Add Biopreparedness to IP Checklist

CONFERENCE COVERAGE
ISSA Looks Hard at ATP Disinfection

LONG-TERM CARE FACILITIES
COVID-19 Will Force Big Changes in LTCFs

ADVANCED TECHNOLOGY
Electrostatic Sprayers: Right for Health Care?

STERILE DISINFECTION
How Dental Offices Reprocess Instruments

COVID-19
Keeping an Eye on the Omicron Variant
The two Elementum formulations were born from the fusion of 4 robust chemical forces in the form of POWERFUL NEW ENZYMES. These ALL NEW Protease, Amylase, Lipase, and Cellulase Enzymes are synergistically blended to produce two BEST-IN-CLASS formulations which rapidly break down tough-to-clean medical soils including the multi-layers of bioburden. Clinically tested for use in manual cleaning AT-THE-SINK, in Ultrasonic Machines and in Automatic Washers ELEMENTUM HAS SIMPLY BEEN OPTIMIZED TO CLEAN BETTER.* Use it and experience ELEMENTUM’S STAR POWER!

*ELEMENTUM EXCLUSIVELY MEETS THE QUALIFYING CHARACTERISTICS OF AN OPTIMAL DETERGENT PER AORN, AAMI AND ASTM D8179 GUIDELINES.

FOR THE EFFECTIVE DECONTAMINATION OF SURGICAL INSTRUMENTS & ENDOSCOPIES
The two Elementum formulations were born from the fusion of 4 robust chemical forces in the form of **POWERFUL NEW ENZYMES**. These **ALL NEW** Protease, Amylase, Lipase, and Cellulase Enzymes are synergistically blended to produce two **BEST-IN-CLASS** formulations which rapidly break down tough-to-clean medical soils including the multi-layers of bioburden. Clinically tested for use in manual cleaning **AT-THE-SINK**, in Ultrasonic Machines and in Automatic Washers **ELEMENTUM HAS SIMPLY BEEN OPTIMIZED TO CLEAN BETTER**! Use it and experience **ELEMENTUM’S STAR POWER**!

**OPTIMIZED FOR SPEED & EFFICIENCY**

**A POWERFUL PERFORMANCE WITH 4 NEW ENZYMES**

*ELEMENTUM EXCLUSIVELY MEETS THE QUALIFYING CHARACTERISTICS OF AN OPTIMAL DETERGENT PER AORN, AAMI AND ASTM D8179 GUIDELINES.*
# TABLE OF CONTENTS

## LITERATURE REVIEW

**STERILE PROCESSING**

10 Keep It Clean
   By Frank Diamond

**PREVENTION**

11 Infants Face COVID-19
   By Nina Cordon

**COVID-19**

12 Keeping Eye on Omicron
   By Frank Diamond

## IN ADDITION

6 Publisher’s Letter

**HAND HYGIENE**

9 Bug of the Month
   By Frank Diamond

13 Medical World News*

16 Interactive News

34 Product Locator

## FEATURES

**CONFERENCE COVERAGE**

17 Examining Potential Of ATP Disinfection
   By Frank Diamond

**ADVANCED TECHNOLOGY**

26 Electrostatic Sprayers: Health Care Friendly?
   By Jan Dyer

**STERILE PROCESSING**

30 How Dental Offices Clean Instruments
   By Robert Elsenpeter

**COVID-19**

32 Dentistry Before, During, and After the Pandemic
   By Lisa Kane, DMD

**PREVENTION**

Biopreparedness
   How IPs Can Get More Involved
   By Rebecca Leach, MPH, BSN, RN, CIC

18

---

## CORPORATE

**SALES/MARKETING**

EXECUTIVE VICE PRESIDENT & CEO
Mike Hennessy Jr
mike.hennessyjr@mmhgroup.com

EXECUTIVE VICE PRESIDENT, GLOBAL MEDICAL AFFAIRS AND CORPORATE DEVELOPMENT
Joe Petroziello
joe.petroziello@mmhgroup.com

EXECUTIVE CREATIVE DIRECTOR, CREATIVE SERVICES
Jeff Brown
jeff brown@mmhgroup.com

**CORPORATE**

FOUNDER
Mike Hennessy Sr
1960-2021

---

*Editorial Note: Contributions assume responsibility for any claims against the publisher based on the published work. No part of this publication may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without permission in writing from the publisher. Copyright © 2022 MultiMedia Healthcare LLC. All rights reserved. The publisher reserves the right to accept or reject any advertising or editorial material. Advertisers, and/or their agents, assume the responsibility for all content of published advertisements and assume responsibility for any claims against the publisher based on the advertisement. Editorial contributors assume responsibility for their published works and assume responsibility for any claims against the publisher based on the published work. No part of this publication may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without permission in writing from the publisher. All items submitted to ICT become the sole property of MultiMedia Healthcare LLC. Editorial content may not necessarily reflect the views of the publisher.*
ProFormance™ Cleaning Verification
Clearly Visible, Easy to Interpret, Objective Tests of Cleaning Methods

**SonoCheck™**
When the ultrasonic cleaner is supplying sufficient energy and conditions are correct, SonoCheck™ will change color. Problems such as insufficient energy, overloading, water level, improper temperature and degassing will increase the time needed for the color change. In the case of major problems, the SonoCheck™ will not change color at all.

**TOSI®**
Reveal the hidden areas of instruments with the TOSI® washer test, the easy to use blood soil device that directly correlates to the cleaning challenge of surgical instruments. TOSI® is the first device to provide a consistent, repeatable, and reliable method for evaluating the cleaning effectiveness of the automated instrument washer.

**LumCheck™**
The LumCheck™ is designed as an independent check on the cleaning performance of pulse-flow lumen washers. Embedded on the stainless steel plate is a specially formulated blood soil which includes the toughest components of blood to clean.

**FlexiCheck™**
This kit simulates a flexible endoscope channel to challenge the cleaning efficiency of endoscope washers with channel irrigation apparatus. A clear flexible tube is attached to a lumen device with a test coupon placed inside; the entire device is hooked up to the irrigation port of the endoscope washer.

**HemoCheck™/ProChek-II™**
Go beyond what you can see with all-in-one detection kits for blood or protein residue. HemoCheck™ is simple to interpret and indicates blood residue down to 0.1μg. The ProChek-II™ measures for residual protein on surfaces down to 0.1μg.
Future for Infection Preventionists Looks Challenging and Bright

As the COVID-19 pandemic spread across the world, we noted that the expertise that infection preventionists (IPs) possess would be in demand inside and outside of health care settings. This issue of *Infection Control Today*® (ICT®) spotlights that demand.

For instance, IPs are becoming even more involved in biopreparedness, as our cover story on page 18 notes. Author Rebecca Leach, MPH, BSN, RN, CIC, a member of ICT®’s Editorial Advisory Board (EAB), lays out how COVID-19 exposed the challenges to broad pandemic response.

Change is coming to long-term care facilities (LTCFs). It must. Of the approximately 780,000 individuals in the United States who died from COVID-19 as of early December 2021, approximately 186,000 (nearly 24%) were residents and staff at LTCFs. EAB member Sharon Ward-Fore, MS, MT(ASCP), CIC, FAPIC, on page 21 looks at what’s in store for LTCFs.

Electrostatic sprayers have been used for more than 50 years in agriculture, but only in the past 10 years or so have they been used in health care settings. Jan Dyer on page 24 examines the pros and cons.

Dentistry could also use a little help from IPs. This issue features 2 articles on the subject. Robert Elsenpeter on page 30 notes that “dental instruments may not seem as invasive as the instruments used in medical surgeries, but they still pose the same dangers.” On page 32, Lisa Kane, DMD, reports on how COVID-19 affected dentistry and warns that “those dental practices that came out of the COVID-19 pandemic with an appreciation of and renewed commitment to infection control best practices will maintain the trust of their patients and survive, whereas those that scoff at the costs of doing the right thing will not.” Sterile processing in dentistry will always be a priority.

We also talk to Jason Tetro on page 17. He was one of the presenters at the ISSA Show North America 2021. Tetro discusses how adenosine triphosphate (ATP) bioluminescence technology can be enhanced for use in the real world. Tetro challenges entrepreneurs to turn the pathogen-killing potential of ATP into a reality. ICT® not only looks to the future but brings the future to your doorstep. Help us keep doing that. Please send feedback and ideas to Alexandra Ward, vice president of content, at award@mjhlifesciences.com.

Thank you for reading,

Mike Hennessy Jr
President and CEO
MJH Life Sciences™
Medical Industry Mourns Passing of Michael J. Hennessy Sr

Founder and chairman spent his life building businesses, creating jobs, and improving health care research and education.

This issue of Infection Control Today®—as well as every other issue of ICT® and 60 other health care publications—is brought to you courtesy of our visionary leader Michael J. Hennessy Sr. “Senior”—as he was called by his employees at MJH Life Sciences™ to differentiate him from “Junior,” his son Michael J. Hennessy Jr—built MJH Life Sciences™ into the largest, privately held medical media company in North America. Hennessy was taken from us all too soon when he died on November 21, 2021. He was 61.

Hennessy spent his career turning his passion for building businesses and creating jobs into a run of successful ventures and brands. Following his graduation from Rider University in 1982, he started his career in medical publishing as a sales trainee, eventually advancing to the position of chief operating officer.

In 1986, Hennessy became chief operating officer of Medical World Business Press, which was part of the launch of medical newspapers and other media products. The company prospered and was eventually sold to a Boston, Massachusetts–based venture capital firm.

Hennessy launched MultiMedia Healthcare, LLC, in 1993 and built a portfolio of award-winning clinical journals. In 2001, Freedom Communications, Inc., acquired MultiMedia HealthCare, about the time that Hennessy was pioneering a new approach to print and digital publishing with Intellisphere®, LLC (now part of MJH Life Sciences™). Guided by the principles of innovation and entrepreneurial spirit and reflecting its founder’s dedication to improving quality of life through health care research and education, Intellisphere® publishes a variety of integrated print and digital products on a range of topics in research and clinical medicine.

To build a comprehensive multimedia and education platform, Hennessy added additional companies and capabilities to the MJH Life Sciences™ portfolio. In 2004, he acquired HRA® (Healthcare Research & Analytics), which has been the leader in health care market research for more than 30 years. In 2005, Hennessy acquired ArcMesa Educators®, LLC, leaders in online certification for physicians, pharmacists, nurses, and other health care professionals. Reflecting his lifelong interest in politics, Hennessy acquired Campaigns & Elections magazine in 2005, publishing the journal through Political World Communications, LLC. He sold the publication to Biteback Publishing in 2011.

In February 2008, Hennessy acquired the rights to the journals Pharmacy Times® and The American Journal of Managed Care®, both recognized in their respective markets as authoritative, trusted media platforms that provide essential information to a large audience of health care professionals.

In April 2011, MJH Life Sciences™ acquired Physicians’ Education Resource®, LLC (PER®), an accredited continuing medical education company that is an industry leader in producing high-quality, first-rate oncology and hematology meetings and conferences. The PER® acquisition included a variety of multichannel educational activities, as well as the rights to legacy medical meetings such as the annual Miami Breast Cancer Conference®.

Hennessy’s commitment to improving the lives of patients with cancer is deeply rooted within the halls of MJH Life Sciences™. As a complement to the industry-leading OncLive® platform, he developed the Giants of Cancer Care® awards to recognize the leaders and pioneers who often go unrecognized for their contributions to advancing oncology care. He further strengthened his commitment to education by acquiring CURE Media Group in 2014, followed by the purchase of the Chemotherapy Foundation Symposium®, in his quest to provide oncology professionals with focused education on innovative cancer therapy.
In 2019, MJH Life Sciences™ made its largest acquisition to date when it acquired the Healthcare and Industry Sciences divisions of UBM Medica, nearly doubling the size of the organization and adding legacy titles such as Medical Economics® to his already impressive portfolio. This acquisition made the organization the largest independently owned medical communications company in North America. In addition to acquisitions, Hennessy organically developed ancillary in-house agency divisions with Proximyl Health®, Truth Serum NTWK®, and MJH Global Medical Affairs.

Later in 2019, Hennessy elevated his role to chairman and named Mike Hennessy Jr to assume the leadership role of the organization and carry on the family legacy. The company enhanced its global potential by entering into a long-term partnership with BDT Capital Partners, LLC, in November 2021.

Due to his broad business and educational experience, Hennessy’s counsel and insight had been sought out by several organizations, including his alma mater, Rider University, where he served on the board of trustees and was elected to the executive committee. In addition to being active in New Jersey and national politics, Hennessy also had a long record of service at the local level, where he was a strong advocate for veterans and environmental issues.

Hennessy’s true passion was his relationship with his wife, Patrice “Patti” Hennessy. After meeting her in college, Hennessy devoted his life to Patti and raising their 4 children. Hennessy was Patti’s rock as she bravely battled cancer for almost 10 years until her death in January 2020. Hennessy recently honored Patti by making a donation to Rider University to expand the Science and Technology Center at their alma mater. The Mike and Patti Hennessy Science and Technology Center is set to be completed in 2022.

Hennessy’s legacy and “family first” mantra will live on through his children, their spouses, and his 10 grandchildren. He will be greatly missed by his family, friends, and his MJH Life Sciences™ family.

---

IN MEMORIAM

---

BREAKING NEWS AND EXPERT-DRIVEN INSIGHTS DELIVERED STRAIGHT TO YOUR INBOX

Scan the QR code to subscribe to our emails

---

STRAIGHT TO YOUR INBOX

---

Infection Control Today

---

COVID-19 Vaccinations: Our Best Shot at Recovery

---

Infection Control Today

---
My Reign of Terror Was Con fined to India (This Time)

Do you think Candida auris is the only pathogen that has taken advantage of all the attention being paid to COVID-19? Well, think again. The Centers for Disease Control and Prevention (CDC) describes me as a “serious but rare fungal infection,” but I wasn’t so rare this year in India, where I went on such a tear that medical teams had to dedicate entire wards in hospitals to treat just me. This was during a COVID-19 surge in mid-2021, when you’d think that all parts of a hospital would have been focused on fighting the coronavirus.

That may give you an indication of how serious an infection I can trigger (actually, I am a group of fungi, but I can and do function as 1). From May 5, 2021, to July 12, 2021, public health officials tallied 41,512 cases of me in India, resulting in 3554 deaths during that period.

I am caused by molds in the environment that you can find just about anywhere: in manure, decomposing plants, and decaying fruits and vegetables. These molds include Apophysomyces variabilis, Lichtheimia corymbifera, Rhizopus arrhizus, and Rhizomucor pusillus. Under normal conditions, I don’t usually infect humans. But SARS-CoV-2 was anything but normal. Although I killed 14.6% of patients in the hospital setting, medical authorities had no way of knowing how many individuals I killed after they’d been discharged, according to the CDC.

India has the second-highest rate of diabetes in the world (China is first). Patients admitted with COVID-19 were treated with corticosteroids at amounts and durations far above recommended levels.

In such circumstances, I become ther motolerant, and being in this state gives me an opportunity to infect humans. The Indian government declared me an epidemic on May 10, 2021. An epidemic enabled by a pandemic. That’s something you don’t see every day and something you don’t ever want to see.

Other situations in which I can thrive include organ transplants, iron overload as seen with hemochromatosis, and in patients with high neutrophils counts. Patients with HIV and others using immunomodulating drugs also are vulnerable.

According to the CDC (for the record, I very rarely show up in the United States), I am discovered approximately 1 month after a patient receives a diagnosis of moderate or severe COVID-19. Many of those patients are given steroids and placed on respirators. Furthermore, according to the CDC, 12% have diabetic ketoacidosis or uncontrolled diabetes. So you have COVID-19, for which treatment includes steroids, and you have diabetes—that creates the perfect environment for me to thrive.

My symptoms include headache and other facial pain, as well as a dry, dark scab inside the nose. Those symptoms were found in approximately 50% of cases. Another 10% of patients exhibited confusion. Here’s a problem, though. The clinical signs of me in Indian patients fell mostly within reference ranges—that is, there didn’t seem to be cause for alarm because vital signs and blood work seemed normal—so approximately 50% of patients were still receiving treatment as of July 2021, although only 3% were still hospitalized.

That’s counterproductive because without aggressive interventions, such as antifungals and the cutting away of tissue that I’ve infected, I can quickly kill someone. Few antifungal treatments are effective, partly because of the nature of fungi. Our cells and human cells are too similar, so what might kill me could also possibly kill you. The growing antimicrobial resistance also helps me kill.

Who am I?
Some Cleaning Methods May Contaminate Health Care Workers and PPE

BY FRANK DIAMOND

Routine cleaning methods used to reprocess medical instruments could expose health care professionals to dangerous pathogens due to the splashing in sinks and other areas that it involves. It also matters what kind of personal protective equipment (PPE) the individuals are wearing. Those are 2 of the findings of a study published in December’s American Journal of Infection Control.1

“Visible droplets were generated during every reprocessing activity except running the sonication sink,” the authors wrote. “Droplets traveled at least 3 feet when filling a sink, brushing a ureteroscope, and using a power sprayer to rinse a basin. Some activities dispersed droplets up to 5 feet from the sink. [PPE] was splashed during most activities and did not prevent skin exposure even when properly donned and doffed.”

The authors noted that there is a lack of evidence about how traditional cleaning methods may contribute to contamination. “A rigorous search identified no peer-reviewed journal articles describing the exposure of personnel to bloodborne pathogens or viruses during manual cleaning in endoscopy or sterile processing department [SPD] areas,” the authors wrote. “Likewise, the effectiveness of protective measures for reprocessing personnel has not been systematically evaluated in real-world settings.”

“Personal protective equipment was splashed during most activities and did not prevent skin exposure even when properly donned and doffed.”

Gently placing a ureteroscope in the sink generated fewer droplets than if workers dropped the instrument into the water. “However, droplets were visible on horizontal and vertical surfaces near the sink and on PPE no matter how carefully the instrument was placed in the water,” the authors wrote. “The use of an air gun to dry the ureteroscope dispersed droplets visible on vertical surfaces near the sink and PPE.”

Routine sterilization or reprocessing activities generated substantial splashing in decontamination sinks that could fling droplets up to 5 feet away.

“Currently recommended PPE did not adequately protect SPD personnel from exposure to clean water and cleaning solution during simulated activities, which would be presumed to be highly contaminated during normal daily activities,” the authors wrote. “In the context of PPE shortages [such as] those seen during COVID-19, reprocessing personnel should be prioritized with regard to high-quality, well-fitting PPE and training on using and doffing to protect them against splash exposure.”

The authors also stated that manufacturers of PPE should be encouraged to develop engineering solutions that would reduce the risk of contaminating health care professionals.

“The potential for personnel exposure seems high in the best of circumstances,” the authors wrote. “However, due to the COVID-19 pandemic, there have been shortages of many PPE components, and they have been rationed, worn for extended periods, or reused with or without being decontaminated between uses.”

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
Immune Changes in Mothers, Infants Linked to COVID-19 Infection

BY NINA COSDON

Pregnan women may be hesitant to get the COVID-19 vaccine. As Infection Control Today® reported in October when the Centers for Disease Control and Prevention (CDC) issued an advisory to health care providers faced with vaccine hesitancy from pregnant women or women who’ve just given birth, misinformation may be fueling that hesitancy.¹ Infection preventionists (IPs) have been urged to fight misinformation about COVID-19 among the public and even their fellow health care professionals. IPs know the reliable sources, are familiar with reading scientific studies, and are able to translate those findings to staff in an understandable way.²

One of those reliable sources is the Cleveland Clinic in Ohio. Investigators there sought to understand the clinical and immunological implications of COVID-19 on maternal-to-fetal health.

“We know that pregnancy increases maternal risk for COVID-19, but relatively little is known about the long-term consequences of in utero exposure for infants,” said Jae Jung, PhD, director of the Cleveland Clinic’s Global Center for Pathogen & Human Health Research.

The study included 93 mothers with COVID-19 and 45 of their infants who were exposed to the virus.¹ Investigators compared maternal blood specimens collected close to the original date of COVID-19 infection and throughout pregnancy and delivery. They studied immune profiles for more than 1400 cytokines and other inflammatory proteins from the participants’ peripheral and cord blood samples.

At delivery, the women had dysregulated levels of many cytokines associated with pregnancy complications, such as MMP7, MDK, ESM1, BGN, and CD209. The infants expressed induction of T cell–associated cytokines IL33, NFATC3, and CCL21.

Although most of the births were healthy, there was high incidence of certain complications such as fetal growth restriction and preeclampsia.

“Our findings show that COVID-19 infection during pregnancy leads to distinct immune alterations in mothers and babies, highlighting how important it will be for long-term follow-up after pregnancy to catch and hopefully prevent any unforeseen long-term health conditions related to prenatal infection,” Jung reported.

The investigators found different immune signatures between pregnant women with asymptomatic COVID-19 infection and those with severe COVID-19 infection. The mothers with severe disease had significantly more inflammation and elevated levels of the protein interferon lambda 1 (IFN-λ1) and its binding receptor, IFN-AR1.

“This increase in [IFN-λ] signaling may help explain why we see relatively little direct transmission of COVID-19 between mother and baby during the period right before or after birth—what we call vertical transmission,” said Suan-Sin Foo, PhD, one of the study’s authors.

There were no robust data suggesting vertical transmission, but the investigators found COVID-19 infection altered the mothers’ immunity at delivery, and gestational COVID-19 exposure altered the immunity of the newborns. “More research will be necessary to determine if increased expression of IFN-λ1 and IFN-AR1 does in fact block vertical transmission,” Foo said.³

This article originally appeared in Contagion®.⁴

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
The COVID-19 variant Omicron is 3 times more likely to reinfect individuals than the Delta variant, according to a preprint study from South Africa, where the latest iteration of COVID-19 first surfaced on November 25, 2021. Meanwhile, how Omicron may affect individuals who have been vaccinated continues to be explored, although Pfizer/BioNTech announced on December 8, 2021, that its vaccine is very effective against Omicron. In addition, health experts around the world stand united in saying that vaccination remains the best defense against SARS-CoV-2.

“Population-level evidence suggests that the Omicron variant is associated with substantial ability to evade immunity from prior infection,” wrote investigators at Stellenbosch University in South Africa. “In contrast, there is no population-wide epidemiological evidence of immune escape associated with the Beta or Delta variants. This finding has important implications for public health planning, particularly in countries [such as] South Africa with high rates of immunity from prior infection.”

Study coauthor Juliet Pulliam, PhD, said in a statement that “contrary to our expectations and experience with the previous variants, we are now experiencing an increase in the risk of reinfection that exceeds our prior experience.”

Harry Moultrie, MD, senior medical epidemiologist at the Centre for Tuberculosis at the National Institute for Communicable Diseases (NICD) in South Africa, said in a statement that “given the pandemic stage that we are in, it is our responsibility to make the broader public aware of any new variant. We have done this before and believe it is our scientific and ethical responsibility to continue to timeously share information about breakthrough variants as and when they are identified. Not making this important information public would be irresponsible science.”

Initial data available from the NICD show the concern to be well-founded. The study’s authors note that “urgent questions remain regarding whether Omicron is also able to evade vaccine-induced immunity and the potential implications of reduced immunity to infection on protection against severe disease and death.”

Data released on December 8, 2021, show that serum antibodies induced by the Pfizer/BioNTech COVID-19 vaccine neutralized the Omicron variant after 3 doses.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
COVID-19 Spread
Droplets or Particles? It’s Not an Either/Or

BY PETER WEHRWEIN AND RON SOUTHWICK

The innumerable problems with health care systems in the United States and the rest of the world that were exposed by COVID-19 continue to keep medical investigators busy. They are finding yet more dimensions to the pandemic that has stomped about since March 2020.

At the beginning of the pandemic, experts struggled to understand just how the SARS-CoV-2 virus spreads: by droplets or particles? But that might not be the right question.

In a review published in November 2021 in the *Annals of Internal Medicine* (*AIM*), Michael Klompas, MD, MPH, an infectious disease expert and a professor of population medicine at Harvard Medical School in Boston, Massachusetts, and his colleagues argue that division of droplet and aerosol transmission is misguided and needs to be retired.

There are viruses such as influenza and mumps that spread by relatively large droplets produced by coughing and sneezing and that fall to the ground relatively quickly. Doctors, nurses, and other clinicians are advised to wear face masks to block the droplets.

Other pathogens are aerosolized, spreading via minute respiratory particles that individuals produce when they talk and breathe. Aerosols tend to stay suspended in the air for much longer periods than droplets and travel much farther.

As an article in *ICT®* pointed out in October 2020, perhaps the best analogy for COVID-19 would be how cigarette smoke can linger and spread in an enclosed setting such as a bar (back when smoking was allowed in those establishments). In such a situation, 6-foot social distancing offers very little protection.

Measles and tuberculosis are 2 examples of viruses that spread this way. Precautions against aerosols include N95 masks, negative-pressure rooms, ventilation, and high-efficiency particulate air (HEPA) filters.

Klompas et al argue that research into COVID-19 and the SARS-CoV-2 virus demonstrates that individuals generate the full range of respiratory particles, not just either droplets or aerosols. Aerosolized droplets can stay afloat for long periods, and respiratory viruses are not picky about the size of particle that they hitch a ride on. However, aerosols may account for most transmission, partly because individuals produce aerosols just by talking and breathing.

The governing factor of transmission, wrote Klompas et al, is infectious dose—the amount of virus an individual is exposed to. Infectious dose is a product of time and exposure concentration, or how much virus is in the air, the authors wrote. Poor ventilation can allow virus-laden aerosols to accumulate and increase the exposure concentration and, as a result, the infectious dose. Good ventilation, HEPA filters, and ultraviolet disinfection can decrease the amount of virus floating in the air.

Source strength—or how much virus an infected individual is spewing into the air in respiratory particles—is another factor in the complicated question, the authors explained.

Klompas et al discussed some of the implications of the current understanding of respiratory virus transmission for infection control policies and programs. Here is their list of potential policy responses, which was included in the *AIM* review:

- Consider creating a uniform set of respiratory precautions for all respiratory pathogens rather than differentiating between airborne vs droplet pathogens.
- Consider using higher-level respiratory protection (eg, N95 respirators) in the care of all patients with active respiratory viral infections.
- Allocate airborne-infection isolation rooms for pathogens historically associated with long-range transmission and for patients with high viral loads.
- Reinforce minimum ventilation standards for nonclinical spaces.
- Consider using higher-level respiratory protection such as N95 respirators for all prolonged, face-to-face encounters when the community incidence of SARS-CoV-2 is high.
- Consider retiring aerosol-generating procedures.

This article originally appeared in Managed Healthcare Executive®.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
Medicare Telehealth Visits Exceeded 52 Million in 2020

BY TODD SHRIOCK

A government report from the Assistant Secretary for Planning and Evaluation’s Office of Health Policy (which is under the US Department of Health & Human Services) found that the number of Medicare fee-for-service visits increased dramatically in 2020. There were 52.7 million Medicare FFS telehealth visits in 2020 compared with 840,000 in 2019.

Despite the massive increase in telehealth visits during the COVID-19 pandemic, total utilization of all Medicare Part B clinician visits declined approximately 11% in 2020 compared with 2019.

The vast majority of beneficiaries (92%) received telehealth visits from their homes, which was not permissible in Medicare prior to the pandemic. Telehealth made up less than 1% of visits across all visit specialties but increased substantially in 2020. Primary care saw an 8% increase in telehealth visits, whereas specialty care had the smallest shift toward telehealth with a 3% increase. Primary care saw a 24-fold increase in telehealth visits from prepandemic levels. Visits to behavioral health specialists showed the largest increase in telehealth in 2020, accounting for one-third of total visits.

Demographically, Black and rural beneficiaries had lower use of telehealth compared with White and urban beneficiaries. Telehealth use varied by state, with higher use in the Northeast and West and lower use in the Midwest and South. Similar geographic patterns of telehealth were observed in private claims data for commercial payers. The report states this may reflect a combination of factors, including different state telehealth policies during the pandemic, existing provider capacity and readiness for rapidly expanding telehealth, and high rates of COVID-19 case precipitating lockdowns, particularly in the early months of the pandemic.

States with the highest use of telehealth in 2020 were Massachusetts, Vermont, Rhode Island, New Hampshire, and Connecticut. States with the lowest use of telehealth in 2020 were Tennessee, Nebraska, Kansas, North Dakota, and Wyoming. Despite the highest uptake of telehealth in the Northeast, some of these states also had the highest net decrease in health care utilization since the start of the pandemic, such as Maine (-22.5%), Connecticut (-17.7%), New Jersey (-16.5%), Massachusetts (-16.3%), and New Hampshire (-16.1%). The report states that these could be responses to the early surge of COVID-19 cases in the Northeast, resulting in lower health care use and higher uptake in telehealth.

The report concludes: “Our findings showing net decline in health care utilization in 2020—despite large increase in telehealth—underscore the need to carefully consider the extension of Medicare telehealth flexibilities after the pandemic ends and evaluate the impacts of telehealth on patient access, health care quality, and health outcomes.”

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
COVID-19 Vaccine Uptake Among Health Care Workers Hits Wall

BY FRANK DIAMOND

In what’s being touted as the most comprehensive examination of the problem of vaccine hesitancy among health care professionals (HCPs), investigators with the Centers for Disease Control and Prevention (CDC) COVID-19 Rapid Response Team collected data from 2086 health care facilities and their approximately 3.3 million HCPs. Vaccine uptake among this population seemed to be going well, rising from 36% to 60% between January 2021 (when the rollout began with a somewhat bumpy start) and April 2021 (after the initial rollout problems were fixed).

And then came the slowdown. The study, which was published in the December issue of the American Journal of Infection Control (AJIC), states that “as of September 15, 2021, among 3,357,348 HCPs in 2086 hospitals included in this analysis, 70% were fully vaccinated. Additional efforts are needed to improve COVID-19 vaccine coverage among HCPs.”

In any effort to increase HCP vaccine uptake, infection preventionists (IPs) will most likely play a major role. IPs often take the lead in vaccination efforts in hospitals and other health care settings—not only for COVID-19, but also for influenza.

Hannah Reses, MPH, lead author of the study, said in a news release that “our analysis revealed that vaccine coverage among US hospital-based HCPs stalled significantly after initial uptake. Additional efforts are needed now to improve HCP vaccine coverage and reduce the risk of SARS-CoV-2 transmission to patients and other hospital staff.”

Ann Marie Pettis, BSN, RN, CIC, FAPIC, president of the Association for Professionals in Infection Control and Epidemiology, underscored the crucial role of IPs in these efforts.

“Hospital-based HCP play a critical role in influencing community uptake of vaccines and are also at increased risk of both acquiring and transmitting COVID-19 in health care settings,” Pettis said. She added that “the findings from this analysis suggest that vaccine mandates as well as investment in additional educational and promotional activities could help increase vaccine coverage among HCPs to better protect public health.”

But vaccine mandates must be handled with care. As Infection Control Today reported in its October issue, there are ethical and practical considerations. Mandates might force the resignation or firing of HCPs at a time when there’s already a critical shortage.

CDC investigators looked at HCP vaccine uptake at children’s hospitals, short-term acute care hospitals, long-term acute care hospitals, and critical access hospitals. Vaccine uptake for HCPs was highest at children’s hospitals (95% CI, 75.8%-77.3%), followed by short-term acute care hospitals (95% CI, 70.1%-70.2%) long-term acute care hospitals (95% CI, 68.2%-69.3%) and critical access hospitals (95% CI, 63.8%-64.3%). Uptake was highest in health care facilities in metropolitan counties (95% CI, 70.9%-71.0%), followed by rural counties (95% CI, 64.8%-65.3%), and nonmetropolitan urban counties (95% CI, 63.1%-63.5%).

“HCPs who did not want to be vaccinated often reported low trust in regulatory authorities and the government; notably, trust in information received from medical professionals was higher, suggesting an important role of professional societies and medical organizations in enhancing vaccine uptake among HCPs and combating misinformation that might impact uptake,” the authors wrote.

Results of another study published recently in AJIC showed that peer education was 1 of the methods used in a large hospital system to bring HCP vaccination rates up to 90%. In that study, investigators with Narayana Health in Bengaluru, India, used role models. First in line to get vaccinated were senior physicians and health care facilities administrators.

The CDC study noted that the ramifications of strong COVID-19 vaccine uptake among HCPs can extend far beyond the walls of a hospital.

“HCPs play a critical role in advising patients and communities and influencing vaccine decisions,” the authors wrote. “Several studies have found that vaccinated HCPs were more likely to recommend vaccination to patients, friends, and family, suggesting that broader uptake of the COVID-19 vaccine among HCPs might lead to improved coverage in the general population.

HCPs are also at increased risk for acquiring and transmitting COVID-19 in health care settings.”

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
CDC Spreads Fight Against Antibiotic Overprescribing Over the World
Centers for Disease Control and Prevention’s Michael Craig, MPP: “Every country is an importer and an exporter of resistance….And our hope is that this could be a jump start to help some of these countries start to build the capacity that is needed everywhere.”

Who Gets the Lung? Vaccinated or Unvaccinated?
Kevin Kavanagh, MD: “Should someone who needs a lung transplant [who] was vaccinated and needs it for a non-[COVID-19] reason, should they be at the end of the line [behind] someone who chose not to be vaccinated?”

Traceability: Challenges IPs Face Keeping an Instrument Decontaminated
La’Titia Houston, MPH, BSN, RN, CIC: “We work not only with the bedside nurses and the sterile processors, but even with our clinicians, our physicians....” They want to ensure that the scope is clean.

To see more interviews with expert clinicians and healthcare professionals, visit www.medicalworldnews.com

Notable Quotables

“[Environmental services] teams work around professionals who are certified—whether it’s respiratory therapists, physical therapists, the RNs, the doctors—and I think if we ever hoped to elevate their status that we need to certify environmental services workers to a certain level of knowledge before they even start cleaning patient rooms.”

—DARREL HICKS,
PRESENTER
ISSA SHOW NORTH AMERICA 2021
READ MORE: https://bit.ly/3fTCupe

Top Tweets

Clorox Healthcare Sr. Infection Preventionist @DoeKley_RN_MPH recently spoke at @APIC’s Cleaning, Disinfection, and Sterilization Conference. Read all of her insights on ways to prepare for the postpandemic world in this article by @ICT_magazine.

No health care worker is immune from the dangers of handling sharps. @ICT_magazine

As @ICT_magazine reports, #fluseason could go big or bust. These are the data signs to watch.

Insights into the challenge posed by Candida auris from @ICT_magazine—and for more tips on how to keep patients safe from this superbug, visit https://hospitalinfection.org/about/candida-https://bit.ly/3EL8wLu

Get breaking news and expert insights delivered directly to your inbox.

Sign up for Infection Control Today® e-newsletters
ATP Disinfection Can Be Improved for Real-World Application

BY FRANK DIAMOND

The way Jason Tetro sees it, one of the many activities that went on at the ISSA Show North America 2021, which was held in November in Las Vegas, included an invitation to entrepreneurs and inventors to focus on improving adenosine triphosphate (ATP) bioluminescence. Put simply, ATP is an energy-carrying molecule found in all living things. In the process of infection prevention and control, the levels of ATP on a surface can indicate whether that surface has been properly cleaned of bacterial or fungal contamination. However, tapping into that capability has been a challenge for a number of reasons, says Tetro.

"While ATP may seem like something that is a standard, it really hasn’t proven to be a standard," says Tetro, the coauthor of a study (along with Syed A. Sattar, PhD) on ATP that was featured at the ISSA conference.\(^1\) He tells Infection Control Today\(^2\) in a Q&A that “the reason I say that is because that’s what makes a [conference] like ISSA so important. It gives you an opportunity to see what is out there when it does come down to decision-making time for those procurement officers.”

The technology will have to be improved before it can function in a busy health care setting, says Tetro, who is the author of the books The Germ Code\(^3\) and The Germ Files.\(^2,3\) ATP works fine in controlled laboratory circumstances, says Tetro. “But that’s for 1 surface under 1 controlled environment,” says Tetro. “When you go into the field, you have an infinite number of environments. As a result of that, you can never actually do quantification of microbes using the ATP test.”

In addition, says Tetro, health care environments contain a number of interfering molecules that can not only hamper the luminescence, but also enhance or augment it. Also, there’s the problem of sampling error.

“Anybody who’s an infection preventionist, who has ever done an audit of infection prevention and control knows that sampling error is a huge issue,” says Tetro, “because at the end of the day, when we’re swabbing, it doesn’t matter what we’re swabbing, if you don’t have an absolute standard operating procedure, with the exact same type of swab, you’re never going to get repeatable results.”

In other words, infection preventionists and environmental services teams are working with estimates. That’s OK if they’re working in a clean room that has no microbes, or in an industry like food processing. “But when you’re talking about a health care facility where the presence of microbes could literally mean a life-or-death situation for someone, you want to have something that’s far more accurate in terms of the quantification without any chance for sampling error or interference with the luminescence.”

The point Tetro wants to stress, though, is that ATP’s potential is real. “I think what we’re starting to see now is the ability to improve upon these particular issues by focusing on individual pieces, such as interference, or such as signal loss, or signal degradation, or even just simply sampling error,” says Tetro. “I mean, we’ve gotten to a point where we can have better swabs. I think in that sense, especially for people who are attending conferences, such as ISSA, which is incredibly valuable—I’ve been there myself, it’s wonderful—you want to have the ability to tell somebody who’s going to be doing that test: ‘You don’t need to worry about these other things.’”

REFERENCES
\(^3\) Tetro J. The Germ Files: The Surprising Ways Microbes Can Improve Your Health and Life (and How to Protect Yourself from the Bad Ones). Doubleday Canada; 2016.
Infection preventionists’ (IPs) roles in emergency response efforts historically have been minimal in health care settings. Typically, the emergency response program completes a risk assessment annually, the Hazard Vulnerability Analysis (HVA). In these reviews, all hazard risks are ranked according to likelihood of occurrence, severity of impact, and current capabilities to mitigate risks. Natural disasters, manmade disasters, and pandemics were included in the analyses. I believe most health care facilities would have ranked the likelihood of a pandemic as low, severity of a pandemic as high, and the capability to manage a pandemic would vary greatly from facility to facility.

As the heightened sense of awareness faded after the Ebola response in 2014 and 2015, the funding that had been assigned because of that outbreak began to dissipate and other priorities overtook efforts to maintain biopreparedness programs. Maintaining a strong program is expensive for health care facilities, and many of those costs are not redeemable through reimbursement from payers or funding from outside resources.

Along those same concerns, infection prevention staff were pulled into the efforts to reduce health care–acquired infections (HAIs) as those metrics became part of the Hospital Value-Based Purchasing Program and directly affected a facility’s payments from the Centers for Medicaid & Medicare Services (CMS).
Cover Story

Tested by Surges

The COVID-19 pandemic exposed many areas of challenge to broad pandemic response. The first surges showed how quickly personal protective equipment (PPE) supplies could be decimated and testing capabilities stretched thin beyond use. Later surges tested capacity, staffing, treatment development, and resilience of a health care force. Throughout the pandemic, misinformation and disinformation made coordinated efforts even more challenging and perhaps highlighted an unforeseen challenge to biopreparedness programs. How can health care providers be prepared to handle the deluge of opinions from nonexperts on responding to a pandemic response that affect the behaviors and choices of patients and staff alike?

Crisis standards of care were developed by the Centers for Disease Control and Prevention in response to the shortages and challenges facing health care. These standards are a framework to help facilities determine thresholds for staging out mitigation factors, such as PPE reuse, staffing models, and capacity limits. Based on these existing guidelines, biopreparedness programs can develop local models of crisis standards that act as triggers for next steps or mitigation factors.

As COVID-19 becomes endemic (as of this writing the threat that the Omicron variant poses is still unknown), now is the time for IPs to harness the current attention to biopreparedness and use the momentum to build the foundations for strong local programs that can be sustained through future waves of competing priorities.

The first step is to gather leadership support to establish a formal program, if one doesn’t exist, or the support to formalize the existing program and expand on its capabilities. The next step is to conduct a gap analysis to determine what worked well during the COVID-19 response, what innovations were developed that can become standard practice, and what areas are still opportunities for improvement. Existing gap analyses (eg, the High-Consequence Infectious Disease Preparedness Checklist from the Joint Commission) can be used. Part of the gap analysis could include a run-through of a scenario to determine what actions to take if a patient with a high-consequence disease (HCD) comes into the emergency department.

Once the gap analysis is completed, the results will guide the next steps. A formal committee or workgroup of multidisciplinary members who are all stakeholders can be established to take on action items specific to each department. A written plan can be the cornerstone of the committee’s work; however, the document must be flexible and able to be molded to any new HCD encountered. Having a response plan that isn’t focused on a specific disease type (ie, Ebola or influenza) allows for adaptation to the unknown—such as COVID-19 was at first—and is essential to be able to quickly respond when all the information isn’t known. Additionally, the committee and plan must have a multiyear strategy, as the work cannot be expected to be completed quickly if it is to be built into the foundations of the organization.

Training Staff

Once the plan is established and the committee is meeting routinely, the next step is to train frontline staff and build competency within your workforce. Training is essential to ensure all who may encounter patients with an HCD can quickly recognize potential transmission threats and enact appropriate isolation precautions and escalate quickly.

Education plans need to include training current employees and making biopreparedness training part of orientation and onboarding for new staff. Turnover in hospitals always presents challenges to maintaining efforts, so having a plan to include biopreparedness in the clinical orientation process will be key to making it part of the organization’s culture. Along with training staff, training the infection prevention team to build expertise also will create the strong leadership in the program. Free programs, such as those sponsored by the Center for Domestic Preparedness in Anniston, Alabama, are a great option to immerse IPs in biopreparedness with others who want to learn more.

Another way IPs can help sustain biopreparedness efforts is to be a leader in their organization’s safety culture. IPs can take a leadership role in facility initiatives such as High Reliability, Lean Six Sigma Management, and other concepts and work to integrate biopreparedness into those initiatives. Early response and recognition and escalating safety concerns all fit into those safety culture concepts and can help sustain biopreparedness.

Information technology infrastructure needs to be supported in infection prevention programs in general, including biopreparedness. Analytics and surveillance programs that detail threat assessments
Turnover in hospitals always presents challenges to maintaining efforts, so having a plan to include biopreparedness in the clinical orientation process will be key to making it part of the organization’s culture.

and detect syndromic patterns and trends across states and regions help predict risk and develop countermeasures. Barriers to communication across international and national surveillance systems need to be addressed to improve the public health response. Collaboration in public health efforts is needed to ensure outbreaks are addressed early and information shared to prevent transmission.

Federal government investment into biopreparedness would increase interest and ability for individuals and organizations to obtain funding in areas of infectious disease that are lacking across the country. The Infectious Diseases Society of America recently released a statement supporting one such effort, the BIO Preparedness Workforce Act.13 This act would increase funding and loan repayment for biopreparedness in the clinical orientation process will be key to making it part of the organization’s culture.

Make It Work

Mandating biopreparedness also could be part of CMS conditions of participation or accrediting bodies. As was demonstrated with HAI prevention, once money was tied to outcomes, focus improved and more efforts were made to bolster IPs’ capabilities. The same could potentially be done for biopreparedness, including mandating training, drills, and comprehensive high-consequence disease plans for health care facilities.

IPs can work with their local health departments to build links within acute care, long-term care, community health, and public health surveillance. If your local public health jurisdiction has a biosurveillance program, have your organization join and become part of a larger network feeding information into larger national databases. Then those databases need to be able to generate useful information that can quickly be passed to local providers who are seeing patients in clinics and emergency departments to apply clinical assessments based on known risk factors.

As we continue into the second year of COVID-19 response, IPs are at the frontline to ensure biopreparedness programs become a priority for their organizations. Collaboration and advocacy efforts can build the foundation at local levels, but for true sustainability, federal and state regulatory bodies need to take notice and ensure biopreparedness programs become a primary issue going forward.

REBECCA LEACH, MPH, BSN, RN, CIC, has been an infection preventionist since 2010 with a background in nursing and epidemiology. Leach, a member of the Infection Control Today® Editorial Advisory Board, works at a health care system in Phoenix, Arizona, that includes 5 hospitals and more than 100 outpatient treatment centers.

REFERENCES
Changes COVID-19 Brought to Long-Term Care Facilities

BY SHARON WARD-FORE, MS, MT(ASCP), CIC, FAPIC

When all states fully reopen, long-term care facilities (LTCFs) must balance the needs of residents against the potential for additional deadly COVID-19 outbreaks. COVID-19 uncovered deep flaws in nursing homes that have been worsening for decades. Nursing home is a generic term for a facility for a patient who can no longer remain at home because they require 24-hour nursing care and monitoring, also known as a skilled nursing facility (SNF), long-term care facility (LTCF), or extended care facility (ECF). For this article, LTCF will be used to refer to these 3 types of facilities.

LTCF Facilities
Seventy percent of LTCFs are for-profit operations, a factor that’s been linked to the spread of COVID-19. Unlike hospitals, most LTCF residents live in these facilities permanently, although some are admitted for shorter periods of rehabilitation after a hospital stay. Although these facilities are designed to be comfortable for long-term emotional, social, and physical well-being, they also are perfect incubators for viruses and bacteria. Their layouts increase person-to-person contact. Most residents share bedrooms, bathrooms, activity rooms, and dining rooms—and staff usually share a break room. Although group spaces encourage socializing and are designed partly to cut costs, they also help spread infectious diseases. Residents are generally older, frail, and often have comorbidities that make them more susceptible to severe infections such as COVID-19. Many need help performing basic activities of daily living such as eating, dressing, or bathing, increasing the chances of being infected by the staff who help them or passing the virus along to their caregivers.

Unnecessary Tragedy
When mortality rates at facilities struck by COVID-19 were compared with ones that were spared, the more the virus spread through a facility, the greater the number of deaths recorded for other reasons. In facilities where at least 30% of residents had the virus, the rate of death for reasons besides the virus was double what would be expected without a pandemic. This implies that the care of those who didn’t contract the virus may have been negatively affected as the staff were overwhelmed attending to residents with COVID-19 or were left short-handed as employees became infected.

Many LTCFs lack the necessary resources to protect seniors from COVID-19. News articles describe LTCF staff as generally underpaid, often living in crowded conditions at home, traveling on public transportation, and working jobs in multiple homes to make ends meet. Statements from staff and administrators mentioned that staff feared exposure to COVID-19 and other infectious diseases, along with fear of bringing home infections to their family members; some lacked accessible child care; some had competing family obligations. Many staff don’t receive health insurance or paid sick leave,
Leading some to work even when they are experiencing symptoms. The facilities they work in may have insufficient personal protective equipment (PPE) and training on how to use it. Many facilities lack COVID-19 testing for staff and residents.

The other issues that make LTCFs so vulnerable—chronic underfinancing, inadequate clinical services, and fragile staffing—seem to be endemic to the LTCF industry. Before COVID-19, this sector endured widespread economic and operational problems. Since the initial COVID-19 surge, LTCFs have lost occupancy and utilization, have lower revenues, and face immense staff retention and recruitment obstacles.²

Public opinion on LTCFs has been further eroded by the human toll from the pandemic. According to AARP, “the American nursing home industry exists as it does today because of federal laws and regulations that go back 85 years. The infrastructure these laws created, no matter how well intended, didn’t anticipate the future, nor could it foresee a health storm of this magnitude, speed, and deadliness.”¹ (See chart on page 24.)

Who's Responsible?
The Centers for Medicare & Medicaid Services (CMS), an agency within the US Department of Health and Human Services (HHS), is responsible for ensuring the approximately 15,500 LTCFs, with 1.4 million residents nationwide, meet federal quality standards.

LTCFs must meet standards to protect residents. These standards were in place prior to COVID-19 include as follows⁶:

- Hiring enough quality staff to provide adequate care
- Managing medications properly
- Protecting residents from physical and mental abuse
- Storing and preparing food properly
- Establishing and maintaining an infection prevention and control program

Under the CMS umbrella, state survey agencies are expected to conduct inspections once a year and can inspect facilities more often if the facility is performing poorly or if there are complaints or facility reported incidents. Inspectors also review the residents’ clinical records and interview residents, family members, caregivers, and administrative staff. The inspection team looks at many aspects of life in the LTCF including as follows:

- The care of residents and the processes used to give that care
- How the staff and residents interact
- The facility environment
- The infection prevention and control program

Infection control inspections are an abbreviated type of inspection that allow the team to focus specifically on LTCF infection control policies and practices. These inspections can identify serious risks to resident health and safety through the spread of communicable disease. They review areas such as:

- Proper staff use of PPE
- Performance of hand hygiene including hand washing and the use of alcohol-based hand sanitizers
- Emergency preparedness procedures

When mortality rates at facilities struck by COVID-19 were compared with ones that were spared, the more the virus spread through a facility, the greater the number of deaths recorded for other reasons.

Overwhelmed, Underprepared
Most critics of the LTCF industry agree that it was dealt a nearly impossible hand during the pandemic, left to take the brunt of public anger over the large number of deaths at LTCF facilities. The American Health Care Association, a not-for-profit federation of affiliated state health organizations that represents more than 14,000 not-for-profit and for-profit LTCFs, states that “the failure of public health services at all levels to prioritize [long-term care facilities] for both testing...
found that residents in top-rated facilities were as likely to die from COVID-19 as those in facilities ranked near the bottom.8

LTCFs do have protocols to handle outbreaks such as influenza, but the COVID-19 pandemic arrived so quickly and the SARS-CoV-2 virus was so contagious that many facilities were caught unprepared. The reasons vary from state to state and facility to facility. In general, when SARS-CoV-2 reared its head, many LTCFs did not have enough PPE on hand or adequate staff trained to use it to sustain the volume of patients with COVID-19.

They couldn’t institute mandatory use of PPE for staff in order to protect them or offer PPE to visitors. They couldn’t provide testing for staff and residents to help them and their families make good decisions regarding working ill and visitation. Instead, hospitals were prioritized over LTCFs in terms of emergency assistance, even though elderly adults and individuals with disabilities, who make up the vast majority of LTCF residents, are at highest risk for serious illness and death from COVID-19.

An article by the John A. Hartford Foundation sums up how some view LTCFs: “Unfortunately, the situation in LTC [long-term care] with COVID-19 is consistent with how America treats LTC. We prefer these essential facilities and their residents and staff to be out of sight and out of mind. We place the sickest, frailest, and most vulnerable people in 1 spot and then pay less than minimum wage to those who will be caring for them, despite the difficult nature of their jobs. LTCF staff provide care for many individuals who have profound dementia, complex chronic diseases, and decreasing function and ability to eat, bathe, or move around on their own.”9

**What We Learned**

The COVID-19 pandemic emphasized LTCF patient and staff safety and infection control practices as critical public health issues. The impact of the pandemic on residents and staff in LTCFs called for reexamining the relationship between the physical environment and the factors of infection control, quality of life, and overall resident and staff safety. Yet even now these facilities continue to be a major source of US COVID-19 cases.

**STAFFING**

Investigators at UCLA and Yale University found that LTCF aides who worked in multiple facilities in order to make more money contributed to the spread of COVID-19. They found restricting workers to a single facility had the potential to reduce COVID-19 infections by 44%.10

An LTCF aide can be responsible for more than 20 residents on a shift. The job is physically and emotionally demanding, and the average wage is approximately $13 an hour. Requirements for the job vary by state. In most states, workers complete a hands-on training course and a certified nursing assistant (CNA) program, which is approximately 75 hours of training over 3 months. Surprisingly, state requirements to gain a hairstylist license are more demanding than those for a CNA, says Lori Porter, cofounder and CEO of the National Association of Health Care Assistants.11 Now that COVID-19 restrictions have limited CNAs to working at just 1 facility, many are now unable to afford basic living expenses. Without increased pay and benefits, coupled with the mandated vaccine, LTCFs will remain short-staffed.

**ISOLATION**

Cell phones, tablets, and other videoconferencing devices have been invaluable in helping reduce isolation and loneliness in LTCFs. Virtual visits were linked to a 50% lower risk of depression compared with emails, social media, or instant messaging.

“Social isolation was a mental and physical health problem in nursing homes long before COVID-19,” says Bei Wu, PhD, director for research at the Hartford Institute for Geriatric Nursing at New York University. Lack of connection is associated with a 50% higher risk of dementia, 29% higher risk of coronary heart disease events, and a 32% higher risk of stroke.12

Physical contact is also important. The creation of spaces where LTCF residents and family members could meet and hug demonstrated the importance of incorporating safe areas for in-person visits. These are spaces made out of plastic sheeting with holes cut into it to allow protected physical contact. Moving forward, there could be plexiglass walls, a sound system, antimicrobial surfaces, and perhaps a “hug wall” made of flexible material for germ-free embraces.8

**TELEMEDICINE/TELEHEALTH**

Telehealth increases patient engagement, reduces costs, and saves time. Telehealth enables patients to be more engaged in their own health and well-being. During the pandemic, Medicare authorized payment for telehealth services to residents in any health care facility and in their home.12 Clinicians who were able to virtually assess LTCF residents via video monitoring were more likely to catch health issues sooner and then treat patients where they were,
rather than having to admit or readmit them to a hospital. Avoiding unnecessary trips to the hospital can promote better health outcomes for patients and benefit LTCFs by reducing lost revenue when a patient is in the hospital. Clinicians were better able to assess and provide care while avoiding risk of exposure to SARs-CoV-2.

SUPPLIES/RESOURCES
LTCFs that had the resources and staffing to anticipate and prepare for the pandemic fared much better than those that didn't. These facilities shared what they learned: Stock up on cleansers, disinfectants, and PPE and masks for workers and residents; screen everyone who walks in the door for symptoms; hire more staff to clean bathrooms and common areas; educate everyone on best practices for containing the virus—wash hands, avoid close contact, keep an eye out for fever or cough; lock down the facility and isolate infected residents.

INFECTION PREVENTION
Having an infection preventionist on site or as a consultant to lead infection prevention and control training makes a difference. The ability to screen, isolate, or group patients can save lives. Ongoing testing of residents and staff is critical, as is vaccination of residents and staff to keep the virus under control.

LTCFs should stockpile PPE, not just for COVID-19 but also for other contagious events. Even more safety improvements and changes may be necessary. Not just because another pandemic may be around the corner, but because the aging US population demands them to stay independent and safe. By 2030, every baby boomer will be at least 65 years old, with Generation X and the millennials aging right behind them.

PROVIDE MORE AT-HOME CARE
Although infection prevention is a critical component for patient and staff safety, critics think the LTCF system needs attention beyond what infection prevention practices can provide. It may be time to rethink what LTCFs should look like based on what was learned from the pandemic. Too often, LTCFs look, feel, and function like hospitals. Besides looking at creating smaller LTCFs, familylike household facilities may be a better option.

“Making nursing homes the de facto choice for older Americans in need of care set the stage for the ravages of the pandemic,” says Patricia McGinnis, JD, executive director of California Advocates for Nursing Home Reform. “LTCFs are not good places for anyone except for short-term rehab. I would hope this is a wake-up call that the system isn’t working.”

Advocates for alternatives to LTCFs include AARP and the Green House Project. AARP, a nonprofit, nonpartisan organization dedicated to helping older Americans achieve lives of independence, dignity, and purpose, has more than 33 million members. They have been outspoken on behalf of their members, urging LTCF reform.

The Green House Project is an innovative, nationally recognized model in LTCFs that creates small homes that recognize the individuality of residents and respect their autonomy, choice, privacy, and dignity, yet are also affordable. Founded in 2003, the Greenhouse model has key features that provide infection mitigation, including private rooms, more access to outdoor spaces, open floor plans that allow for social distancing, and a staffing model that limits the number of people with whom each resident interacts. There are approximately 300 Green Houses in 32 states. These homes house only 10 to 12 residents that live in a housing center and share an open kitchen, dining room, and living room. Specially trained CNAs work exclusively in 1 house—making meals, doing laundry, socializing, helping residents pursue their interests, and looking for early signs of health issues.

“All the features that make them a great place to live also make infection prevention and control easier,” according to Susan Ryan, senior director of the Green House Project.
Practices such as isolating sick residents or using masks and other personal protective equipment are critical to preventing the spread of infectious diseases from multidrug-resistant organisms and respiratory viruses such as COVID-19.

ADDRESS FUNDING
Unless funding for home- and community-based services is substantially and steadily increased over the next several years, the failures of the current LTCF system will worsen. The US spends less of its GDP (1%) on LTCFs than virtually every other wealthy country. Moving to a higher level of GDP spending on LTCF services would enable expansion and improve access to community-based programs and make it possible to pay care workers a livable wage, health care benefits, and sick leave. There would be funds for transitioning from the traditional nursing home of 100 beds or more to a smaller, homelike, individualized care facility.

IMPROVE OVERSIGHT, REPORTING
On paper, the rules and regulations for operating safe LTCFs are detailed and strict. However, advocates for LTCF residents say that they are not strictly enforced. Sen. Bob Casey (D, Pennsylvania), who is chair of the Special Committee on Aging, says that COVID-19 has “supercharged” the need to root out nursing homes that are failing residents. Casey and Sen. Pat Toomey (R, Pennsylvania) introduced legislation, also supported by AARP, that aims to hold nursing homes more accountable.

RETHINK OWNERSHIP
Approximately 70% of nursing homes are for-profit entities, and many are part of large, complex, and often opaque organizations. Ending the for-profit ownership model of flipping properties for big, fast returns—could possibly help.

Getting There
So what’s changed since COVID-19 arrived and took the lives of more than 186,000 residents and staff at LTCFs as of December 2021? The pandemic emphasized the need to better prepare LTCFs for future outbreaks, especially in facilities that are home to an older, more frail population. The federal government has taken some actions. It is requiring LTCFs to self-report COVID-19 cases and deaths at the federal level, order testing, provide limited PPE and other resources to LTCFs, establish requirements for education on vaccines, offer COVID-19 vaccines to residents and staff, report LTCF resident and staff vaccination status, and require LTCF staff vaccinations. Renewed awareness has brought more government and regulatory oversight. Better wages, working conditions, and benefits for LTCF staff are being discussed. More innovative thinking, such as virtual family visits, “hug” rooms, facility design, and telehealth/telemedicine, is in the works. The staff and leaders of LTCFs, and the 1.5 million people they care for, deserve Americans’ attention and action to make it through this evolving crisis and look to a future where this loss of life will never happen again.

SHARON WARD-FORE, MS, MT(ASCP), CIC, is an infection prevention consultant located in Chicago, Illinois. She is also a member of the Infection Control Today® Editorial Advisory Board.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
Bacteria love surfaces. They need them to survive and thrive. Through adhesion to surfaces, they can form biofilm, a slimy extracellular matrix, that makes them hundreds of times more effective in resisting antibiotics.\(^1\)

Viruses also love to cling to things. That’s why one of the first responses to SARS-CoV-2 was to find out just where and how long it survived outside the body.

And early research duly alarmed the world. Laboratory studies suggested that the virus could last anywhere from hours on clothing to 3 days on paper money to 6 days on hard surfaces such as plastic and stainless steel. In early 2020, scientists identified RNA of SARS-CoV-2 on a variety of surfaces in the cabins of both symptomatic and asymptomatic infected passengers aboard the Diamond Princess up to 17 days after the cabins were vacated but before disinfection procedures were conducted.\(^2\) They could not at the time determine whether there was any transmission from surfaces.

More recently, investigators have found that surfaces can be positive for the COVID-19 virus but that the viral material isn’t actually able to infect cells. Transmission of COVID-19 via surfaces is rare. Emanuel Goldman, PhD, a professor of microbiology at Rutgers New Jersey Medical School, became irritated by the way COVID-19’s viability on fomites (inanimate surfaces or objects) was being tested. In a comment letter to The Lancet Infectious Diseases in August 2020, Goldman wrote that the risk was being exaggerated.\(^3\) Although investigators were claiming virus survival of up to 6 days, he said, they were placing very large initial virus titer samples on the surface being tested.

“None of these studies present scenarios akin to real-life situations,” he said. In an interview with Nature published in January 2021, he said, “The viral RNA is the equivalent of the corpse of the virus. It’s not infectious.”\(^4\)

So how to deep-clean contaminated surfaces? One relatively new way is with electrostatic sprayers (ESSs). The method has been used for more than 50 years in agriculture to reduce spray drift when applying pesticides to crops, but it has been used only in the past 10 years or so in health care settings. Thanks to COVID-19, the past 2 years have been profitable for disinfectant manufacturers. By the end...
Electrostatic sprayers have been used for more than 50 years in agriculture to reduce spray drift when applying pesticides to crops, but only in the past 10 years or so have they been used in health care settings.

Opposites Attract
An ESS is based on the universal interaction between positive and negative forces. (Remember rubbing a balloon to create static and then sticking the balloon to a wall or your head? Same general principle.) Most surfaces have a (grounded) negative surface charge. The sprayer positively charges the disinfectant as it passes through the sprayer nozzle, and the charged disinfectant droplets seek out and stick to negatively charged surfaces—that is, they produce static.

Like magnets that shoot away from each other when held rear to rear, the positively charged particles in the droplets repel each other and spread out—at many times the force of gravity—looking for an exposed surface. The spray droplets can also reverse direction, moving against gravity and coating all sides of the target object. Thus, one of the advantages of electrostatic spraying is that it offers “wraparound” coverage, meaning it can quickly coat high-touch surfaces that may be time consuming to clean such as pens, light switches, faucets, and keyboards.

Because the solution comes out in a thin mist, it covers the targeted area evenly. Sprayers with smaller droplet sizes may be safer for sensitive equipment. Surfaces that are already covered will repel the charged droplets, which redistributes them, making the task that much more efficient and reducing the chance of overapplication.

In addition to time savings, the ESS offers cost savings. Used properly, the ESS can save on disinfectant and cut cleaning time by 50% or more, compared with spray-and-wipe methods. Moreover, according to the EPA, with less disinfectant applied, disinfection efficacy may diminish if the surface does not remain wet for the required contact time.10 (See chart on page 29.)

The required time often is specific to the pathogen. One study, for instance, found a 5-minute contact time was required for C. difficile spores.11 On real-world surfaces, C. difficile spores were reduced but not eliminated completely after a single spray application of the disinfectant. The investigators say that failure to eliminate the spores is partly because curved or vertical surfaces typically had drying times of approximately 2 minutes. Thus, in settings where C. difficile is a concern, they say, repeated application may be required to maintain 5 minutes of wet contact time. Moreover, left intact, the solution will last long enough for the pathogen to be deactivated, but only until the surface is touched again.

Some of the advantages of ESSs depend on the components.

A team of EPA investigators compared several spray parameters for 6 electrostatic sprayers, 2 foggers, and 1 hand-pumped garden sprayer.12 “The electrostatic spray process is complicated and involves multiple physical phenomena,” they wrote in PLoS One on November 30, 2021. Parameters that might affect a disinfectant’s ability to inactivate the virus on surfaces include spray droplet size distribution, electrostatic charge, ability of the spray to wrap around objects, and loss of disinfectant chemical active ingredient due to the...
The electrostatic sprayer method kills nearly 100% of pathogens. It also kills the COVID-19 virus. **BUT IS THAT OVERKILL?**

The electrostatic sprayer method kills nearly 100% of pathogens. It also kills the COVID-19 virus. **BUT IS THAT OVERKILL?**

spray process. Also, not all electrostatic sprays carry the same charges. In this study, 2 ESSs that used alternating current had a negative charge, whereas the battery-powered ESS carried a positive charge.

The investigators tested the sprays on a variety of surfaces, including a metal trashcan and other surfaces such as a step-ladder, a clip-on lamp, and a fold-out chair.

For all the devices evaluated, “[w]e were surprised to find there was not much of a ‘wrap-around’ effect of the spray from ESS, a claim that some ESS suppliers use for marketing—albeit this is just based on the limited tests we did,” Joseph Wood, senior research engineer with the EPA’s Center for Environmental Solutions and Emergency Response, and primary author on the study, told *Infection Control Today*. For instance, the deposition was greatest at the front of the trashcan, with some minor amounts of spray deposited on the sides and only minimal amounts deposited on the back of the can.

Due to the range in recommended ESS surface coverage, types of surfaces and materials, varying disinfectant chemistries and parameters such as droplet charge, and site-specific environmental conditions, surfaces may not remain wet for the required contact time of the disinfectant. Wood’s top recommendation for using ESS: “Ensure that the surface you are disinfecting remains wet for the required contact time of the disinfectant you are using, and follow all label directions, including use of PPE [personal protective equipment].”

On the plus side, the investigators found that little of the active ingredient in dichlor- and hydrogen peroxide–based disinfectants was lost to the air (ie, below occupational health levels of concern) and the active ingredient concentrations collected 3 feet away from the nozzle did not decrease.

Those are serious considerations. For one, although ESSs allow for contactless cleaning, aerosolized disinfectant can hang in the air for long periods of time, especially if the area is not well ventilated. Aerosolized disinfectant can irritate skin, eyes, and airways.

**Extreme Caution**
The Centers for Disease Control and Prevention and EPA advise extreme caution when using ESSs, stating that they should be used only:

- by a trained professional wearing appropriate PPE and who is alone in the room;
- with disinfectants approved for this method of application (if the label doesn’t include directions for use with electrostatic spraying, the EPA has not reviewed any data on safety and effectiveness; see EPA’s List N: Disinfectants for Use Against SARS-CoV-2); and
- according to manufacturer instructions for safety, use, and contact time.

Other advice from experts about ESS includes as follows:

- test the device thoroughly before using;
- wipe surfaces physically clean prior to disinfection because ESS solution only kills pathogens, it does not remove surface grime;
- stay out of the area for the time indicated in the product label and specified by the application device (usually around 40 minutes);
- open windows and doors after use, if possible, to air out the space;
- remove chemical residue, which can pose health risks, before others enter the room;
- follow product label directions for wiping or rinsing residue after the appropriate contact time has been achieved; and
- wash hands after removing gloves.

An ESS does indeed kill nearly 100% of pathogens. It also kills the COVID-19 virus. But is that last function overkill? Fomite transmission of COVID-19 is a “ghost problem,” according to Joseph Allen, associate professor and director of the Healthy Buildings program at the T.H. Chan School of Public Health at Harvard University; Charles Haas, professor of environmental engineering at Drexel University; and Linsey Marr, professor of

The electrostatic sprayer is based on the universal interaction between positive and negative forces. (Remember rubbing a balloon to create static and then sticking the balloon to a wall or your head? Same general principle.)

**Extreme Caution**
The Centers for Disease Control and Prevention and EPA advise extreme caution when using ESSs, stating that they should be used only:
civil and environmental engineering at Virginia Tech. In an opinion article for The Washington Post in December 2020, they advised that it’s much better, when dealing with an airborne virus, to “shift our effort toward cleaning shared air, not shared surfaces.” They wrote, “We don’t have a single documented case of COVID-19 transmission from surfaces. Not one… When we look at [the] entire causal chain, it’s easy to see that if fomite transmission is happening, it’s minor and certainly not driving the pandemic.” 

Investigators, though, are still not saying definitively that COVID-19 is never spread by surface contact. Fomite transmission is difficult to prove, in part because respiratory transmission from asymptomatic individuals cannot be ruled out. Furthermore, in hospital settings, COVID-19 is still not the only infectious threat. Bacteria and viruses and more still linger on bed frames, bedside tables, monitors, and wheelchairs.

One of the lessons learned from this pandemic has been that handwashing is a primary preventive of infection. One investigative team says that even with low adherence to handwashing—with just 1 in 4 individuals disinfecting their hands after surface contact—median infection risks from fomite contact were reduced by 0.16 to 2.2 log. With high adherence—3 of 4 individuals disinfecting—median risks decreased by 3.4 to 4.0 log.

Enhanced cleaning is “hygiene theater,” the authors wrote in The Washington Post article. But because surface transmission is still—although remotely—possible, Marr told Nature, handwashing is still crucial. Despite the efficiency of ESSs, the oldest disinfecting tool—handwashing—may be the best.

JAN DYER is a writer and editor, specializing in clinical topics. She lives in Suffern, New York.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

One of the tricky aspects of using electrostatic sprayers is that the surface needs to remain wet with the disinfectant long enough to kill any pathogens. The Environmental Protection Agency (EPA) measured how long coupons with surfaces made of stainless steel, glass, and plastic remained wet after being sprayed with water. The coupons were placed in both vertical and horizontal positions. “The percent water loss after 10 minutes for coupons in the vertical orientation ranged from 78%-95%, [whereas] the loss of water for coupons in the horizontal position ranged from 65%-81%,” the EPA states. “In both coupon orientations, the plastic material had the least amount of water loss.”

FIGURE. Wetness matters when it comes to disinfecting surfaces

Source: Environmental Protection Agency

JLO-DESIGN@STOCK.ADOBE.COM
The SARS-CoV-2 virus was concerning enough, but just when we thought we were getting a handle on it, the variants started to emerge. First the Delta variant appeared, then the Lambda variant. And by the end of 2021, the Omicron variant revealed itself. However, for all the permutations of the virus, there are standard precautions that help prevent the disease’s transmission. In fact, those standard precautions are in place to keep everyone safe.

Germs, viruses, and bacteria are all things that infection prevention endeavors to mitigate. In a dental environment, sterile reprocessing is how patients are protected from contaminants on instruments.

Dangers Posed
Dental instruments may not seem as invasive as the instruments used in medical surgeries, but they still pose the same dangers. “You’re working inside people’s mouths,” said Lisa Kane, DMD, dental consultant and owner of Dental Office Compliance of New England LLC in Dedham, Massachusetts. “You have access to their bloodstream. You want instruments and tools that are clean, and the only way to ensure cleanliness is to sterilize them.” (Kane is the author of another article on dentistry in this issue on page 32.)

“Dental procedures are invasive, meaning they often come in contact with blood,” said Shannon Mills, DDS, private health care consultant and chair of the American Dental Association Standards Committee for Dental Products Subcommittee on Dental Infection Control Products. “Dental instruments used for what we call restorative procedures—which would include crowns, fillings, and for orthodontics—are classified as semicritical.”

Those semicritical instruments touch but do not necessarily penetrate mucous membranes. However, if they do, they can come in contact with blood, potentially passing along blood-borne diseases, such as hepatitis B or human immunodeficiency virus.

Infection prevention consultant, Katherine Schrubbe, PhD, RDH, MEd, BS, said sterile instrument processing is a vital component of the dental practice. “If we don’t have sterile instruments to utilize for our patient care, then you’re certainly just not working,” Schrubbe said. “You might as well just close the doors because you can’t treat anybody. It’s the standard of care. Every patient has to be treated as if they have something infectious.”

Hot and Cold
The primary method for dental instrument sterilization is through steam. However, cold sterilization is a process by which sterilization is achieved through a chemical means.

Steam sterilization provides a measure of protection for dental staff. Chemical sterilants are hazardous to inhale, and autoclaves remove that risk.

“It’s usually glutaraldehyde and they would put [in] things that are plastic that they wanted to reuse,” Kane pointed out. “It’s a high-level disinfectant, but the problem is that once you take it out of there, you have to rinse off the chemical. Then once you rinse off the chemical, it’s not sterile anymore.”

Steam sterilization also provides a measure of protection for dental staff. Chemical sterilants are hazardous to inhale, and autoclaves remove that risk. Steam sterilization is the preferred method now, but that wasn’t always the case. “If you roll the clock back 40 years, most of these instruments were cold sterilized,” Mills said. “They were put in some kind of a chemical bath—not even necessarily glutaraldehyde. When I first started, we simply wiped our hand instruments with isopropyl alcohol and put them in a drawer on racks. We’ve come a long way since the 1970s.”

Even though cold sterilization is still occasionally used, Schrubbe said most dental practices should avoid it. “There’s no reason for a dental practice to have any cold sterile,” she said. “Cold sterile is usually glutaraldehyde and is very toxic to human beings.”

Misconceptions
Infection control is critical in dentistry—as it is in any health care environment—and it’s something practices take very seriously. That being said, dental practices still make common missteps. For instance, before being put into an autoclave, instruments must be thoroughly washed. “Although ultrasonics can dislodge material, sadly, a lot of times their cleaning process may be incomplete because of people rushing
through it,” Mills said. “They’re also manually rinsing the instruments in the sink to remove the soil.”

Both disinfection and sterilization are 2-step processes. “There are always 2 steps, no matter what piece of that you’re doing,” Schrubbe said. “There is always a cleaning step. If it’s a surface, it would be disinfection. If it’s instruments, it would be sterilization. For example, when we clean our environmental surfaces—high-touch areas—most people use a disinfectant wipe.”

It’s necessary to clean a surface or an instrument before sterilizing or disinfecting. Schrubbe likens it to detailing a car. “You can’t wax your car until you wash it,” she said. “It’s the same sort of thing.”

Kane notes that some of the inconvenient-to-reprocess equipment is often overlooked. “It’s very important to autoclave all your handpieces and all the motors for your handpieces,” she said. “That includes prophy handpieces, and that includes slow speeds. Anything that comes off that hose has to be autoclaved, and it has to be done in between every patient.”

Once instruments come out of the autoclave, they must remain in their pouches until ready for use. Too often, practices make the mistake of opening those pouches, unwittingly exposing sterile instruments to contaminants, as well as other mistakes, Kane said. “A lot of people autoclave instruments, then take them out of the bag to store them somewhere. That’s not clean or sterilized anymore. It only maintains its sterility while it’s in the bag,” she said. “You can’t overfill the autoclave. You have to fill it according to whatever the manufacturer says. Different autoclaves have different requirements.”

For instance, sterility can’t be achieved if items touch the sides of the autoclave, hinged items must be in the open position, and the instrument bags must be left in the autoclave until they are dry, Kane explained.

Worker Safety

How instruments are handled on the way to be reprocessed is also regulated, but in this case, it is out of concern for worker safety. “A lot of practices and team members don’t seem to be aware of this, but you must transport contaminated instruments a safe way from the operatory to your sterilization area. Occupational Safety and Health Administration [OSHA] mandates some guidance for that,” Schrubbe said. “And OSHA says if you’re going to transport your contaminated instruments from your operatory to a central sterilization area, you should have them contained. Basically, you should be transporting them in a container that is leak proof. It should have solid sides and bottom, and it should be labeled with a biohazard symbol.”

It is a common problem, as team members may not realize the reasoning behind having such a container. However, it is a means to avoid sharps injuries in the event somebody runs into a cart of loose, dirty instruments.

Team members must also wear the appropriate personal protective equipment (PPE) when handling dirty instruments. “When it comes to PPE, team members need to be wearing heavy-duty utility gloves anytime they do instrument processing where they’re handling contaminated sharps,” Schrubbe said. “Everybody says, ‘I don’t like to wear them.’ ‘They’re clumsy.’ ‘I’m going to have more injuries if I wear those, so I don’t.’ But we must remember our exam gloves are not chemical-resistant, and they’re not stick-resistant enough to protect us from a sharps injury when we’re handling all these instruments in the sterile processing area.”

ROBERT ELSENPETER is a freelance writer who lives in Blaine, Minnesota, and has been writing about dentistry and infection prevention since 2013. He is also the author of 18 technology books, including the award-winning Green IT: Reduce Your Information System’s Environmental Impact While Adding to the Bottom Line.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
Infection control has always been a relevant topic in dentistry, but dental practices’ and their patients’ awareness of its importance has increased significantly as a result of the COVID-19 pandemic. Let’s examine infection control practices before and during the pandemic, as well as project what they might look like going forward.

**Before the Pandemic**
Most dental practices took precautions, and some even adhered to best standards, but many likely did not fully appreciate the purpose and effectiveness of infection control and prevention measures and, as a result, may not have strongly enforced infection control policies. Consider the following:  

- **Patient screening:** This practice was limited or nonexistent. Patients would come into the office, even if they weren’t feeling well, and dental practices were not proactive about educating patients about the risks of coming to an appointment while feeling sick.

- **Waiting room practices:** It was not common for dentists to post information about proper hand hygiene or cough etiquette in waiting rooms, although it was suggested by the Centers for Disease Control and Prevention (CDC). Patients, some of whom could be suffering from a cold or other virus, were also able to sit close to each other.

- **Operatory setup and maintenance:** It was not uncommon for dental team members to take patient-care items out of their packaging and set up the room in advance of a patient’s arrival. Additionally, dental team members may have been more prone to leaving unused items in open storage containers and on countertops until the next patient arrived.

- **Personal protective equipment (PPE):** Dental staff may have worn surgical masks and gowns but rarely, if ever, wore N95 respirators and face shields.

- **Continuing education (CE):** Infection control has always been a state-mandated CE requirement, but many dentists and their team members likely viewed infection control classes as a burden and just 1 of many topics they needed to obtain CE credits.

**During the Pandemic**

Once the authorities allowed dental practices to reopen after the onset of the pandemic in 2020, and after it was more understood that COVID-19 is spread more readily by airborne transmissions than contact with hard surfaces, infection control practices ramped up in the following ways:

- **Patient screening:** Dental practices began screening patients for COVID-19 exposure and/or symptoms prior to their arrival at the office. Patients who disclosed exposures or symptoms were told to reschedule. These practices continue today in most dental offices.

- **Employee screening:** In addition, dental practices started to require team members to self-screen for COVID-19 exposures and/or symptoms and to stay home if there are any. Some offices also began to inquire as to the vaccination status of their employees, which, although it is not a Health Insurance Portability and Accountability Act violation, it is a sensitive topic for some.

- **Waiting room practices:** Dental practices began posting information about hand hygiene and cough etiquette in waiting rooms. Moreover, patients were told to call upon their arrival and stay outside offices until it was time for their appointments, which begs the question about the effectiveness of hygiene alerts posted in waiting rooms.

- **Operatory setup and maintenance:** It became more common for dental team members to remove instruments from their packaging in front of patients rather than before their arrival. Not only does this limit exposure of these instruments to aerosols in the office but it also assures patients, who are understandably nervous about possible exposures to germs, that

Dentists and their employees will want to continue to stay educated about infectious diseases and best practices in infection control, especially as things change from time to time.
such instruments have been sterilized before their use.

PPE: N95 respirators and face shields became the norm rather than the exception, particularly for aerosol-generating procedures. With the use of N95 respirators, most practices also began adhering with requirements by the Occupational Safety and Health Administration (OSHA) to fit test their respirators, at least annually, as well as develop and train team members on their respiratory protection programs.²

CE: Infection control classes became coveted, rather than dreaded, and focused more heavily on use and disposal of PPE, how to protect yourself and the patient during the appointment, and how to effectively disinfect the operatory after the patient leaves.

Going Forward
Given that COVID-19 is likely to persist in some capacity rather than go away completely, and there are other illnesses from which we should protect ourselves and our patients, we would expect and hope that many of the infection control practices emphasized during the pandemic will continue, including the following:

Patient screening: As we’ve learned more about the symptoms of COVID-19 (ie, high temperatures don’t necessarily indicate a COVID-19 infection, and some patients who have COVID-19 may have few symptoms, if any), questions on screening forms have changed. A focus on exposures rather than symptoms may be more useful.

Employee screening: It is important for practices to train their team members on screening and communication policies. Otherwise, a team member who is sick may infect others, and an office may have no choice but to prohibit exposed team members from coming to work, informing patients of a possible exposure, and/or closing the office for a period of time—all of which can be detrimental to a practice.

Waiting room practices: With more people being vaccinated and the anticipated development of COVID-19 antiviral pills, it is more reasonable to envision a scenario where patients can come back into waiting rooms. Still, a dramatic increase in COVID-19 cases in the region or a single case in the office may require waiting rooms to remain sparsely populated.

Operatory setup and maintenance: It is in dental practices’ interests to properly set up and maintain operatories. Not only are patients’ worries about going or returning to the dentist heightened, but a shoddy presentation in the operatory may invite a nervous patient—or even a disgruntled employee or former employee—to take pictures with a handheld device and email them to OSHA or the state dental board.

PPE: Use of N95 respirators, face coverings, and gowns is probably here to stay. Annual fit testing also will continue as long as N95 respirators are being used.

CE: Dentists and their employees will want to continue to stay educated about infectious diseases and best practices in infection control, especially as things change from time to time.

When thinking about the COVID-19 pandemic and, in particular, its impact on dental practices, this quote by writer Archibald MacLeish might come to mind: “There is only 1 thing more painful than learning from experience, and that is not learning from experience.”

Those dental practices that came out of the COVID-19 pandemic with an appreciation of and renewed commitment to infection control best practices will maintain the trust of their patients and survive, whereas those that scoff at the costs of doing the right thing will not. It’s as plain and simple as that. □

LISA KANE, DMD, is the owner of Dental Office Compliance of New England LLC (DOC4NE). DOC4NE assists dental practices in complying with the myriad of regulations required by their state board, OSHA, and the CDC. She teaches infection control and OSHA training, creates personalized plans and protocols for dental practices, and helps them navigate the world of dental compliance.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

Key administrative recommendations for dental settings

1. Develop and maintain infection prevention and occupational health programs.
2. Provide supplies necessary for adherence to standard precautions (eg, hand hygiene products, safer devices to reduce percutaneous injuries, and personal protective equipment).
3. Assign at least 1 individual trained in infection prevention the responsibility for coordinating the program.
4. Develop and maintain written infection prevention policies and procedures appropriate for the services provided by the facility and based on evidence-based guidelines, regulations, or standards.
5. Facility has system for early detection and management of potentially infectious persons at initial points of patient encounter.

Source: Centers for Disease Control and Prevention
Company Touts Biorisk System That Uses Infrared Cameras

Biopreparedness should be on the to-do list for infection preventionists and other health care professionals, and a company called Infrared Cameras Incorporated (ICI) recently unveiled a system—Biorisk Cloud Platform—that it hopes will aid in that effort. The Centers for Disease Control and Prevention says that the biggest sign that someone might be infected with COVID-19 is if she or he is running a fever. Fever is present in 80% of cases. The Biorisk Cloud Platform uses infrared cameras to pick out people who have a fever, ICI says in a press release.

“With accurate, real-time temperature readings, ICI’s platform streams data from thermal cameras to ICI’s proprietary cloud platform to identify biorisk patterns and threats before they cause operational issues like facility closures or shuttering of distribution centers,” the company says.

The cloud platform is said to be easy to integrate into existing operational technology systems. Texas Children’s Hospital bought the system. Bert Gumeringer, the hospital’s senior vice president of facilities operations, says in the press release that “providing extra protection for everyone in our facilities, we have deployed thirty cameras for screening employees across our buildings, tracking temperatures to help prevent anyone with COVID-19 from entering. This type of screening is now a way of life.”

https://infraredcameras.com

Product’s Makers Promise Cleaner Indoor Air

One of the things that the COVID-19 pandemic underscored is the crucial importance of proper airflow in buildings, and not just in hospitals and other health care settings. A company called mcCloud Technologies recently unveiled AssetCare, a product that it says will eliminate up to 95% of harmful particulates and contaminants smaller than one micron in size. AssetCare does this by using internet of things (IoT) technology that connects to an air monitoring and purification system that functions using artificial intelligence. In a press release, mcCloud says that the system is “capable of outperforming standard HEPA filtration by continuously eliminating up to 95% of harmful particulates and contaminants smaller than one micron in size. Mobile-scannable QR badges present throughout the building will allow building occupants to get live readings of the indoor air quality in their surroundings at any time.”

The press release notes that AssetCare has an agreement with Slate Asset Management to install the system at Life Plaza, a Slate building in downtown Calgary, in the Alberta province of Canada.

https://www.mcloudcorp.com
REDUCING MRSA INFECTION RATES BY 96%¹ IS NOT EASY.

WE CAN HELP GET YOU THERE.

Nozin introduces NOVA℠ programs.

Nozin, leader in developing and implementing MRSA / MSSA risk mitigation programs, presents NOVA℠. A proprietary suite of tools and services, Nozin NOVA℠ programs are guided by experienced consultants and help reduce infection risks, improve care and lower costs in hospitals.

NOVA℠ programs are working nationwide.

The Nozin NOVA℠ approach is clinically proven to help reduce MRSA infection risks up to 96%, decrease contact precautions 40%, increase patient as well as staff satisfaction and save up to $1.4 million in a year.²

NOVA℠ is powered by

#1 Brand in Daily Nasal Decolonization

Contact Nozin to learn more about NOVA℠.

- Visit: nozin.com/nova
- Call: 877-669-4648

Better Together: PDI + Tru-D Have You Covered

Hospitals need multiple layers of defense to ensure the highest level of cleanliness because no single approach can completely eliminate the environment of germs and pathogens.

UVC DISINFECTION:

The Tru-D® UVC disinfection device combined with highly compliant manual disinfection products, such as PDI’s surface disinfectant wipes, has shown a reduction of epidemiologically-important pathogens and reduced the relative risk of infection among patients.1

Learn more about implementing a layered approach today.


©2022 PDI   pdihc.com