlights of infectious disease topics and issues to make sure you’re informed without having to do the heavy lifting.

Rising COVID-19 Cases
I know—you’re shocked. In the very early signs of an uptick, cases are steeply rising in Europe, which has been predictive of what we’ve seen in the United States. For example, cases are up 107% in Germany currently and up 1% on a global scale, and the Netherlands has seen an increase of 135% in cases—all within the 2 weeks of October. Europeans have seen an increase of 14% in cases compared with the previous week in those 65 years or older. United States cases are still trending downward, but we’re seeing 40,000 new cases a day with test positivity rate at approximately 8.4%. With influenza cases increasing, many are worried about what this winter will look like.1 It’s safe to say that with the lackluster number of Americans who have received the COVID-19 bivalent booster, concern for disease severity is realistic. The hope, however, is that we won’t see a highly transmissible new variant like the past winter (Omicron) that changes the game and causes a massive surge. Masks, boosters, and all our favorite infection prevention practices will be that much more important this winter.

The COVID-19 Omicron Infections Study
A new study was released about frontline workers that sheds some light on symptoms, viral load, and the impact of vaccines.2 Pulling from the HEROES-RECOVER Network, a large prospective cohort of frontline workers (health care personnel, first responders, and other essential services such as education, food processing, transportation, etc, across 6 states), the research team evaluated the association between the second and third doses of mRNA COVID-19 vaccines. Since December 14, 2020, 1119 participants were evaluated. Stratification included SARS-CoV-2 strain and vaccination status. During this long study period, most individuals were infected with the Omicron variant (62%). Per the investigators, “Participants vaccinated with the second vaccine dose 14 to 149 days before Delta infection were significantly less likely to be symptomatic compared with unvaccinated participants (77.8% vs 96.1%; odds ratio [OR], 0.13 [95% CI, 0-0.6]), and when symptomatic, those vaccinated with the third dose 7 to 149 days before infection were significantly less likely to report fever or chills (38.5% vs 84.9%; OR, 0.07 [95% CI, 0-0.3]) and reported significantly fewer days of symptoms (10.2 vs 16.4; difference, −6.1 days [95% CI, −11.8 to −0.4]).”

This means that asymptomatic cases were more closely linked to Omicron infections. Of those with symptoms, the longest duration was for those with Delta: 16.4 days. Participants with a second

1. Popescu SV. Influenza activity is increasing: is this the forecast of a tough winter? Infect Control Hosp Epidemiol. 2022.”

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vaccine dose prior to a Delta infection were much less likely than those unvaccinated to have symptoms. For individuals with 3 doses who experienced symptoms, they were less likely to experience a fever or chills and had symptoms for fewer days. Additionally, for participants with Omicron infection, that third dose made a much more significant difference in ensuring mild symptoms. Symptomatic participants had much higher viral loads than those who were asymptomatic. Compared with their unvaccinated counterparts, participants who were given their second dose and had either Delta or Omicron infections had the lowest viral loads.

**Ebola Outbreak in Uganda**

Increasingly worrisome, the outbreak of Ebola virus (in this case, the Sudan strain) is only getting worse. The World Health Organization has released $2 million to help address the outbreak and provide more personnel and resources to Uganda. Current practices are focused on vaccination and close contact management, trying to control the disease and prevent further spread. Moreover, these practices focus on health care management of patients to avoid nosocomial transmission.

What does this mean for United States–based IPC efforts? This is a great time to dust off the Ebola and viral hemorrhagic fever guidance, remind yourself of what those processes and workflows look like, do a quick personal protective equipment check, and chat with urgent care and emergency department staff. Cases are currently isolated to Uganda, but this is a nice chance to discuss travel history and that there’s an outbreak only growing in this area. Consider this when individuals mention travel to Uganda and do a bit more digging based on symptoms or recent exposures.

Total cases are now at 80 with 44 deaths (at the time of writing). Uganda’s Ministry of Health has initiated a 3-week lockdown for the 2 districts most heavily affected, and there has been a new isolation facility established in Madudu with support from partners like Doctors Without Borders. Stay vigilant, folks. Relevant travel and symptoms monitoring will be key because this is the Sudan strain, and there are no vaccines or treatments approved for it.

**Ocular and Needlestick Monkeypox**

In not particularly surprising but nonetheless important news, the Centers for Disease Control and Prevention has reported a few unique cases of monkeypox disease and transmission in the latest Morbidity and Mortality Weekly Report (MMWR). Two studies were reviewed. One discussed 5 cases of ocular monkeypox that involved vision impact and concern for long-term vision issues. Four of the 5 cases involved hospitalization. Ultimately, the authors emphasized that in the event of ocular monkeypox, hand hygiene becomes key. The second case study from the MMWR emphasized occupational exposures through the perspective of a nurse who was infected via needlestick injury. The emergency department nurse was infected when capping the needle used to swab the rash of a monkeypox patient. Despite being given the first dose of the Jynneos vaccine within 15 hours of the event, she developed a lesion at the site of the needlestick puncture 10 days later. This serves as a painful but important reminder of not only needlestick injuries, but how unique needle-swabbing practices may be a source of risk in these unusual outbreaks or situations.

SASKIA V. POPESCU, PHD, MPH, MA, CIC, is an infectious disease epidemiologist and infection preventionist. During her work as an infection preventionist, she performed surveillance for infectious diseases, preparedness, and Ebola response practices. She holds a doctorate in biodefense from George Mason University, where her research focused on the role of infection prevention in facilitating global health security efforts. She is certified in infection control and has worked in both pediatric and adult acute care facilities.

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This outbreak of monkeypox differs from previous outbreaks outside the endemic African countries in that there has been significant human-to-human transmission. (Although) much of this transmission has occurred through intimate and sexual contact, it is important to note that transmission occurs through any prolonged contact with the rash, scabs, or body fluids of an infected person, sexual or not. It can also be spread via fabrics or objects that have come in contact with those skin lesions or fluids, and potentially by close, prolonged, face-to-face contact.”
LTC Facilities Face Unique Infection Control Issues During COVID-19 Pandemic

BY ANNE COURLISS-LANE, RN, IPC

With the winter months fast approaching, I am reminded of being a child and wanting to play in the snow. Before I could go outside, I had to put on all the necessary gear to protect myself. I donned snow pants first, ensuring the inner liner was perfectly tucked into my boots. I zipped up a large heavy jacket to my chin, put on my scarf and hat, and wore gloves under my coat sleeves. As a parent today, I find myself going through the same motions but also putting all that gear on a toddler who doesn’t understand why. I can’t have an educated conversation with them about protecting their skin from frostbite or their body from hypothermia. They wiggle around, sometimes cry, and have zero patience for what I am trying to do to protect them. Both scenarios parallel the long-term care (LTC) environment, with the use of personal protective equipment (PPE) and the isolation and quarantine of residents, many of whom have dementia.

The COVID-19 pandemic has amplified existing challenges faced by LTC facilities. Trying to implement infection control measures, both person-centered and broad-based, is influenced by many factors that have led to a continuous uphill battle. To understand the complexity of these challenges, we should recognize where LTC was prior to the beginning of the pandemic and how things have changed since.

LTC facilities were created to integrate home and community. They allow those who have unmet personal and health care needs to have a safe place to live and remain close to their family and friends. LTC often involves the most intimate aspects of a person’s life, such as meal preparation and assistance with eating, bathing, dressing, and toileting. According to LongTermCare.gov, a website managed by the US Department of Health & Human Services, individuals 65 years or older have an almost 70% chance of needing long-term care in their remaining years, with 20% of those individuals needing it for more than 5 years. Because of these close interactions, sometimes extending over a long period of time, strong connections form between staff and residents. This relationship was of utmost importance during the COVID-19 pandemic, especially when visitors were denied access to their loved ones. At many times, staff not only functioned as direct care workers but also as surrogate family members during a resident’s last days.

Before COVID-19, the majority of LTC staff had never dealt with a novel infectious disease outbreak. The 2009 H1N1 influenza pandemic primarily affected children and young adults, and by August 10, 2010, the World Health Organization declared an end to the pandemic. Prior to COVID-19, antiviral chemoprophylaxis, adaptable vaccines, and quick implementation of infection control measures such as isolation and PPE use effectively halted outbreaks. The 2009 H1N1 was the last time N95 masks were needed in most nursing homes. When the SARS-CoV-2 virus entered our country in 2020, the entire nursing home industry was jolted into the unknown. It could either adapt and overcome or succumb.

Staff in LTC facilities faced many unique and difficult challenges during the COVID-19 pandemic. Infection preventionists were tasked with balancing strict infection control guidelines with the hardship those measures imposed on residents and staff. Because of the multitude of regulatory changes over the past 32 months, pandemic fatigue relating to PPE use, testing, and isolation has led to high levels of staff turnover and notable decline in residents’ overall health. According to one investigation, during the first year of the pandemic, nursing homes with active COVID-19 cases experienced significant increases in weight loss and depressive symptoms among residents. Even facilities that did not have known COVID-19 cases experienced adverse changes in some health and quality of life measures. (See Table.)

Many LTC staff felt they were struggling with and left searching for ethical guidance when enforcing specific infection control measures, notably isolation and quarantine of the residents and repeated nasal swabs for testing. Not only was it physically exhausting to don a respirator, gown, goggles, and gloves every time they needed to go into a resident’s room, but it was mentally taxing to see residents confined to their rooms for an indefinite amount of time. Although we know that isolation and quarantine are effective infection control
they have a contagious illness, and asks do you handle a resident with COVID-19 using the handrails in the hallway? How room, wiping their nose on their hand and physically refuse the testing.

Residents have dementia3 was extremely challenging. These residents did not have the cognitive ability to understand why they could not come out of their rooms, becoming emotionally dis-ordered, and asked to leave. They also did not understand why staff kept trying to put a swab up their nose and would frequently turn their head away or physically refuse the testing.

What do you do when a wandering resident, who attained a positive result for COVID-19 who has frequent falls, but stressed? How do you care for a resident with who can’t leave their room, becoming emotionally dis- disturbed? How do you care for a resident with COVID-19 who has frequent falls, but because of a safety risk, you cannot shut the door and may not have time to put on the required PPE to get into the room quick enough? How do you group residents or create an isolation unit when the physical layout of your facility doesn’t allow for it, and you don’t have the support you need? These are the tough questions an infection preventionist must answer on a daily basis in a nursing home. Sometimes there are no good answers, and you must do the best you can with what you have.

This is a defining moment for LTC facilities as the effects of the pandemic reach an inflection point. The COVID-19 virus will continue to be a defining part of nursing home culture, and infection preventionists remain front and center, charged with making person-centered decisions that also support the safety of the broader community. There are many barriers when it comes to implementing infection control measures, and staff will continue to need support and training for managing these unique situations.

ANNE COURLISS-LANE, RN, IPC, is a registered nurse for 22 years and spent 10 years with a focus on allergy, asthma, and immunology and the next 9 years on internal medicine and triage. She became an infection preventionist in 2019, when she started in long-term care. She has always had an interest in infection control and has been involved in the study of virology since the beginning of the COVID-19 pandemic.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

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**Table. Adjusted Differential Change in Health and Quality of Life for Long-term Care Residents by COVID-19 Exposure Status, 2020 vs 2018-2019**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Unadjusted 2018-2019 rate, %</th>
<th>Change in outcome January-November 2018-2019</th>
<th>Adjusted difference, 2020 vs 2019-2019a</th>
<th>Active COVID-19 outbreak (95% CI), %</th>
<th>No-known COVID-19 outbreak (95% CI), %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly mortality</td>
<td>2.2</td>
<td>—</td>
<td>1.60 (1.58 to 1.62)</td>
<td>-0.15 (-0.16 to -0.13)</td>
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<tr>
<td>Monthly hospitalization</td>
<td>3.0</td>
<td>—</td>
<td>-0.10 (-0.12 to -0.09)</td>
<td>-0.83 (-0.85 to -0.81)</td>
<td></td>
</tr>
<tr>
<td>Monthly ED visits</td>
<td>2.9</td>
<td>—</td>
<td>-0.57 (-0.59 to -0.55)</td>
<td>-0.79 (-0.81 to -0.77)</td>
<td></td>
</tr>
</tbody>
</table>

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ADLs activities of daily living; ED, emergency department; PHQ-9, Patient health Questionnaire-9.

*Adjusted differences represent the difference within the active and no-known COVID-19 groups for each outcome in 2020 vs the average in 2018-2019. Each adjusted difference is estimated using separate linear regression models at the resident-month level. Each model controls for SNF fixed effects (which control for all observable and unobservable SNF characteristics that are time invariant) and beneficiary characteristics (age, sex, race, and ethnicity, Medicaid eligibility, indicators for 27 chronic conditions). These results come from coefficients on an indicator for the year 2020 (health and utilization outcomes) or an interaction term between an indicator for year 2020 and November (quality of life outcomes, which are cumulative over the year) for each outcome in adjusted models.

*The mean unadjusted monthly rate across all months in 2018-2019. For the quality of life outcomes, the 2018-2019 baseline is the average within individual change for all assessments by November in 2018-2019 vs the prior year.

*Mean within-individual cumulative change for all assessments from January to November annually.

*The range for the PHQ-9 is 0-27 points. Higher scores indicate worse symptoms. This outcome measures whether residents had a worsened PHQ-9 score compared with their latest assessment in the prior year.
RECOUNTING THE
TOP IPC STORIES
OF 2022

BY SASKIA V. POPESCU, PHD, MPH, MA, CIC
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s we head to the end of 2022, which I’m convinced has been the longest of years, there are so many topics and issues we’ve faced and some to which we may not have given enough attention. To bring this year to a close and look at all we’ve managed to do to prevent the spread of infectious diseases, here’s a breakdown of the top infection prevention and control (IPC) stories of 2022.

Rise of RSV
Respiratory syncytial virus (RSV) is a respiratory virus we tend to see in children. It is a mostly seasonal bug that can be devastating to a child’s body. With public health interventions such as masking, distancing, hand hygiene, and staying home in place because of COVID-19, we’ve seen a significant drop in cases since 2020. In fact, I think many forgot about RSV. Unfortunately, the United States is now seeing a surge of RSV infections and hospitalizations, which is deeply worrisome. Starting in September, we saw a rapid rise in cases that’s beginning to strain health care facilities. Many reasons are being cited: the immune debt we would often see addressed through childhood socialization and exposure related to school and social interactions, a lack of respiratory precautions in place, etc. With this significant surge, many are calling for a renewed interest in RSV vaccines, which have been long discussed but have not come to fruition. The surge in RSV cases across the United States is a recent reminder that we’ve been shielded from the more seasonal respiratory infections since the pandemic began. But we must continue to be vigilant; COVID-19 isn’t the only infectious disease we face.

Omicron, Bivalent Boosters, and Paxlovid, Oh My!
It’s hard not to include COVID-19 in an annual review of IPC stories, but it’s also challenging to know where to start. A year in the COVID-19 pandemic feels like 5 years on Earth. Because of the Omicron variant, the year started with the most significant wave of COVID-19 infections we’ve faced. Per the Centers for Disease Control and Prevention (CDC), we saw a peak on January 19, 2022, with 5.58 million cases of COVID-19 that week in the United States. Omicron spread far, wide, and efficiently. Its capabilities also changed, and we saw this new variant spreading with ease. COVID-19 reinfections increasingly posed a challenge; gone was the robust immune protection we had from previous variant infections, and we encountered immune-evasive variants. Omicron revealed that immunity acquired from previous infections was a lot less effective at protecting us against the new variant. Although Omicron didn’t yield the same level of hospitalizations and deaths, its rapid spread and shorter period of immune protection against reinfection challenged us in many ways. Now we have 2 subvariants of Omicron, BA.4 and BA.5, which may be challenging for response because of the concern that previous infection may yet again offer less protection. There’s good news, however; recent research shows that previous infection with an older variant (such as Alpha, Beta, or Delta) offers some protection against reinfection with BA.4 or BA.5 and that a prior Omicron infection is substantially more effective. That was the conclusion of a study that evaluated all of Qatar’s COVID-19 cases since the wave of BA.4 and BA.5 infections began as noted in an article in Nature.

In 2022, we also had new interventions and tools in our arsenal against this pandemic: bivalent boosters and Paxlovid. The bivalent boosters were rolled out in September of this year to intervene against Omicron subvariants BA.4 and BA.5. Uptake has been slow, in some ways mirroring the level of interest and attention that individuals give COVID-19 in the third year of the pandemic. Ultimately, this underscores the need for faster development and response to variants as they are identified so we can intervene during surges instead of well after them. Paxlovid has been a newer tool for us against COVID-19, changing the game by preventing the need for hospitalization. The antiviral therapy is widely prescribed to help reduce symptoms and risk for severe disease, which has been great. It did, however, alert us to rebound, which is when symptoms flare up a few days after recovery. At first, this rebound was experienced by those taking the antiviral. But now we’ve found individuals can experience rebound without having taken the medication, which is an interesting aspect to acute infection but a bigger issue for infection prevention. Those who experience rebound can still spread the virus, and they need to isolate. This poses a risk to those around the person, but it also muddies the waters; will they think it’s the same infection and not isolate as a result? Is there less incentive to report rebound if you know it’ll lead to isolation? In either case, rebound has underscored a new aspect of acute SARS-CoV-2 infections that require our attention.

One last important piece to add about COVID-19 in 2022 is related to the CDC guidance. In late December 2021, the CDC recommended shortened isolation and quarantine periods. The shift in August of this year to continue relaxing public interventions and lessen the necessity for contact tracing encourages spread of the disease in high-risk areas like health care and congregating settings. The national relaxation of masking requirements for public transportation, such as on trains, also had a huge impact, signaling for many that the pandemic was over. CDC guidance has been a challenging aspect of COVID-19 infection prevention. On one hand, we understand the impact such restrictions have on the public. But on the other hand, the shifting nature of these restrictions and...
questionable decisions have affected trust in the federal agency. The recommendation for shortened isolation periods of 5 days has had a large impact, whereas many studies underscore that individuals can still be infectious after 5 days. Developing guidance during a pandemic was never going to be easy (and many cite progress, not perfection), but we need to work harder to achieve a middle ground and better science communication.

Much time had to be spent explaining that monkeypox is not spread solely in MSM, that it is not considered a sexually transmitted infection, and that stigma only hurts response. From delays in testing access to vaccine distribution, the United States was woefully inadequate in its response. I mention this because it underscores the increasing and continued threat of emerging infectious diseases but also shows that managing a new global outbreak during a pandemic comes with an increased burden, requiring continued vigilance and awareness for how we operate and communicate risk.

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Monkeypox
Yes—we had a monkeypox outbreak on an international scale that was declared a public health emergency of international concern. Monkeypox, an orthopoxvirus and cousin of smallpox, is not one we typically see in the United States. In fact, most of the cases in this global event were in countries that historically had not reported the virus. Not only is this a unique event and a reminder that a disease anywhere is a threat everywhere, but this outbreak brought to light social stigma and a mishandled response we haven’t seen since HIV/AIDS. Early in the monkeypox outbreak, there were epidemiological findings that cases were initially being spread in social networks among men who have sex with men (MSM). Each outbreak yields its own findings early on, and we find trends that can help us target interventions. But sadly, US response struggled with this.7

Infection Preventionists Are Heroes
I’ll admit my own bias—I’m an infection preventionist and hospital epidemiologist who has focused a lot of my research and work on the roadblocks we face to building and supporting biopreparedness programs within health care. We’re often forgotten when it comes to discussing health care worker burnout and what frontline responders did during the COVID-19 pandemic. Facing the third year of the pandemic, we’ve seen increases in health care–associated infections (HAIs) and antimicrobial resistance and a deep need for sustained response to infectious diseases, and that means infection prevention. We’ve battled monkeypox, extreme burnout, and changing CDC guidance, and carried the burden of ensuring ongoing COVID-19 safety while reducing the risk for HAIs. The world is learning more about IPC efforts and the role we’ve played in this pandemic, but such change doesn’t happen overnight. While we wait for a more recognized role within health care and public health, I want to end on this note: Infection preventionists are critical resources for responding to infectious disease threats, as they HAIs or novel pathogens, and ultimately form the intersection of public health and health care.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

Other Important IPC Stories You May Have Missed
- **Polio.** Wastewater samples in New York City and other counties in New York state pointed to several cases. In those areas, vaccination rates were around 60%, which is low. We know that vaccine-preventable diseases have been on the rise with vaccine hesitancy, but polio always seemed like one we had a handle on. Although this clustered concern doesn’t pose a risk to the public, it does reiterate the importance of childhood vaccines and improving uptake in areas with low vaccination rates and that such diseases are only as controlled as we allow them to be.
- **Ebola.** Uganda saw a new outbreak of Ebola caused by the Sudan strain (not the strain we saw in the 2014/2016 outbreak)! As of October 26, 2022, there were 115 confirmed cases, 21 probable cases, and 1,544 contacts under active follow-up. Although this strain of Ebola virus is not as fatal as the Zaire strain, there have been 32 confirmed deaths. Now is a good time to initiate travel-related emergency department and urgent care warnings and have educational talks with providers about the ongoing outbreak.
- **Russia and bioweapons.** Not what you thought I’d mention in a talk about top IPC stories, right? I share this for a few reasons. The effort to improve biosecurity is an important global topic, and even though we don’t often deal with geopolitics in IPC, they still trickle into our realm. Earlier this year, Russia accused the United States and Ukraine of violating the Biological Weapons Convention (an international treaty) as it invaded Ukraine. In an effort to distract with disinformation, it triggered a review within the United Nations despite few countries backing Russia’s claim (and even then, it was mostly a consultation process, not support for the allegations). Why is this important? Russia’s claims made use of disinformation surrounding biolabs and portrayed US military biological activities as nefarious rather than supportive of global biosecurity and health initiatives. This poses a concern for larger work in science, efforts to keep the world free of bioweapons through biodefense, and partnership on a global scale that could affect research and innovation.
The use of artificial intelligence (AI) (ie, machine learning) has been a growing mainstay in infection prevention and control (IPC). The advantages are many, including consistency, speed, and the ability to handle massive amounts of data. However, although the positive attributes of AI handling IPC continue to be measured, there are a significant number of challenges involved. Representative datasets should be of high quality, and biases within preexisting databases must be considered.

AI offers tremendous potential for infection control. The National Center for Biotechnology Information states that AI can potentially locate transmission events during outbreaks. Predicting patients at high risk of infection is another advantage of AI and would hone IPC intervention. Studies have explored laboratory infection diagnosis and epidemiology. Further exploration may reveal as-yet undiscovered benefits of AI, which also offers:

- objective pattern recognition, which can enhance diagnostics;
- standardized diagnoses; and
- help in disseminating IPC expertise.

Studies show that hand hygiene apps, such as SureWash, will require further evaluation within varied clinical scenarios. However, these handwashing apps can deliver a change in habits, especially for staff members who have grown to depend on electronic reminders. When feedback is removed, performance tends to return to baseline. “In an outpatient setting, [although] machine learning with feedback was associated with improvements in staff hand hygiene before first patient contact, concerns regarding accuracy, long-term sustainability, and user fatigue from repeated notifications were noted,” according to Fitzpatrick et al, in a recent study.

**AI in the ICU**

According to a review from the Annual Update in Intensive Care and Emergency Medicine 2022, research and development in the intensive care unit (ICU) is at an all-time high. To date, the implementation of AI into clinical practice has been inconsistent, but the results are promising. An increase in studies seems inevitable with the expected growth in the use of AI.

An urgent need within the ICU is to optimize infection management because patients require treatment that is adequate and timely. Inadequate management of infection can result in increased mortality rates. With antimicrobial resistance on the rise, the need for near-immediate and accurate diagnosis is vital. The primary focus of AI within the ICU has been advancing the infection management field, addressing the potential for sepsis, and more recently, addressing the potential for COVID-19.

**Antimicrobial Therapy**

Many AI models attempt to forecast an event, such as sepsis, central line–associated bloodstream infections, and ventilator-associated pneumonia (VAP). These prediction models have been developed using routine health care data stored within databases. The prediction models, in theory, can give the physician opportunity to address risk factors. If the event cannot be prevented, a prediction model can offer a chance to monitor the patient and treat them appropriately in a timely manner. The success of these predictive algorithms has shown an overall potential to decrease infection-related morbidity and mortality.

Although antimicrobials are still prescribed for patients who do not need it, machine learning may help identify patients who are less inclined to develop bacterial infection. These patients are suited to discontinue antimicrobials altogether. The best performing AI models in this effort identified patients at low risk of infection with a negative predictive value of more than 93%.

**Diagnostic Accuracy**

Although some infections are straightforward and well described, others may harbor symptoms that are subtle and more subject to interpretation. For example, VAP can present various combinations of symptoms, microbiological anomalies, radiographic features, and biochemical results. The AI assistant has been shown to improve objectivity and, when combined with human evaluation, improve diagnostic accuracy. New diagnostic techniques, such as electronic nose sensor signals when diagnosing VAP, have established good
accuracy with AI. In addition, AI has been good at erasing the human-imposed hard line between infection and noninfection. AI can help classify the middle ground (ie, borderline infection). The time saved in this process can be extremely significant for treatment and healing.

**Inflammation vs Bacterial Infection**

Determining whether a patient has an infection or systemic inflammation without infection can be tricky because both diseases have different data types to review, abnormal values are common, and current discriminative tests are lacking. Antimicrobials are commonly prescribed, but the causative pathogen is learned long after therapy has begun. According to investigators, AI machine learning can play a role in rapidly identifying the pathogen and its antimicrobial susceptibility right from clinical samples within approximately 30 minutes. This would lead to more timely and appropriate treatment, possibly allowing an adjustment to the antimicrobial dose before the second one is administered.

TM Rawson et al3 supervised machine learning models to support the diagnosis of bacterial infection using only blood test results. This became a significant tool in the context of COVID-19, with the difficulty in diagnosing co-infection of bacterial origin. The algorithms are still in evaluation phase, but initial trials are encouraging.

**Bacterial Species Detection**

AI is proving to be useful in finding species of bacteria without the need for culture or incubation period, using limited samples of urine, sputum, or blood. This technique has the potential to reduce time identifying antimicrobial resistance and offers a high accuracy rate for certain infections. AI can identify most urinary tract infections, antibiotic susceptibility, and the 30 most common bacterial and yeast isolate classes presented in the ICU worldwide.

With these efforts come the development of prediction models. These models are helpful for predicting the causative organism or antimicrobial resistance. Such models may become useful in low- and middle-income countries. One example is a study in Cambodia at a children's hospital, performed by Oonsivilai et al,4 using only variables from clinical data, demographics, and living conditions.

**Turnaround Time**

Researchers are currently exploring machine learning apps in all aspects of the microbiology laboratory. Most of these AI models are geared toward identifying microorganisms and evaluating antimicrobial resistance, always in hopes of reducing the essential turnaround time.

Prescription review is another area under scrutiny. Parameters such as dosage, route of administration, and duration are included. These systems are time intensive and subject to changing guidelines.

**The Future of AI for IPC**

Although research on machine learning continues to expand in the field of infection prevention, clinical implementation remains sporadic. Most models are still in the prototype stage. Because these models are designed for trials, validating them in external datasets will be a challenge. “IPC and health care generally need to become less fragmented to access these technologies. This is essential to train AI applications appropriate for a particular context and ensures that the algorithms perform consistently across patient cohorts, especially those [that] may not have been adequately represented in the training set,” wrote Fitzpatrick et al in a study using AI in IPC.

**The Human Factor**

It’s universally agreed that nothing can replace the warmth of a caring health care professional. Although there appears to be infinite potential for AI as a tool within the infection control arena, a decision must be made about what health care professionals consider sufficient for using AI in clinical practice. Beyond the variables involved in treatment of individuals, other factors to consider include legal and ethical ramifications. Physicians must be educated and encouraged to evaluate AI model abilities and studies associated with AI. It is crucial that AI be regarded as a tool and not an end user. The limitations and biases within AI and the possibility of failure are real, and it is the responsibility of the medical professional to ensure the safety of the patient.
Testing for *Clostridioides difficile* in a medical setting can be time-consuming and should be stringent. However, with the ever-increasing demands of the medical setting, clinicians need a test to diagnose *C. difficile* more quickly, so investigators keep attempting to create a test that can be reproduced in and stand up to the demands of many laboratories.

In a study presented as a poster at the IDWeek Conference, held October 19-23, 2022, in Washington, DC, investigators from Texas describe a process they developed to verify the rigor and reproducibility (R&R) of *C difficile* susceptibility testing. They used 2 laboratories, decreased the time needed to perform the tests and decreased costs for the facilities while reducing the possibility of human error.

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The study, “Rigor and Reproducibility of *Clostridioides difficile* susceptibility testing,” was presented by Chris Lancaster, MS, senior research manager, University of Houston, Texas, and demonstrated that automation saved little over 10 minutes using automation vs a technician’s work.

“The Clinical Laboratory Standards Institute (CLSI) recommends minimum inhibitory concentration (MIC) testing for *C difficile* through agar dilution (AD) assay, which carries logistical and time burdens compared to broth microdilution (BMD) methods. R&R of these assays can lead to difficulty in comparing results between studies,” Lancaster et al noted on the poster. The goal for the investigators was “to assess the intra- and inter-laboratory reproducibility of MIC testing for *C difficile* within our lab and colleagues.”

Using AD and BMD techniques, the investigators used vancomycin MIC testing on 30 *C difficile* isolates. According to the poster, “To test intralab reproducibility, proficiency testing to develop a reproducible MIC testing process using 18 isolates was implemented across two multidisciplinary labs, which was then validated in a prospective cohort of 116 isolates.”

The investigators compared the MICs obtained by each method and lab and calculated the essential agreement (EA) and major and minor error rates. Because the AD testing is labor- and time-intensive, the investigators tested the automation with Integra Assist Plus. Then twice they measured the times for plate setup using a technician against the Integra Assist Plus and compared the average times.

The investigators noted that they used discarded stool samples transported to the centralized lab. The samples were plated on selective cefoxitin-cycloserine fructose agar (CCFA) plates and incubated anaerobically for 48 to 72 hours. The investigators defined reduced vancomycin susceptibility by MIC > 2 mg/L.

Future research on this topic will include authentication with a larger sample and more academic partners, the investigators noted.

Lancaster et al reviewed the results of the study. “The AD and BMD yielded discordant resistant/susceptible results in 16.7% (5/30) of isolates tested. During proficiency testing, intra-lab comparison of AD MICs yielded 88.9% (16/18) EA and no disagreements occurred with more than 1 dilution difference.” One increase was EA, which improved in the larger cohort to 93.9% (109/116). In that, minor and major disagreements occurred in 17% (21/116) and 25% (29/116), respectively. The study demonstrated that using automation (12’44” mean) saved a total of 10’4” minutes vs using a technician (24’40” mean).
A common cause of respiratory and gastrointestinal infections in humans, human adenovirus (HAdV) is an uncommon cause of end-organ disease in children. It surprised clinicians when, from October 2021 to February 2022 in a single center for significant hepatitis, several previously healthy children were admitted and, ultimately, tested positive for HAdV.

HAdVs are nonenveloped viruses containing double-stranded deoxyribonucleic acid. While it can be serious and even fatal in immunocompromised individuals, HAdV disease is typically mild. Of note, HAdVs establish persistent infections due to reactivation that can contribute to risk in the immunocompromised, said a study published in *Science Direct*.

In another study presented in a poster at the IDWeek Conference, held October 19-23, 2022, in Washington, DC, presenting author Markus A. Buchfellner, MD, pediatric infectious diseases fellow in the Division of Pediatric Infectious Diseases, University of Alabama at Birmingham, and his coauthors note that the intention of the investigation was to describe these children's characteristics.

In the study, “Case Series of Children with Hepatitis and Adenovirus Infection, Alabama, October 2021—February 2022,” the investigators propose that HAdV is a potentially underrecognized cause of hepatitis and that other clinicians may prefer whole blood specimens over plasma for HAdV reverse transcription PCR (RT-PCR) testing. In all the pediatric patients, HAdV type 41 was identified by the typing results available. Buchfellner and his team added that determining HAdV patterns of circulation and informing future diagnostic testing by improved type-based surveillance may help.

The investigators included only children admitted to Children’s of Alabama with hepatitis who tested positive for HAdV by whole blood RT-PCR from October 2021 to February 2022. From medical records, the team collected demographic, clinical, laboratory, and treatment data. The children’s residual blood specimens were sent by Buchfellner and his team for adenovirus typing.

A total of 9 pediatric patients with hepatitis and HAdV infection were identified, of whom 78% were female with a median age of 3.0 years. The interquartile range was 1.7 to 3.0 years. Before the children were admitted, 6 reported diarrhea and 3 had respiratory symptoms.

The investigators noted on the poster: “At presentation, 8 had scleral icterus, 6 had jaundice, 7 had hepatomegaly, and 1 was encephalopathic. All patients had elevated transaminases (AST range: 447-4000 U/L, ALT range: 784-4695 U/L); initial total bilirubin varied (range 0.23-13.5 mg/dL). All had confirmed HAdV by RT-PCR on whole blood (initial qPCR range: 991-70,680 copies/mL).”

Markedly, 2 children who had been transferred to another facility and whose plasma had been tested instead of whole blood were negative for HAdV by RT-PCR.

Of the children tested, 6 children ultimately underwent liver biopsy that showed varying degrees of hepatitis with no adenovirus detected on immunohistochemistry stains. HAdV type 41 was confirmed in 5 patients. Of the tested children, 3 patients presented or progressed to acute liver failure, 2 children were treated with cidofovir, and, eventually, 2 underwent successful liver transplantation.

Of mention, no known epidemiologic links between patients were identified, and all the children were from geographically distinct parts of Alabama.

The total number of children whose blood was tested was not noted in the description of the poster.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
In October, GlaxoSmithKline (GSK) reported positive data from a phase 3 trial for its respiratory syncytial virus (RSV) vaccine. The RSV vaccine candidate reduced the incidence of lower respiratory infection in participants 60 years and older by 94.1%, with 82.6% overall vaccine efficacy compared with placebo. It proved effective in separate analyses of severity, age group, and comorbidity, reporting only mild side effects.

“We believe that with the high vaccine efficacy demonstrated in this pivotal trial, our vaccine candidate has the potential to help reduce the significant global burden of RSV-associated disease in older adults, including those at the greatest risk of severe outcomes due to their age or underlying comorbidities,” said Tony Wood, chief scientific officer of GSK.

Efficacy against severe RSV lower respiratory tract disease (RSV-LRTD), defined by at least 2 lower respiratory signs or otherwise assessed as severe, was 94.1%. Among participants with preexisting comorbidities, including cardiorespiratory or endocrinometabolic conditions, vaccine efficacy was 94.6%. For adults aged 70 to 79 years, vaccine efficacy was 93.8%.

This observed vaccine effectiveness was consistent for both RSV-A and RSV-B subtypes, with respective efficacies of 84.6% and 80.9%.

“These are truly exceptional results given that today RSV remains 1 of the major infectious diseases without a vaccine despite over 60 years of research,” Wood said.

Developing an RSV vaccine has proven difficult, as investigators struggled to direct the body’s immune system against the virus’s specific protein. Notably, Pfizer, Johnson & Johnson, Moderna, Sanofi, and Bavarian Nordic are all testing RSV vaccines. So far, there are no approved RSV vaccines.

RSV is a common and contagious respiratory virus that attacks the lungs and breathing passageways. It is a major infectious disease for which there is no targeted treatment or vaccine for adults. Because of a natural age-related decline in immunity, older adults are at high risk of severe disease progression. In industrialized countries, RSV is responsible for an estimated 420,000 hospitalizations and 29,000 deaths.

GSK’s RSV vaccine candidate contains a recombinant subunit prefusion RSV F glycoprotein antigen (RSVPreF3), combined with the biopharma company’s proprietary AS01E adjuvant. The vaccine was well tolerated, with most reported side effects mild to moderate in severity.

The phase 3 study for the RSV vaccine candidate, AReSVi-006 (Adult Respiratory Syncytial Virus), is a randomized, placebo-controlled, observer-blind, multicountry clinical trial. The study evaluated the safety and efficacy of a single dose of the adjuvanted RSVPreF3 older adults investigational vaccine. AReSVi-006 included approximately 25,000 adult participants across 17 countries.

Investigators will continue to analyze an annual revaccination schedule and long-term protection over multiple seasons following 1 dose of the RSV vaccine candidate.

GSK presented this and more data at the IDWeek 2022 Conference. This article was first published on Contagion.com. References available at infectioncontroltoday.com
Investigators in Seoul, South Korea, successfully contained an outbreak of carbapenem-resistant Acinetobacter baumannii (CRAB) in a COVID-19 isolation ward by employing enhanced environmental cleaning and adding additional gowning and gloving protocol.

Clinicians caring for patients with COVID-19 are always concerned about the development of multidrug-resistant infections, which can complicate patient cases. CRAB, in particular, is a problematic nosocomial pathogen that is difficult to eradicate because of its ability to survive for long periods of time on dry surfaces and its resistance to common disinfectants.

In a poster presented at IDWeek 2022, held October 19-23, 2022, in Washington, DC, investigators detailed the action taken after the index case of CRAB infection was detected in an 85-year-old woman with COVID-19 who was referred to a tertiary South Korean hospital from a long-term care facility in October 2021. A total of 23 patients with COVID-19 and CRAB were reported during the outbreak period. Fourteen (60.9%) were male and the mean patient age was 72.9 years (+13.8). Of the initial specimens collected, CRAB was identified in the sputum of 21 patients (91.3%), in the blood of 6 patients (26.1%), in the urine of 1 patient (4.3%), and in the skin swab of 1 patient (4.3%). The average duration from admission to CRAB isolation was 13.3 days (+11.0), and a majority (18, 78.3%) of patients were applying high-flow nasal cannula or ventilation. The most common underlying comorbidities at baseline included hypertension, diabetes mellitus, and cardiovascular disease (16, 69.6%, 10, 43.5%, and 8, 34.8%, respectively).

Investigators determined via environmental culture that the CRAB outbreak occurred mainly around the index case, as the phenotypic antimicrobial resistance patterns of the isolates collected from patients and from the environment were identical. “We applied the environmental cleaning using sodium hypochlorite (NaClO) 1000 ppm and phenolic compounds more than twice a day, enhanced hand hygiene, and [mandated] additional gowning and gloving over personal protective equipment (PPE) mandatory for COVID-19 on 29th October,” investigators reported. “No additional CRAB cases occurred since 2nd November 2021 for 2 weeks.”

The team concluded that it is helpful to employ additional contact precautions and environmental cleaning in COVID-19 isolation wards alongside regular COVID-19 precautions, such as personal protective equipment, in order to prevent multidrug-resistant infections.

This article was first published on Contagion.com.

REFERENCE

For more coverage from IDWeek 2022, visit https://www.infectioncontroltoday.com/conference/id-week
Infection Control Today® (ICT®) welcomed back Alexandra Peters, PhD, scientific lead for Clean Hospitals, to speak about the inaugural Clean Hospitals Day International Conference that took place on October 20, 2022, in Geneva, Switzerland. In this exclusive interview, Peters described the conference and her presentation. ICT® covered the research she presented at the conference.

ICT®: Would you tell the audience about the Clean Hospitals Day International Conference?

Alexandra Peters, PhD: It’s the first Clean Hospitals Day International Conference [in person]. Clean Hospitals is a public [and] private partnership we’ve been building up since 2018. We’ve started what we call Clean Hospitals Day, which is once a year, the same as World Hand Hygiene Day [except it’s] for environmental hygiene (EH) and health care. It’s putting cleaners in the spotlight, hospital managers in the spotlight, and EH in general [in the spotlight], getting a lot of activity [on] social media, getting company involvement, [and] getting hospital involvement. It’s still in its nascent stages. This [was] only the third year we attempted to do it. But it’s the first time we [did] a live international conference and the first time since COVID-19 that we [were] able to get everyone from EH to come together.

ICT®: And all in the beautiful city of Geneva. What topics were covered?

AP: We [had] 4 main themes for the conference. One [was] environmental control. The other [was] the self-assessment framework we’ve been working on [for] medical device reprocessing and then air and water control. All 4 themes of the scientific program [were] broken up with different speakers. There [were] 10 sessions. Some of [the themes] doctors at our hospital. We have people coming from the Netherlands and from France. There’s a lot going on. It’ll be nice for us to get together and [have] an exchange in a way we couldn’t during COVID-19.

Then we [had] the scientific program. Our stakeholder companies [did] different symposia at different times during the day. One [was] during the lunch break. There [were] another few symposia during the coffee break. And they show[ed] scientific studies that [had] been published using different advances

“[Clean Hospitals Day International Conference had] 4 main themes for the conference. One [was] environmental control. The other [was] the self-assessment framework we’ve been working on [for] medical device reprocessing and then air and water control.”

—Alexandra Peters, PhD

2022 Clean Hospitals Day International Conference Tackles Environmental Hygiene Issues

BY TORI WHITACRE MARTONICZ

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ICT®: Please tell us about your presentation as well.

AP: [I spoke] about the EH self-assessment framework. It is a tool for health care facilities to assess how well their EH programs are working and where they can be improved. The framework was organized around the 5 components of the World Health Organization [WHO] multimodal strategy for improvement developed in Geneva. That [strategy] was adopted by the WHO for hand hygiene and used all over the world. They've done 3 global surveys, and it's a big deal with thousands of hospitals that have participated. You can see how health care facilities are improving every few years and how they're able to focus on the areas of weakness directly. It's easy to say “We need to improve,” but it's difficult to figure out exactly where to allocate your resources and [figure out] what kind of resources [are needed]. It's even more of a challenge in EH because it's such a vast field, and there [are] so many components, so many different people involved. You have your cleaning staff, nursing staff, procurement, hospital management. You have all these different actors. And then you have all these different environments, surfaces, laundry, air control, water treatment, waste management, and... you're supposed to have an overview of everything.

What the self-assessment framework does is allow you to drill down and see which areas need to be improved. Maybe it's not even the products that are being used or the systems that are set up. Maybe it's just a question of better communication and better teamwork and how to change workplace culture, for example. So that's what we'll be speaking about. We did the pilot study published in [the] American Journal of Infection Control that we've spoken about [previously]. It was the pilot study of this tool, and we had 51 hospitals from 35 different countries. It highlights how much work there is left to do. The tool is almost done, so we're going to be diving into that a little more, with a little more detail.

There [was] time for networking and cocktail[s] afterward. The conference [took] place right next to the airport, within 5 minutes’ walk from where your plane land[ed], in the Crowne Plaza [Geneva] hotel. Come in, set your stuff down, [and] walk to the conference. That [hotel] was chosen because we [had] many people coming from all over. They [had] an easier time getting there, and [the] weather [wasn’t] be too cold. Geneva is an incredibly gorgeous city.

ICT®: When the conference came, ICT® spoke with a few of the speakers. Thank you so much.

AP: Thank you, and if anyone wants to get in touch with us about coming to the conference [next year], don't hesitate to contact us. We'll get everything sorted.

This interview has been edited for length and clarity.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

Didier Pittet, MD, CBE: The Biggest Challenges Facing Environmental Hygiene Today

BY TORI WHITACRE MARTONICZ

E nvironmental hygiene is too often overlooked and underappreciated in the infection prevention and control field. Environmental hygiene personnel are critical to protecting patients and staff from dangerous pathogens. Didier Pittet, MD, MS, CBE, wants to highlight the importance of environmental hygiene and spread the message worldwide. Pittet is professor of medicine at the University of Geneva the hospital epidemiologist and director of the Infection Control Programme and World Health Organization Collaborating Centre on Patient Safety at Geneva University Hospitals, both in Switzerland.

Pittet has an extensive list of honors and credits for his lifelong work in epidemiology, environmental hygiene, and infection prevention. Most noteworthy for this interview, he is credited with revolutionizing patient care processes in hospitals by replacing soap and water for hand washing with the systematic use of alcohol-based hand rubs and spreading this change in practice to health care centers around the world. This is called the Clean Hands Initiative.

Pittet has now shifted his focus to another integral aspect of infection prevention in hospitals with the Clean Hospitals initiative. Ahead of the upcoming Clean Hospitals Day International Conference, Pittet joined Infection Control Today® (ICT®) to discuss the biggest challenges facing environmental hygiene personnel.

The Clean Hospitals Day International Conference was held October 20, 2022, in Geneva, Switzerland. Attendees and presenters sought to increase “global
visiblity and recognition of the importance of health care environmental hygiene, provide stronger focus and guidance, and encourage the creation of global standards for environmental hygiene,” as noted on the Clean Hospitals website.1

Talking about environmental hygiene challenges to other experts is not enough, Pittet told ICT. “We need to sensitize [hospitals] to the importance of health care environmental hygiene. There are too many hospitals around the world I have visited where it’s left like this: A private company will [do the cleaning], and sometimes that [should be an environmental hygiene professional’s work. Cleaning a hospital is not cleaning a hotel, [because] patients are coming to the hospitals. Environmental protection in a hotel or at home has nothing to do with environmental protection in a hospital or long-term care facility. So this is an important problem, and we want to address it with my friends and colleagues from around the world [at the conference]. Again, in a public/private partnership and academic action that we all want to carry over.”

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

Environmental Hygiene Industry Leaders Converge to Discuss BPR

BY ELLIE WISHART, BSC

Ensuring the most appropriate products are made available on the market for health care facilities is key to ensuring safety for users and the environment. This is the primary objective of the European Biocidal Product Regulation (BPR). The industry is working extremely hard to meet requirements and future-proof a portfolio of products to clean and disinfect health care facilities.

The Clean Hospitals Day International Conference, which took place in Geneva, Switzerland, on October 20, 2022, was an ideal opportunity for environmental hygiene industry experts to share knowledge and expertise on these regulations. The objectives we all hoped to meet at the conference were to build a common understanding of how our industry ensures products have a high level of efficacy against microbes, pass extensive toxicological and ecotoxicological exposure assessments, and fulfill the highest safety standards, ensuring the highest level of protection to human health and the environment. It is key that health care facilities understand these regulations and choose properly registered products that meet these requirements. The BPR offers a harmonized approach to setting standards for microbial efficacy, providing assurance that disinfectant products are effective against microbes that cause health care-associated infections and providing guidance on the use of safe active ingredients. Industry can help these facilities choose BPR-registered disinfectant products for the appropriate applications, ensuring a safe environment for patients, staff, and visitors.

In a session bringing together health care environmental hygiene industry leaders Ecolab, Diversey, and GAMA Healthcare, we discussed the impact of such regulations for both health care facilities and industry. There is little awareness of regulations such as BPR in health care facilities. Because it is something we are very involved in, the aim of the session at the conference was to highlight how the requirements have changed for products and how to understand product regulation status from the label.

Ecolab is a proud member and supporter of the Clean Hospitals Initiative and shares a common goal to protect patients, environmental service workers, health care workers, and the natural environment through improved environmental hygiene.

At the International Clean Hospitals Day Conference, the author spoke alongside Claire Khosravi, PhD, from Diversey and Karen Wares, MSc, from GAMA Healthcare in their presentation “Evolutions of Biocide Standards and Regulations: A Few Clouds on the Horizon?”

ELLIE WISHART, BSC is the real-world evidence manager for Ecolab in Europe and is responsible for RWE and clinical affairs for Ecolab’s Healthcare Europe division. Wishart is responsible for building scientific data, RWE, and clinical practices that support Ecolab’s programs and works to empower education, practical knowledge, and best practices in infection prevention. She has been providing infection prevention solutions to health care facilities for over 20 years.
Learning medical techniques can come in many forms: watching, hands-on training, reading, and now virtual reality (VR) training. Other industries use VR training because it is a safe environment not only for the individual in training but also for the patients in their care. “You can step into [a] virtual hospital and take care of patients. And it feels like [a] real scenario [and] realistic world,” Jenny Logenius, global brand manager at Essity, told *Infection Control Today®* (ICT®) in an exclusive interview. At the Clean Hospitals Day International Conference held on October 20, 2022, in Geneva, Switzerland, Logenius was involved in several symposia on hand hygiene, VR, and how the Tork VR Clean Hands Training was developed.

Logenius told ICT® she trusts [the audience] can see the importance of having this strategy implemented completely. “Individuals don’t have to do training the way they did in the past 30 years; there are new methods that are more engaging for the individuals using it. Achieving behavior change is very important. It’s an eye opener because the trainings are developed differently, where the individual is active,” Logenius said. “We have seen the level of engagement has a huge role to play. There is something called the cone of learning. It means if you’re more passive, if you read something, you remember maybe 10% of it. If you see and hear something, you remember maybe 50%. But if you simulate something, where you do it in real life, you remember as much as 90%. This is what we can achieve with these digital tools. You are so active and engaged and using the mind in a different way,” Logenius said.

Logenius reiterated this new type of training is not a replacement but a complement to the current trainings used. “I hope the takeaway is that these are more efficient tools to use, because you have to train both night staff and day staff, and it’s tricky for them to make time to do training. These digital tools can help because you can use them anywhere, on any device, whenever you want, [even] on the go.”

These VR trainings are free of charge and available for both medical and non-medical professionals alike. To reach the trainings directly, you can visit https://bit.ly/3DRHkNj. To find the trainings in Oculus, please search in App Lab for Tork VR Clean Hands Training.

These quotes have been edited for length and clarity.

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*Showing Is Not Doing: Using Virtual Reality to Train Medical Professionals*

BY TORI WHITACRE MARTONICZ

PR IMAGE FACTORY@STOCK.ADOBE.COM

Scan the QR code to watch the full interview

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If you simulate something, where you do it in real life, you remember as much as 90%. This is what we can achieve with these digital tools.”

—Jenny Logenius
2022 AHE Conference Highlights

Environmental Education

BY Infection Control Today® EDITORIAL STAFF

Health care environment professionals gathered in Orlando, Florida, for the annual meeting of the Association for Health Care Environment, AHE Exchange 2022.1

Before the conference, Infection Control Today® (ICT®) spoke with Rock Jensen, AHE advisory board president and administrative director of support services at Yuma Regional Medical Center, about what the organization hoped attendees would gain from the experience.

ICT®: What is AHE’s focus for this year’s conference?

Rock Jensen: This year, we celebrate and embrace the opportunities to provide greater insight, education, and certifications to our members.

ICT®: Can you describe the educational opportunities at this year’s conference?

RJ: We have spent years...developing signature certification programs for...members. AHE is the only national industry organization to do this. We set up education opportunities and classes that take place before the conference begins so members can engage in person with trainers and enhance their experience. This year we are offering the Certificate in Master of Infection Prevention and our CSCT (Certified Surgical Cleaning Technician) Train the Trainer workshop. We also offer review sessions and exam prep for the AHE CHESP (Certified Healthcare Environmental Services Professional), a certification that is the gold standard for environmental services leaders.

Other courses being offered online are:
- CHESP Study Group
- EVS Leadership: A Seat at the Table
- Employee Engagement: Going the Extra Mile
- Essentials of Infection Prevention of Environmental Hygiene
- Foundations for Success in Environmental Services Management
- Principles of Effective Linen Management
- The Lean Management System in Health Care
- Ultimate Scores for the Ultimate Experience
- Disinfectants: The Essentials of Evaluation and Selection

Our focus has been to put in place programs and education that will allow members to be seen as thought leaders providing insight and expertise along with our infection prevention leaders, [who] provide safe and healing environments for patients, visitors, and staff. This not only ensures they have the tools, such as our extensive practice guidance, but also certifications validating that expertise.

AHE has also partnered with The Ohio State University to create the first academic certificate in health care environmental services within a hospitality management program. The program is offered through The Ohio State University College of Education and Human Ecology to students studying hospitality management alongside health care professionals. It consists of 12 credit hours (3 courses and an internship).

AHE is also involved with the Small and Rural Sustaining Initiatives2 to promote quality improvement in several areas of rural hospitals and their unique operational, financial, and environmental challenges. They are driving applications for scholarships and training to health care EVS teams in rural areas. So far in 2022, over 198 applications have been received and accepted.

Finally, AHE is using [the programs I mentioned] to influence health care professionals and help decrease infections while improving patient satisfaction. To accomplish this, AHE is collaborating with key government organizations, such as the Centers for Disease Control and Prevention, and becoming a standard setter and influencer in the creation of health policies across all health care settings.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
Keeping costs down at a hospital is a monumental task, and there is no one-size-fits-all benchmark that can be used to determine what the productivity of environmental services (EVS) at these institutions should be. To arrive at the most accurate and effective operational standards, input from the hospitals’ EVS departments is needed. Typically, however, third-party consulting companies are brought in to decide what the standards should be, and that option presents problems.

During the AHE Exchange, Infection Control Today® (ICT®) asked Rock Jensen, AHE advisory board president and administrative director of support services at Yuma Regional Medical Center, who presented on the topic, what could be done about these standards and what tool the association has developed to address the issue.

**ICT®:** Please give our readers an overview of your presentation.

**Rock Jensen:** The presentation discussed industry standards and benchmarks as identified by a third-party consulting organization that has looked at EVS departments around the country and developed standards and benchmarks based upon their experience. It is unknown if these benchmarks were developed from data from hospitals before or after the consulting organization’s involvement. There are [numerous] organizations that are trying to identify opportunities to reduce costs and expenses for hospital departments. That is just part of the course in health care today. There is nothing inherently wrong with driving efficiencies and expense improvements. It sounds like something we would all want to be a part of.

However, every organization has a bias as it creates benchmarks. That doesn’t mean it is wrong; it means that you need to understand what the driving force is. For example, most consulting organizations’ business model is to go into hospitals and find waste, inefficiency, and cost savings. That’s how they make their money. To do that, they lean on benchmarks to challenge what is being done inside so that they can be invited to implement processes to drive cost savings and take a share of those savings. Again, there is nothing specifically wrong with that, and it can be a very helpful and useful process for certain hospitals.

Where the “miss” comes in is in the way they measure and analyze data and establish goals for a department to meet. For example, they will present a cost per square foot that the department should be running at, [like] operating room hours [worked] per square foot. Unfortunately, every hospital is different. The type of square footage inside is different, clinical vs nonclinical. Patient volumes are often ignored in these benchmarks, and square footage is the magic bullet to drive efficiency. The error [consulting organizations] make is that EVS clean both the space associated with patient volumes and the space mostly affected by square footage. It takes a blend of data analysis to get an accurate result. These companies don’t have the ability to do a hybrid analysis of both measurements.

The other challenge is that often the people doing the analysis have never worked in or run an EVS department. More often than not, they come from the finance world, not operations.

Fortunately, AHE has developed a staffing calculator based on multiple analysis of volumes, square footage, and formulas that calculate worked hours from time studies and space size. Additionally, these standards were not driven by any specific bias. It was based upon time studies and data provided by AHE members from their own experiences. The focus was to identify time required to clean any particular space appropriately. Not how fast it could be done.

Multiple surveys were done by members to gather data from faster and slower workers alike so that a realistic result could be obtained. The standards are based upon following work tasks identified by the AHE Practice Guidance for Room Cleaning. Again, time was not the driving factor.

Administrators and infection preventionists (IPs) alike can be assured that if their EVS staff are following the AHE Practice Guidance and adhering to the AHE staffing standards, they are doing work and performing tasks at efficiencies which will not require the staff to skip steps and become the weak link in the chain of infection.

**ICT®:** What do you want EVS and IPs to take away from your presentation? How can what they learn impact and improve their performance at their own facilities?

**RJ:** I would encourage IPs to become familiar with AHE’s certification programs for EVS staff and managers. That they complete the education [and] training necessary to ensure they are providing a safe and healing environment for staff and patients. AHE is the only national organization to offer these certifications. The Certificate of Mastery in Infection Prevention (CMIP) is a high-level certification program for EVS leaders that allows them to better interact and communicate with hospital IPs regarding infection-related issues.
Wassenburg Medical Dry 320 endoscope drying cabinet

Wassenburg Medical Dry 320 cabinets dry flexible endoscopes in a patented, controlled, and safe storage manner while preserving the endoscopes’ washed and disinfected state for up to 30 days. Because the storage period is extended, the endoscopes may be accessed for use in a more efficient and timely manner. The endoscopes are stored vertically in a hanging position, which allows gravity to assist in the drying process. Vertical hanging for endoscopes is recommended by the manufacturers and complies with recommendations from the European Society of Gastrointestinal Endoscopy-European Society of Gastroenterology Nurses and Associates guideline 939. The Wassenburg Medical Dry 320’s patented pull-down positioning system allows users of all heights to position, connect, and remove endoscopes easily without straining. Overall, the Wassenburg Medical Dry 320 is more economical to run, has a smaller ecological footprint, and is built to last.

www.wassenburgmedicalinc.com

Hibiclens Antimicrobial Hand Soap System by GP PRO

This soap system combines the effectiveness of Hibiclens’ FDA-approved chlorhexidine gluconate (CHG) 4% solution with GP PRO’s hand soap dispenser. The result is a system that helps improve hand hygiene adherence in the health care environment.

The Hibiclens Antimicrobial Hand Soap System by GP PRO features Hibiclens’ CHG 4% solution inside GP PRO’s automated touchless hand soap dispenser. As part of infection prevention bundles for patient bathing, Hibiclens has demonstrated in study after study that it helps prevent methicillin-resistant Staphylococcus aureus, vancomycin-resistant Enterococcus, and Clostridioides difficile. Best of all, it is gentle on sensitive skin. The GP PRO is a touchless technology, which reduces cross-contamination and eliminates the potential for hands carrying pathogens from one place to another.

One review of Hibiclens Antimicrobial Hand Soap System comes from Paulina Rodriguez, BSN, RN, an infection preventionist in Abilene, Texas, who shared the following: “My nurses regularly use Hibiclens for handwashing because they know how effective it is at providing a deep and lasting clean, and they love how gentle it is on their skin. Making it available in a touchless dispenser at handwashing stations throughout the health care setting will encourage heightened use, improve overall hand hygiene, and reduce transmission of microorganisms. This is the kind of solution that has the potential to dramatically and positively affect hand hygiene [adherence] and influence a reduction in health care–associated infections.”

www.GPPRO.com

Actizone F5

Actizone F5 by Solvay is a ready-to-use broad-spectrum disinfectant with 24-hour antimicrobial sanitation for hard surfaces. Actizone F5 is residue free on a variety of surfaces and specifically designed to combine cleaning performance and 1-step disinfection of harmful viruses and bacteria. Actizone F5 kills 99.9% of harmful bacteria and viruses, including 99.9% of all bacteria for 24 hours.

www.solvay.com
**Primel Skin Protection**

Hand hygiene is vital to protecting patients and staff from bacteria and viruses that lead to health care–associated infections. With this in mind, BioInteractions has developed a new company and product. The product, called Primel Skin Protection, is a skin-safe antimicrobial spray based on TridAnt technology, a coating for medical devices. Primel stays on the skin for 2 days and safeguards both the user and every surface they touch from harmful microbes using Kill-on-Touch Technology. It uses biocompatible components, absorbs quickly, and does not need water. It is ideal for use in all health care and sanitation environments in addition to anywhere high levels of hand hygiene are needed.

“The launch of Primel represents a paradigm shift in the way we approach patient care,” Arjun Luthra, chairman and CEO of Primel, told *Infection Control Today®*. “Building on the success of TridAnt, Primel was founded to advance antimicrobial protection in all patient care environments. TridAnt, developed by BioInteractions, is a revolutionary coating technology for medical devices that incorporates active and passive components to create the first truly nonleaching, effective, safe, and durable antimicrobial coating, which lasts for up to 365 days and helps save lives and time needed for medical treatments. The intended end result is improvement in well-being and reduction in risks to both patients and professionals.”

www.primel.com

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**SteriTite container system**

SteriTite containers by Case Medical, Inc, are rigid, reusable sterilization containers proven to be more safe, efficient, cost-effective, and sustainable. Already competitively priced, the SteriTite container is designed for durability and continuous use and is virtually repair and replacement free. Cleared by the FDA, the SteriTite system with MediTray inserts has the Conformité Européenne marking for all methods of sterilization.

The SteriTite sterilization containers are constructed of anodized aluminum, platinum-cured silicone, and passivated stainless steel hardware. Because of this, they are less likely to have performance issues that could lead to unsuitably processed devices and operating room interruptions.

The SteriTite sterilization container is available as a universal system and is compatible with all medical devices and current sterilizers. The containers have a perforated base for all sterilization modalities. For prevacuum steam and Sterizone low-temperature sterilizations, the containers are available with a solid base.

Case Medical, which is FDA registered, was the inaugural recipient and is the most recent recipient of the US Environmental Protection Agency’s Safer Choice Partner of the Year Award.

www.casemed.com

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**Infection Control Game**

Infection Control Game is a fun simulation board game and video game that can be used for training, exploring, and discussing infection prevention and control. The game was developed by leading National Health Service infection control professionals. It is based on a simulated ward that has a norovirus outbreak, and the game encourages players to make real-world connections while minimizing infection. Infection Control Game challenges players to figure out how to manage infection and encourages teamwork to improve players’ confidence when managing a real-life outbreak. Some of the issues that players will learn about include warning signs of infection, infection prevention methods, managing an outbreak, the importance of timely communication, and multidisciplinary collaboration. It may be used as an informal activity or as part of more formal, structured training. Infection Control Game requires 6 to 14 players but no facilitator. It has a standard 60 minutes of play time, but sessions can be fitted to the allotted time and tailored for the players’ level of knowledge.

www.infectioncontrolgame.co.uk
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