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COVID-19
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The Way Forward for Infection Preventionists

COVID-19 helped to better define, or rather redefine, just where infection preventionists (IPs) fit into the health care system, and the redefinition continues. IPs were the must-have, go-to experts when this mysterious virus overburdened our society. So where to go from here?

This issue of *Infection Control Today* takes a look at what these professionals have learned from COVID-19 and what duties await them as we move forward.

In the aptly titled “Postcards From the Edge,” our Editorial Advisory Board (EAB) member Linda Spaulding, RN, BC, CIC, CHEC, CHOP, asks various frontline health care professionals how they weathered the COVID-19 storm (see page 23).

If an IP is not already integrally involved in a hospital’s antimicrobial stewardship program, they need to get involved. IPs already do a great deal to make those programs successful, contends Luci Perri, MSN, MPH, RN, CIC, in our cover story on page 16.

Perri’s points are reinforced by Arjun Srinivasan, MD, who has never seen an antimicrobial stewardship program run well without the help of IPs, one of many interesting points he makes in our Q&A on page 20. Srinivasan is the associate director for health care-associated infection prevention programs at the Centers for Disease Control and Prevention.

IPs are getting less attention now than during the pandemic surges, and it will be interesting to see how many health care professionals will want to become an IP. But just how does that happen? EAB member Sharon Ward-Forre, MS, MT(ASCP), CIC, lays out the process on page 32. And then, when one becomes an IP? EAB member Mary Jean Ricci, MSN, RNBC, and coauthor Joyce Welliver, MSN, CRNP, list an array of questions that organizations must answer when onboarding a new IP on page 26.

Finally, Jan Dyer tackles the thorny question of where all this new technology, invented because of COVID-19, will now fit into the health care system, a system that depends so much on human interaction (page 28).

As always, please send your ideas, comments, or questions to Editorial Director Alexandra Ward at award@mjhlifesiences.com.

Thank you for reading.

Mike Hennessy Sr
Chairman and Founder
MJH Life Sciences™
Allow me to introduce you to a whole new world of pain—the pain of witnessing an infant gasping for breath, their scrunched up tiny face turning blue or gray, struggling with all their might to take in air. But the infant can't because they're coughing (choking, really) too much. Finally, the baby manages to gasp, but then the coughing spasm starts again. It's hell.

But don't blame me—I just do what I do. I am biologically programmed. I am like the psychopath who leaves notes for the police saying, “Please stop me before I kill again.” Well, perhaps not that horrible. I usually don't kill (although I can and do). But I am an unpleasant experience, to say the least. I am caused by bacteria and am highly contagious, not just to infants but to small children and even adults. But infants—whose immune systems have not been fully developed—are especially vulnerable.

“In adults, it’s dreadful and will eventually go away. In babies, it’s often catastrophic,” Christopher Gill, MD, a Boston University (BU) School of Public Health associate professor of global health, told BU’s publication the Brink.

I secrete many toxins, which cause violent coughing spells and can evade the body’s immune system. I also stimulate white blood cells, which can overwhelm a person’s bloodstream.

My history might be something to keep in mind these days with all the focus on COVID-19 vaccines. You see, a vaccine was created for me in the 1940s that practically eradicated me in the United States.

By 1965, my lowest point, I was infecting 6799 persons in the US annually, according to the Centers for Disease Control and Prevention. Then my comeback began. In 2012, I infected 48,277 persons in the US, my high point in the postvaccine era. (My highest point since records began was in the depths of the Great Depression in 1934, when I infected 265,269 persons.) My infection rates have gone up and down since 2012, and continually down since 2015, but not by enough to make health care providers breathe easier.

Why did I make a comeback? Because the original whole cell vaccine that had stopped me more or less in my tracks had to be replaced. The adverse effects included seizures, severe muscle soreness, and fever, things parents also didn’t want to have visited upon their infants. People wanted a new vaccine, and in 1996, they got one: an acellular vaccine that contained only some aspects of my biological makeup. This new one produced only mild adverse effects.

But within a few years the vaccine wore off, and the Food and Drug Administration approved booster shots. However, although the vaccine and booster shots appear to prevent people from getting sick, they don’t prevent them from spreading me about to people who haven’t been vaccinated (ie, infants).

Now there’s talk about creating a third-generation vaccine. “That’s great,” Gill told the Brink. “We should do that, but we need to be able to show that it prevents disease and infection, not just disease.”

I’m OK with that. As the psychopath says, “Please stop me.”

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² References list: nozin.com/clinical-outcomes. Outcomes reported by actual users. Your results may vary. Nozin®/Nasal Sanitizer® antiseptic is for nasal decolonization. ©2021 Global Life Technologies Corp. All rights reserved. Made in USA. Nozin®, Nasal Sanitizer®, Popswab® and NOVA™ are trademarks of Global Life Technologies Corp. Nozin®/Nasal Sanitizer® antiseptic is an OTC topical drug. No claim is made that it has an effect on any specific disease. Patent nos.: nozin.com/patents.
Social Distancing Indoors: One Size Does Not Fit All

BY FRANK DIAMOND

Not all indoor settings are the same: Ventilation varies, size varies, and occupancy varies. Additionally, the activities people perform indoors also vary widely. Because of this, the 6 ft social distancing protocol, allocated by the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO), doesn't always apply, according to a recent study in the journal Proceedings of the National Academy of Sciences.¹

Investigators at Massachusetts Institute of Technology (MIT)—Martin Z. Bazant, PhD, E. G. Roos Professor of Chemical Engineering and a professor of mathematics; and John W. M. Bush, PhD, a professor of applied mathematics—have offered what they hope will be a guide for schools, businesses, policy makers, and individuals to better assess the risk of contracting COVID-19 indoors. They argue that the data suggest that school closings and occupancy limits, for example, may not be necessary in many instances.

“This is not to say that social distancing indoors is not important. It is a valuable safety measure, Bush says, and the greater danger indoors may arise from airborne transmission. When people wear masks, the social distancing guidelines may be overly restrictive, he continues. On the other hand, sometimes they may not be restrictive enough.”

In a recent email exchange with Infection Control Today® (ICT®), John W. M. Bush, PhD, coauthor of a study questioning present protocols on indoor social distancing, put the findings of the study into perspective. Bush, who teaches applied mathematics at Massachusetts Institute of Technology, underscored his belief that social distancing can stem the tide of infection, but that different circumstances require different approaches.

ICT®: Some people have interpreted your findings as more or less saying there’s a good chance that the 6-foot guidance is not only irrelevant, but may have led to unnecessary school and business closings. Is that a fair assumption?

Bush: No. Social distancing is a valuable safety measure in that it protects against large-drop transmission (as arises when one coughs or sneezes) and transmission by respiratory jets (as accompany normal breathing). The pathogen concentration of such exhaled air decreases with distance; thus, as far as infection by these respiratory flows is concerned, the farther you are away from an infected person, the better.

Q&A

A Conversation With John W. M. Bush, PhD

In the same press release, Bazant said, “I’d like to use this work to establish the science of airborne transmission specifically for COVID-19, by just taking into account all factors, the available data, and the greater danger indoors may arise from airborne transmission. When people wear masks, the social distancing guidelines may be overly restrictive, he continues. On the other hand, sometimes they may not be restrictive enough.”

In an MIT press release,² Bush offered an example from his own experience.

“My mother is over 90 and lives in an elder care facility. Our model makes it clear that it’s useful to wear a mask and open a window—this is what you have in your control.”

Bush said his mother felt safe attending an exercise class at the facility because the participants would be 6 ft apart. However, the size of the exercise room and number of participants would actually make that a high-risk activity.

“Told like to use this work to establish the science of airborne transmission specifically for COVID-19, by just taking into account all factors, the available data, and the greater danger indoors may arise from airborne transmission. When people wear masks, the social distancing guidelines may be overly restrictive, he continues. On the other hand, sometimes they may not be restrictive enough.”

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LITERATURE REVIEW

MIT professors argue that many variables should be included when determining just how much social distancing is needed in different indoor settings.

Bazant tells ICT® in an email exchange that it’s important to “note some more of the practical applications of our work. Our safety guideline may be applied to different indoor spaces using a user-friendly online app, which has been translated into many languages. The safety guideline can also be expressed as a limit on the exhaled carbon dioxide concentration, a convenient proxy for indoor airborne transmission risk, which can be monitored in real time using low-cost sensors.”

Bush and Bazant gathered data using an app and website developed by Kasim Khan, of the Robert Frederick Smith School of Chemical and Biomolecular Engineering at Cornell University, on which specific details of what’s going on in an indoor setting are entered, including the variables mentioned above. Then they estimated how long it would take under the various circumstances for the virus to spread from 1 person infected with COVID-19.

According to Bush, the study “indicates that one should limit the time spent in an indoor space, to an extent determined by the parameters defining the space, including the number of occupants, the ventilation and filtration rates, the level of human activity, and mask use.”

That last, mask use, could be the most important variable.

“In such circumstances (when masks are worn), it is possible that the social distancing guidelines are overly restrictive, Bush says. “However, it is also possible that they are not restrictive enough. Our study allows one to make a quantitative assessment of which settings are safe and which are not, and when the social distancing guidelines are sufficient or inadequate.”

The investigators used real-world events in their study, such as the Skagit Valley Chorale incident in Washington in indoor spaces is not enough and may provide a false sense of security. Our study proposes a new safety guideline for limiting such indoor airborne transmission. Specifically, it indicates that one should limit the time spent in an indoor space, to an extent determined by the number of occupants, the ventilation and filtration rates, the level of human activity, and mask use. Our study highlights that efficient mask use provides an extremely effective means of limiting indoor transmission of COVID-19. Provided masks are worn, so that the risk of short-range respiratory flows is greatly reduced, the greatest danger indoors may be posed by airborne transmission. In such circumstances (when masks are worn), it is possible that the social distancing guidelines are overly restrictive; however, it is also possible that they are not restrictive enough. Our study allows one to make a quantitative assessment of which settings are safe and which are not, and when the social distancing guidelines are sufficient or inadequate.

What’s the most important variable in an indoor setting when it comes to deciding what social distance would be appropriate? Concerning specifically airborne transmission, the distance between occupants is not the factor that determines safety; rather, it is the time spent in the shared space. The time limit we deduce depends on the number of occupants, the room’s ventilation rate, and most strongly on mask use.

ICT®: What led you to conduct the study in the first place?

Bush: The realization that in an indoor space one is not safe at 6 ft from an infected person, owing to the risk of airborne transmission (this was clear from work I did previously on the flows accompanying coughing and sneezing events). Given that the social distancing guidelines such as the 6 ft rule simply impose a minimum distance, it was clear that a new guideline was necessary to limit airborne transmission.

ICT®: With vaccinations ramping up, do you see a point where social distancing won’t really matter anymore?

Bush: Indeed, the risk of indoor transmission will decrease as the population develops immunity (by either vaccination or prior infection). Eventually, we will presumably be in a position to relax some of the safety guidelines.

ICT®: Is there anything else you would like to add?

Bush: As indicated in our paper, masks are an extremely efficient means of mitigating indoor transmission, in that they mitigate both short-range transmission from respiratory flows and long-range airborne transmission. Ventilation is the next best precaution.
When nursing home (NH) residents are hospitalized, they often receive treatment for urinary tract infections (UTIs) at the hospital before returning to the NH. That can cause a disconnect when it comes to treatment, according to a retrospective cohort study in the American Journal of Infection Control (AJIC).1

“A variety of guidelines are used with NH residents and hospitalized patients for many common diagnoses and treatments,” conclude investigators with the University of Michigan-Flint, School of Nursing. “However, data on hospital use of guidelines specifically designed for NH residents [are] lacking.”

The COVID-19 pandemic highlighted serious problems at NHs and other long-term care facilities (LTCFs), where the SARS-CoV-2 virus took advantage of systemic issues.2 NH officials agreed with that assessment early on in the pandemic, but countered that a lack of funding compared with hospitals and other health care facilities prevented them from beating back the disease.3 A similar lack of funding prevents many LTCFs from keeping a full-time infection preventionist (IP) on staff, something the Association for Professionals in Infection Control and Epidemiology is lobbying for4 (until the cavalry and money arrive, however, there are cost-effective5 and innovative6 ways LTCFs can battle COVID-19 and other infections, as Infection Control Today® has reported).

In the AJIC study investigators compared 2 techniques for diagnosing UTIs: the Cooper Urinary Surveillance Tool algorithm and the Stone criteria. They wanted to “retrospectively determine whether hospitalized NH residents were appropriately diagnosed and treated for UTIs when comparing the Cooper Tool with the older, more recognized Stone criteria. We hoped to gain a clear understanding of diagnostic agreement with NH residents transferred to the hospital.”

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REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
the homes, with 79 having received a diagnosis of UTI and been treated at the hospital. Nine of the 79 residents (11.4%) were appropriately treated using the Stone criteria, whereas 11 were appropriately treated using the Cooper Tool.

According to the investigators, “there was not a statistically significant difference in the proportion of those who were or were not treated appropriately when analyzed using the Cooper tool and Stone criteria.”

Less than one-third of the charts for the 79 residents contained urinalysis results. No urinalysis was ordered for a UTI diagnosis in some cases. “With both Cooper and Stone, the results indicated that a high percentage of UTIs were not appropriately diagnosed or treated,” say the study authors. “Statistically, both Cooper and Stone showed a moderate level of agreement and no statistical difference in the assessment of appropriateness of treatment.”

Investigators at University of Michigan-Flint School of Nursing noted that the Cooper Tool and the Stone criteria are similar but use different methods to arrive at a UTI diagnosis.

For noncatheterized patients, the 2 methods agreed 100% of the time. The Cooper Tool is easier for health care professionals to understand and use than the Stone criteria, suggesting it would be used more often.

“Appropriate treatments were seen more frequently with catheterized residents with both Cooper and Stone, a finding that could be related to the fact that such residents require fewer signs and symptoms to meet the diagnostic criteria,” the authors note. “For example, of those with a catheter, only mental status change, functional status change, [and] fever are required by Stone to meet sign and symptom criteria. These 3 signs and symptoms were the most documented in this study.”

UTIs continue to be one of the biggest problems in NHs, accounting for about 20% of infections at LTCFs, according to the Centers for Disease Control and Prevention (CDC). They compared the viral loads of health care workers (HCWs) after they disinfected their hands to the viral loads found on nonsterile gloves (NSGs) when a worker pulled those gloves out of a box and put them on. The investigators found no difference.

“But here’s the context. HCWs performed hand hygiene (HH) under the gaze of an infection preventionist (IP)—in many instances, the IP was a participant. The study data were gathered during the COVID-19 pandemic, when hand hygiene was very much on the minds of not only HCWs but everybody else in the world.

The bottom line is: “Microbial loads of hands after HH are comparable to NSG,” state the authors of the study, the results of which were published in the American Journal of Infection Control.1 “Filling level or position of the glove box did not influence glove contamination. Whether similar microbial counts translate into comparable nosocomial infection rates warrants further research.”

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

Viral Loads of Gloves, Hands Are Equal

BY FRANK DIAMOND

The purpose of studies is to prove hypotheses or to disprove them or—and this is frequently the case—to move the subject matter into that bulging folder marked “more studies needed.” In studies that include some context, that context can be crucial, as was the case in a recent study conducted by investigators at the Department of Hospital Hygiene at Klinikum Stuttgart in Germany. They compared the viral loads of health care workers (HCWs) after they disinfected their hands to the viral loads found on nonsterile gloves (NSGs) when a worker pulled those gloves out of a box and put them on. The investigators found no difference.

But here’s the context. HCWs performed hand hygiene (HH) under the gaze of an infection preventionist (IP)—in many instances, the IP was a participant. The study data were gathered during the COVID-19 pandemic, when hand hygiene was very much on the minds of not only HCWs but everybody else in the world.

The bottom line is: “Microbial loads of hands after HH are comparable to NSG,” state the authors of the study, the results of which were published in the American Journal of Infection Control.1 “Filling level or position of the glove box did not influence glove contamination. Whether similar microbial counts translate into comparable nosocomial infection rates warrants further research.”
Most of the participants involved in the study were nurses, and investigators gathered data from between May 19 and October 20, 2020, from 71 hospital wards. They collected 185 samples from NSGs and 107 samples from the hands of HCWs.

“HCWs were requested to sanitize their hands with alcoholic hand rub containing 75% isopropyl alcohol, like they would do during routine practice,” the study results state. “No prior instruction or training was performed. The fingertips of the dominant hand of the HCW were then pressed for 3-5 seconds on blood and MacConkey agar plates.”

To sample the gloves, an IP performed hand hygiene with an alcohol-based hand rub. When their hands were dry, the IP grabbed an NSG from a randomly chosen box in the ward. For both hand hygiene and NSG testing, the investigators obtained fingerprints from the dominant hands of the HCW.

“The median CFU [colony forming units] per plate was the same for NSG (median 1, interquartile range [IQR] 2) and hands after HH (median 1, IQR 5),” say the study authors. “A Mann-Whitney U test indicated no statistically significant difference between groups, U = 9267, z = –0.965, P-value = .33. No growth of microbes was detected in 88 samples (47.6%) from NSG and in 52 samples (48.6%) from hands. In 1 sample from NSG there was growth of Enterobacteriaceae, I showed Acinetobacter lwofii, and 8 samples grew mold.”

Investigators admit they did not find what they had been seeking.

“With our study, we are ultimately not answering the question whether the comparable microbial counts between hands after HH and NSG translate to a similar nosocomial infection rate,” the authors state. “A limitation of our study is that we only looked [at] contamination of NSG in comparison to hands after HH, but not the rate of cross-contamination or nosocomial infections. Microbial loads on NSG are similar, but if they lead to a lower [adherence] with HH, they even might be detrimental.”

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
More to Surface Disinfection Than Meets the Eye

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

Surface disinfection is key to containing viral outbreaks and has never been more important than it is right now. Fundamentally, the concept and importance of surface disinfection hasn’t changed. However, the impact of the COVID-19 pandemic on today’s world makes it imperative to change how the health care community conducts proper surface cleaning and disinfection. It starts with one’s mindset because health care and lives depend on it.

Findings from recent studies have shown that only 32% of the 110,000 objects in inpatient and outpatient health care facilities are thoroughly cleaned.1

At iClean 2020, a health care leadership conference on evidence-based cleaning programs, Didier Pittet, MD, MS, called for “urgent reform in our approach to cleaning and disinfection in hospitals and aged-care homes.”2

How cleaning is actually done today is based on time, the volume of room equipment, environmental services (EVS) staffing levels, experience and training, and types of cleaning supplies available. To mitigate the spread of potential pathogens that cause health care–associated infections (HAIs), infection prevention practices must evolve.

Everyone practicing infection prevention should know the following:

1. Proper cleaning and disinfecting are a top priority, and there is a definite distinction between the 2.
2. Disinfectants and their uses are unique.
3. EVS play a vital role in infection prevention.
4. Everyone is responsible for infection prevention.
5. Supplies can run short.
6. Training about supplies must take place regularly and should change based on readily available ones.

Ruth M. Carrico, PhD, DNP, APRN, stated at the conference, “Reforming hospital and aged-care disinfection systems can not only help...to manage COVID-19 but also reduce the incidence of other hospital and aged-care facility-acquired infections.”

So what does success look like today, and how is it achieved? Here are 5 tips for getting cleaning and disinfecting right.

Tip 1: Know Who Is Responsible

Every individual in the EVS, nursing, and infection prevention departments is responsible for ensuring that surface cleaning and disinfecting is done quickly and effectively to prevent potential pathogen transmission. It all comes down to good teamwork and relationships with other infection prevention experts, communication, accountability, and unwavering protocol. Everyone must be on the same page.

Tip 2: Know the Guidelines and Practices

Cleaning is a science. That means every element of the process matters, every single time, from quality cleaning with mechanical scrubbing to contact time to following recommendations by the Centers for Disease Control and Prevention (CDC).

Protocols for individual patient care areas, including frequency, method, and process, should be based on the risk of pathogen transmission. The probability of contamination is based on the patient’s care area, vulnerability of the patient to infection (immunocompromised vs general patient), and potential for pathogen exposure, ranging from high- to low-touch surfaces. For example, patient toilet areas should be cleaned last in the process because of their patient exposure, frequent contamination, and higher risk of pathogen transmission.

SHARON WARD-FORE, MS, MT(ASCP), CIC, serves as Metrex’s infection prevention adviser. She is also an independent infection prevention consultant and a member of the Editorial Advisory Board of Infection Control Today®.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

Scan the QR code to see additional guidelines and tips for surface disinfection.
We’re well over a year into the COVID-19 pandemic and serious challenges still lie ahead for the health care system. How will we more equitably distribute COVID-19 vaccines to all patients? How will the new virus variants affect progress toward herd immunity?

Although these important questions still need answers, we also have an opportunity to take a step back and look at how far we’ve come in just a year. Specifically, over the past 12 months, the health IT industry has taken major leaps forward to create a more seamless health care experience for patients and providers. Let’s celebrate this progress.

Interoperability
A key lesson learned from the pandemic so far is the importance of data sharing among patients, providers, payers, and health care innovators. If true interoperability had been established for optimal data exchange, we would have detected COVID-19 cases earlier, which would have helped to mitigate the spread.

Former Centers for Medicare & Medicaid Services (CMS) Administrator Seema Verma said if passengers quarantined on cruise ships during the pandemic’s early days had had access to their electronic health records, they would have been better equipped with details of their medical conditions or medications they were taking.

Although the interoperability infrastructure was not in place at the start of the pandemic, the prior administration did lay the necessary groundwork for a more seamless data exchange this year. For example, in March 2020, CMS passed its Interoperability and Patient Access final rule, empowering health care consumers with access to their health records by introducing opportunities for better data sharing between payers, providers, third-party apps, and patients.

More recently, in January 2021, CMS finalized another rule requiring insurers to give providers and patients electronic access to prior authorization decisions and other data about whether a treatment will be covered. Each of these rules moves the industry in the right direction for improved data sharing. Though the recent final rule is frozen for review by the Biden administration, the direction from CMS is clear.

We’re already seeing this heightened focus on interoperability pay dividends. In February 2021, pharmacies such as Walgreens and CVS announced they would begin administering COVID-19 vaccines, a crucial step to vaccinating the population more rapidly.

Why have pharmacies been able to step up so quickly? Because they invested heavily in real-time interoperability well ahead of traditional providers in the inpatient and outpatient settings. In the competition for new revenue streams, the pharmacy companies accelerated work on “event notification” to alert primary care provid-
Software Developed for COVID-19 Also Tracks HAIs
Meri Pearson, MPH, CIC: “Infection preventionists still need to do those active audits to make sure that they’re actually seeing what’s happening at the bedside.”

N95 Decontamination Process Allows 25 Reusages
Christina Yen, MD: “For any infection preventionists who are thinking about or are reviewing the need for vaporous hydrogen peroxide [VHP] sometime in the future, just know that those colleagues that we’ve relied on this time around are going to be there and are going to be your partners in the VHP process.”

Q&A: Hot Water Might Disinfect Sinks Better Than Chlorine
Emilie Bédard, PhD: “We worked in collaboration with infection prevention, environmental services… We had a multidisciplinary team to make sure that we would look at all aspects of this approach.”
WATCH: https://bit.ly/3nyNMig

To see more interviews with expert clinicians and health care professionals, visit www.mjhlifesciences.com/news-network

Notable Quotables

“The truth is that variants will occur where the virus spreads, and until SARS-CoV-2 is controlled everywhere, it won’t be controlled anywhere. What is occurring in India is a prime example of this and, frankly, an indication of how disjointed and inequitable the COVID-19 response and vaccine distribution [have] been.”
—SASKIA V. POPESCU, PHD, MPH, MA, CIC, INFECTION CONTROL EXPERT

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antimicrobial resistance is a worldwide concern, as evidenced by the World Health Organization (WHO) declaring it a top 10 global health issue. The Centers for Disease Control and Prevention (CDC) estimates that 2.8 million infections per year are caused by resistant organisms. Additionally, investigators of a recent study concluded that antimicrobial-resistant infections cost the United States approximately $4.6 billion annually. A human cost exists also in terms of the inability to perform responsibilities or fulfill roles at work, at home, and in the community. Sadly, almost 36,000 Americans lose their lives annually as a result of infections caused by organisms that are not susceptible to the antimicrobials typically used to treat such infections.

The COVID-19 pandemic has also spurred an increase of infections caused by antibiotic-resistant organisms. This phenomenon is due to several factors, including the shifting of resources away from routine infection surveillance and prevention activities as well as increased antimicrobial prescribing to prevent secondary infections.

Antimicrobial resistance has been viewed as such an urgent need that the Centers for Medicare & Medicaid Services (CMS) and the Joint Commission developed standards to spur the development and/or progress of antimicrobial stewardship programs in hospitals and nursing homes. These standards have been in effect for several years albeit somewhat unevenly, even in the same types of facilities. Rural and small hospitals are less likely to have a program, whereas programs in nursing homes, if implemented at all, are in their infancy. Although both the CMS and Joint Commission cite standards that indicate an expectation for the infection preventionist (IP) to participate in antimicrobial stewardship efforts, the role is poorly defined.
IP Role
The CDC Core Elements of Antibiotic Stewardship programs offer some insight into the role of the IP in the program in acute care facilities, small and critical access hospitals, nursing homes, and the outpatient setting.2,10 According to the CDC, 3 types of infection are associated with the majority of antibiotic use in hospitals, including rural and critical access hospitals: urinary tract infection (UTI), community-acquired pneumonia (CAP), and skin and soft tissue infections.20 IPs are well acquainted with care bundles to prevent UTI, which include determining whether a urethral catheter is needed prior to insertion and, if needed, to reevaluate the need daily. The IP is frequently involved with educating staff and physicians and with audits to determine whether such a device is needed. This exemplifies the supporting role of the IP in the antimicrobial stewardship program: that of prevention. If infections don't occur, there is no need for treatment. IPs can prioritize the prevention activities that coincide with the focus of the antimicrobial stewardship program and, as always, the universal preventive activity: hand hygiene.

In addition to prevention activities, reporting infection surveillance data, including multidrug-resistant organisms, to the antimicrobial stewardship team can help to inform decisions about which antibiotics to target or which physician groups to educate or advise on antibiotic usage. Likewise, reporting process surveillance data to the team, such as on hand hygiene, can also help to inform decisions.

Although it may be more exciting to be able to report decreased health care–acquired infections (outcome measures) because of the antimicrobial stewardship program, a rapid and dramatic decrease because of changes in antimicrobial prescribing practices is unlikely. Seeing a change in outcome measures will probably take a while if a facility has relatively low infection rates. However, changes in practice (process measures) may provide a more realistic reporting statistic, as improvement in these numbers may occur more rapidly than actual numbers of infections. Practice modifications contribute to the overall success of the antimicrobial stewardship program, which is to prevent the increase of resistant organisms and resultant decrease in effective treatment choices.

The infection prevention risk assessment and annual plan can serve as a jumping-off point to spur collaboration between the infection prevention program and the antimicrobial stewardship program. For example, if *Clostridioides difficile* is a priority, work with the antimicrobial stewardship team to create a plan that includes the best evidence-based practice to support the goal. Be sure to include actions for nursing services personnel, such as prompt isolation of patients with diarrhea not attributed to medications or chronic conditions.

Education
The IP can also play a role in educating nurses and physicians. According to the literature, nurses frequently initiate a request for urine cultures that may not always be appropriate and can contribute to treatment of asymptomatic bacteriuria.11-13 In the nursing home environment, the IP can be key in reducing urine culture collection by assisting with the implementation of the Loeb Minimum Criteria for Initiation of Antibiotics in Long-Term Care Residents,14 which the Agency for Healthcare Research and Quality (AHRQ) has operationalized into an internet-based tool.15 Printable and web-based tools for formulate questions that may uncover obstacles to implementing the change in practice. This approach may prove quite helpful as, invariably, some staff have been practicing for some time and may not see a need to change or need time to adjust to imminent change.

During rounding, the IP can speak with staff to explain the antimicrobial stewardship program, including why it is important, how it intersects the infection prevention program, and the antimicrobial stewardship program. Because IPs are frequently on the units, they can educate staff and physicians a little at a time. This would allow everyone time to get used to an idea, and to
processes to reduce infections and antibiotic usage benefits the patient and is a major contributor to patient safety.

At some point, the stewardship program may find a need to develop clinical algorithms, craft order sets, or design order entry to limit antibiotic use. These opportunities permit the IP to contribute to the team’s efforts while keeping the goals of the infection prevention program in mind and ensuring these pursuits are consistent with infection prevention principles and practice.

Another contribution IPs can make is to register with the health department to receive alerts. This enables them to remain informed of infectious agents of concern circulating in the local area and of local or regional outbreaks, as admitted patients could bring those same pathogens into the facility. Such information will benefit the entire team, as they will know beforehand which organisms of concern might be brought into the facility. This advance knowledge will allow the team to develop a feasible plan of action, including appropriate antibiotics, before patients (and pathogens) arrive.

**Bottom Line**

IPs are an integral member of the antimicrobial stewardship team. That may not always be evident because the activities IPs routinely perform through infection prevention programs can be difficult to connect to antimicrobial stewardship programs because they don’t prescribe antimicrobials. However, IPs shouldn’t assume that their only role is to point out culture susceptibility or resistance mismatches; rather, they should bask in the knowledge that their routine activities benefit patients by reducing the number of infections and by contributing to the stewardship program to help ensure effective antimicrobials are available when needed.

Luci Perri, MSN, MPH, RN, CIC, FAPIC, CSPDT, is the owner and president of Infection Control Results, a full-service infection control consulting company. She travels throughout the country to assist acute care and long-term care facilities as well as dental and medical practices and clinics to improve practice, which ultimately protects patients.

**REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM**

**CDC data show** that more than half of antibiotic prescribing for select events in hospitals is not consistent with recommended prescribing practices.

Antibiotic prescribing was not supported in:

- 79% of patients with community-acquired pneumonia
- 77% of patients with urinary tract infections
- 47% of patients prescribed fluoroquinolone treatment
- 27% of patients prescribed intravenous vancomycin antibiotic

Find resources on how to improve hospital antibiotic use and help fight antibiotic resistance.
Online Resources at InfectionControlToday.com have a new look!

As you enjoy the print edition of *Infection Control Today*, take a minute to go to our updated website for in-depth coverage and timely news and information.

Check out the Spotlight feed in the upper left corner that currently features:

**Spotlight**
- Bug of the Month
- COVID
- Mask Respirator

Updated features include:
- Simple and flexible interface
- Enhanced search
- Multimedia options
- Streamlined navigation
In broad strokes, can you explain what the problem is and what the CDC plans to do about it?

Arjun Srinivasan, MD: We know that antibiotics are overprescribed, overused in all health care settings in the United States, whether that’s hospitals, nursing homes, outpatient settings. But...to really improve prescribing...[we need to know] where antibiotics are being overprescribed. For what conditions and why...? This study...was really an attempt to answer those important questions, because that gives us data for action. If we know where they’re being overprescribed and why..., we can then take steps...and it’s very strong.

ICT*: Infection Control Today*. What’s fascinating is how much human nature comes into play here. Hand hygiene adherence has been dismal for decades. What about the over-prescribing of antibiotics? Do doctors just give in and give the patients what they’re demanding?

Srinivasan: You’re right. Behavior is front and center of what we work on in health care, because so much of what we need to do...relies on human behavior...We work very hard to help human behavior and, where we can, to even remove remembering and behavior from the equation.... But many of these actions—like hand hygiene, how you prescribe antibiotics—are actions that people have to do. And anytime you have an action that someone has to do over and over again, it’s a system that needs support. When we think about antibiotic prescribing in the hospital setting, I really don’t think that patient requests for antibiotics factor in significantly there. That is a big issue when you talk about outpatient settings, but much less so in hospitals. What we see in hospitals is some degree of inertia. This is the way we prescribed for a long time: People were taught, “Oh, give 10 days or 14 days of antibiotics.” And the new data say that’s overkill. You know, 5 to 7 days is really enough, 5 days in most cases of CAP. Some of this is education. It’s helping providers know. Then some of it is maybe building in systems. We’ve seen some places that have done things at the time of discharge. They have someone review the chart for the duration of prescription. A pharmacist takes a look and says, “This person is diagnosed with CAP. They’ve got 5 days of antibiotics, so they don’t need anything after they’ve been discharged.” And that’s a key gap that we saw in this study with most of the excess duration of therapy. In many cases the therapy is not in accordance with guidelines. The antibiotics are being given for too long.
ICT®: How has antibiotic prescribing been during the COVID-19 pandemic?

Srinivasan: We have some data that are being presented, and I believe have been posted. [These were] presented to the Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria—the PACCARB committee. And we at the CDC have done some analysis of antibiotic prescribing during the COVID-19 pandemic, and those data were shared. I believe those slides are available on the PACCARB website.

What we found is exactly what you’re saying: In the hospital setting, [regarding] antibiotics that are commonly used for CAP, [such as azithromycin, their use…did rise a bit as COVID-19 rates went up in the country. But they did go back down as COVID-19 activity began to decrease. So there definitely was an increase in the prescribing of agents that…are probably being used for CAP. I think a lot of that represents the fact that you had a lot more patients presenting to the hospital with signs and symptoms consistent with pneumonia. They had cough, they had fever, they had chest x-ray infiltrates.

And in some of those instances, it
was likely difficult to distinguish who had a true respiratory tract bacterial infection and whose symptoms were only due to COVID-19. So, it’s not very surprising that we did see a rise in prescribing of those agents.

**ICT**: How much of this do you attribute to defensive medicine?

**Srinivasan**: I don’t know. I think more of it is attributable to either a lack of awareness of the guidelines or people who are practicing medicine as they maybe learned it and not as the experts are recommending it today. I don’t think a lot of it is, “Oh, I need to treat this patient for 14 days because otherwise something bad is going to happen.” I think it’s largely people who aren’t aware that there are many, many studies that have been done. There’s a lot of evidence to say 5 days is sufficient. I am optimistic that we can really make great strides in improving prescribing by, 1, educating people and letting them know...these are the best practices that need to be in place. And 2, as we were talking about earlier, by building better systems. How can we take advantage of electronic health records of these new stewardship programs and of the expanded role of pharmacists in stewardship practices? How can we take advantage of all of that to fix the system so the system is built to deliver optimized prescribing?

**ICT**: When you say guidelines, are you talking about CDC guidelines?

**Srinivasan**: The treatment guidelines are the Infectious Diseases Society of America guidelines. Those were the guidelines we used as the benchmark comparison for appropriate antibiotic prescribing, [which] are updated on a regular basis. The updates, of course, are intended to bring in the latest and greatest information. And that’s why we really want people to be prescribing in accordance with those guidelines.

**ICT**: In the study, the median age of the people from whom data were collected was 67. Is overprescribing a problem for older people or does it cut across all demographics?

**Srinivasan**: It does cut across all age groups. The age bias in the data is because those are the people who tend to get hospitalized. What we see for overprescribing in younger people is that it’s more reflected in outpatient settings, because younger people, when they develop CAP, more often can be [treated] as outpatients. And we know there’s a lot of opportunity to improve outpatient prescribing for respiratory tract infec-

**ICT**: What do you suggest IPs do with this data? How do they fit in?

**Srinivasan**: I think the key is for the IPs to make sure they’re connected with their stewardship programs. ... In almost every instance where I interact with hospitals, that connection is already present, and it’s very strong. But I think these data do help us understand that there are some great opportunities here. You know, when you think about it from an infection prevention standpoint, *Clostridioides difficile* is a big target. That’s an infection where antibiotic prescribing is a huge driver. This is a great opportunity to say, ‘Let’s take a look at our prescribing for CAP or for UTIs. Let’s see if we can improve that prescribing.’ And if we do that, it may have a big impact on our *C difficile* rates. So, here’s a target that is very much a focus for the IP and an intervention that is very much a focus for the antibiotic stewardship programs. Both of them can come together to make progress on that outcome.

This interview has been edited for clarity and length.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
Postcards From the Edge: Lessons Taught by COVID-19

BY LINDA SPAULDING, RN, BC, CIC, CHEC, CHOP

I reached out to people in different disciplines, settings, and states. I wanted to know what lessons we’ve learned from the carnage caused by COVID-19 at various types of health care facilities, from acute care hospitals to long-term care facilities (LTCFs).

I had to do this because one thing that will haunt me and many health care personnel forever is that so many people died without a family member at their bedside.

So many families will suffer forever knowing that they were not with their mother, father, brother, sister, grandparent, or child when that loved one died. This is not right, and we need to do better.

We need to take this experience that we’ve had with COVID-19 and make sure we develop ways to prevent anyone from dying alone or with the only connection to family being an iPad or a cell phone on their pillow.

We are better than this.

Where there is discussion and empathy, there is a solution to never letting this happen again. So, I reached out.

I spoke to a member of a purchasing department (sometimes called supply chain). I spoke to an infection preventionist (IP) in a pediatric acute care facility.

I talked to the director of quality and infection control in Port Angeles, Washington, as well as an administrator from Palolo Chinese Home in Honolulu, Hawaii.

They shared their stories.

RHONDA BOWEN, CIC, CPPS, CPHQ, CPHRM
INFECTION PREVENTIONIST
Olympic Medical Center in Port Angeles, Washington

Bowen has 15 years of experience in quality, patient safety, and patient experience evidence-based practices and is proactive with risk assessments and process improvement for quality and infection prevention. She is a certified infection preventionist who takes patient safety to heart. I met Bowen a few years ago when she was preparing her hospital for its Certification in Infection Prevention (CIP). Bowen is the director of safety and infection prevention and control. Olympic Medical Center holds the designation of CIP. This is a certification designated for the top hospitals in the United States, which few had been able to obtain. The certification is bestowed by DNV GL Healthcare, an independent foundation based in Cincinnati, Ohio, that accredits acute care and critical access hospitals. I asked Bowen how the hospital certification better prepared Olympic Medical Center for this pandemic.

“I think we have done well during COVID-19 because of our ability to work together within our organization and with our community partners, such as our local and neighboring public health teams and health care providers/clinics,” Bowen said. “Because of CIP, infection prevention and control is solidly integrated throughout our organization. CIP keeps us continuously focused on improvement and all things infection control, from hand hygiene and personal protective equipment [PPE] to antimicrobial stewardship, emergency management, and cleaning and disinfection. Incident command/senior leadership has led the way and been able to rapidly deploy and obtain resources when and where needed. Strong communication efforts, including multiple forums, communication tools, and just-in-time training have been effective in sharing the constantly evolving information and processes to our staff and patients. I think the most important thing for IPs to focus on is communication and rounding. You are a partner in staff and patient safety—a conduit of knowledge and empowerment. Continue building relationships by taking time every day to talk with staff at all organizational levels. Listen to their questions, concerns, and ideas. Assess how you can share or clarify information such as the disease/issue (to the best of our current knowledge), transmission, precautions, and effective cleaning processes, or just reassurance that they are doing what they are doing exactly right and thank them. And finally, for future pandemics...a healthy stock of PPE and essential cleaning supplies!”
DARIN YOSHIMOTO
LONG-TERM CARE FACILITY ADMINISTRATOR,
PALOLO CHINESE HOME
Honolulu, Hawaii

Yoshimoto has worked in the health care industry for more than 15 years, holding various positions, such as director of rehabilitation, activity, social services, and now administrator at a long-term care facility (LTCF) for the past 8 years. Because of his varied experience, he has been able to guide Palolo Chinese Home through the COVID-19 crisis. He wanted to share his thoughts on what he has learned.

“Infection control practices are a vital part of nursing facilities’ operations and procedures. Having a solid infection control program and plan, consistent implementation, and daily practice for all types of infection concerns is instrumental in facilities being prepared for any sort of new pandemic or infection influx.

“At this time most infection dangers will likely fall into already known categories for risks of spreading and exposure. Having strong practices in place best prepares facilities from the start to protect all individuals, whether it is from known dangers or a new pandemic, while the world needs time to learn and understand the infectious dangers.

“In the end, with COVID-19, the mitigation and protection strategies are known, although some are more commonly in practice than others.

“As we learned more about the COVID-19 virus, it was a matter of putting multiple strategies in place to defend ourselves against this new threat. We understood and practiced contact precautions, droplet precautions, proper use of PPE, and hand hygiene.

“With COVID-19, and its highly infectious nature, we also learned the level to which we must adapt procedures and be flexible to quickly implement new strategies as more knowledge is gained of new pandemic issues. We needed to incorporate social distancing, stringent mask wearing at all times for both residents and staff, and screening strategies in addition to what we were already doing. As this pandemic spread, COVID-19 taught valuable lessons: (1) the importance of having a strong infection control program and practices, and (2) the effectiveness of practices when implemented properly and consistently.”

ANONYMOUS
MANAGER, PURCHASING/SUPPLY CHAIN DEPARTMENT

She is a registered nurse by trade with over 22 years of experience and manages a purchasing department. She knows the importance of value analysis and how important things like PPE are for frontline workers.

“ Promoting better communication to staff throughout the hospital when replacement items are being distributed because the product the staff is used to using is no longer available [was something we learned on the fly]. Communication is important if staff is seeing a different item. If health care workers are used to using particular products, they might feel uncomfortable if they think the replacement items are inferior. Keep staff in the loop that they can expect to see a replacement item until the item they are used to is back in stock.

“Creating backups to the backup [is important, and] having a centralized database on the [specifications] for PPE, hand sanitizers, disinfectant wipes. If the heath care facility has a database of like PPE, then when there is a shortage of products, supply chain can go to see what is on list 2. If list 2 supplies are not available, they can go to list 3, knowing that the quality of the product is the same, it is just going to come from a different vendor. Vetting companies and products ahead of time decreases stress during a pandemic. Hospitals could use their IP department to assist them in reviewing products in advance. With the list of PPE, the company name, contact person, and phone number, product review should be done annually to be sure the list is still accurate, the company is still in business, and the quality of their product has not changed. This could be done by sending a single spreadsheet to the vendors of all their products on your list and asking them if the products still meet standards and are still the quality hospitals prefer.”
What I learned

If you had asked me 2 to 3 years ago how I think we would have handled a pandemic the magnitude of COVID-19, I would have said it would not go too smoothly.

I have never regretted being right so much.

I anticipated resistance from the general public because people who live in different regions of the country have different beliefs and thought patterns. Some are well-informed, and some are not. Some are followers; some are leaders. However, even in my worst-case imaginings, I would not have guessed it was going to be out of control for so many months.

For years, the federal government provided annual grants to hospitals and state agencies to prepare for any type of emergency, from a plane crash to bioterrorism to a pandemic. Hospitals practiced drills annually and improved their emergency response plans. We knew who to contact for extra medical equipment. We had been told there were strategic stockpiles of PPE in various regions of the US that would be dispensed to hospitals if they needed it. The missing link was that in many regions of the country, LTCFs and assisted living communities (ALCs) were not included in the drills or in the funding for preparedness. These facilities were left on their own with no professional resources to help them develop a strong emergency preparedness program.

LTCFs and ALCs were set up to fail. Emergency managers in many states worked with acute care and neglected LTCFs. LTCFs were told, “Don’t worry, we will be here for you if something happens.” From my experience working with LTCFs—and I contract with more than 70 of them—this did not prove true when it mattered.

COVID-19 was transmitted among residents and staff of LTCFs, and patients were transferred from acute care hospitals to ill-prepared facilities because acute care ICUs were overwhelmed. LTCFs were not provided education or enough PPE, including N95 masks. Staff were not fit tested or taught how to use N95 masks properly. Staff in LTCFs never had N95 masks in the past because if there was a need for N95 masks that meant the resident had to be transferred to acute care.

They were on their own in many places across the country. Then COVID-19 happened and when they were told to use N95 masks, they couldn’t buy them because acute care was getting them, and they came last. It has been an epic failure on the part of federal, state, local, and facility emergency management programs.

So, as we move forward and out of the COVID-19 pandemic, emergency managers across the county will look at how to make improvements to their programs. Let us do it better next time. Let us take what we have learned and change how we provide health care, so we are better prepared for the next pandemic. Let us come up with ways to prevent people from dying alone. Let us prepare all agencies that provide health care to focus on everyone’s preparedness, not just acute care facilities.

LINDA SPAULDING, RN, BC, CIC, CHEC, CHOP, is an infection prevention consultant and founder of InCo and Associates International.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

We Want to Hear From You!

Do you have opinions about subjects addressed in any of the articles in this issue? How has your hospital been handling COVID-19? Have any IP success stories? Let us know!

Connect with us online at InfectionControlToday.com or find us on social media @ICT_Magazine
SUCCESSFUL ONBOARDING OF CANDIDATES REQUIRES AN ORIENTATION THAT INCLUDES ALL ASPECTS OF THE POSITION.

WHAT ARE THE RESPONSIBILITIES OF AN IP? THEIR MAIN FUNCTION IS TO IDENTIFY AND MITIGATE INFECTION RISKS.

Job Qualifications
Successful onboarding of candidates requires preparing an orientation that includes all aspects of the position. What are the responsibilities of an IP? Their main function is to identify and mitigate infection risks, although they have multiple responsibilities within a health care organization. These responsibilities typically include the following: reviewing the infection control plan within the facility, conducting surveillance to track infection trends, and developing and employing appropriate interventions to mitigate threats. Reporting communicable diseases to accrediting and governmental bodies and utilizing evidence-based infection prevention standards within the facility are also key functions. In addition, developing, implementing, monitoring, and revising infection control policies and procedures to assure compliance with the standards; preventing and reducing HAIs; and providing education to staff on the prevention of infectious diseases may also be among an IP’s responsibilities. As a result of the pandemic, additional responsibilities would include developing and implementing policies and procedures based on current standards of practice, and developing educational support systems that provide information on standards of practice, vaccination, and proper use of personal protective equipment (PPE).

Onboarding can be regarded as the systematic conversion of new employees into employees who exemplify the mission of the organization. By implementing a judiciously planned process, health care organizations can give new employees the information they need to fulfill their role and the tools to excel in their position. A positive onboarding experience also can be integral to their developing a strong allegiance to the facility.

An organized orientation that provides a comprehensive review of job descriptions, expectations, and policies and procedures and orients the employee to the job’s social aspects (eg, team building) is instrumental in retaining new hires. Expressing appreciation to them for joining the team and offering continual support are also essential for extending a warm welcome and sense of belonging, especially if the department is small. Providing a welcome bag with business cards for the new employee helps foster the sense of a long-term relationship and establishes a positive connection.

A review of the history, mission, and vision of the facility or organization at the beginning of the orientation process is helpful for the new employee to better understand the overall operational goals. Employees should review their job-related responsibilities and expectations verbally and in written form. Providing goals and
checklists of orientation content and job skills can be valuable for the new hire and should be available during orientation. Also important is interacting with them throughout orientation to offer support and obtain feedback.

Have you ever considered having all new employees begin their orientation on a Friday instead of a Monday? They can meet current employees and team building can begin, allowing them to reflect on a great place to work over the weekend.

**Questions, Questions**

To embrace new learning principles, have you developed an orientation that enables new hires to learn at their own pace? Have there been updates to content areas that include the current infection control plan, risk assessment, pandemic and emergency plans, appropriate process and outcome measures, and accepted regulatory metrics? Does the pandemic plan orientation align with current Centers for Disease Control and Prevention and state and county guidelines for infectious diseases such as COVID-19? It is critical that employee orientation material be accurate and based on current evidenced-based practice. If your organization has several IPs, have you identified the priority areas the employee is to work in? These may include pandemic-associated issues, appropriate PPE use adherence, fit testing, hand hygiene, HAIs, and multidrug-resistant organisms. Does your orientation encompass strategies to mitigate infections throughout the facility?

Have you developed and reviewed your overall orientation plan for your new employee? Will the new hire have a preceptor? If this individual is solely responsible for infection control, will orientation include online learning, precepted experiences or videos, and a review of written materials? Will workshops or in-classroom instruction be available? Will simulation be available under the supervision of an experienced preceptor? Can your organization provide current educational tools and checklists? Will evidenced-based practice tools and competencies be available for the IP?

How do you orient the new employee if your organization is small and there are no other employees in the department to facilitate the mentoring or precepting process? You may consider hiring someone to facilitate the orientation process. National organizations or onboarding companies offer initial orientation and ongoing professional development education. If you can use a variety of learning methodologies, such as face-to-face, online, and hybrid learning, your orientation will most likely meet the learning style of the new employee.

Advantages of using a national organization include the new hire being introduced to nationally accepted metrics, evidence-based standards, and tools. One disadvantage is that the orientation will be online, which the employee may perceive as impersonal. The result of online orientation may be that the new hire does not form a connection with anyone in the organization.

For a virtual orientation, the employee’s work tools and virtual platforms should be accessible and operational. As a result of the COVID-19 pandemic, onboarding new employees has been challenging because of social distancing requirements. However, virtual onboarding can be implemented effectively by establishing measurable goals with competency-based checkpoints. The goals should be specific, measurable, realistic, relevant, and time specific. An effective learning process would be to present the content in smaller sequential modules. Incorporating checkpoints would help to ensure that the employee has assimilated the content before they proceed to the next module. It is essential that the new employee fully understands the expectations before proceeding with the learning process. Establishing weekly meetings with the employee will generate a mutual understanding of goal accomplishment.

These meetings are also a means to facilitate the assessment of the employee’s performance and address any potential areas of concern in a timely manner. Even small facilities can collaborate with other health care facilities to provide support from experienced individuals.

During the pandemic, orientation should include strategies to improve the psychological resilience of health care workers. Frequent meetings help maintain emotional health, and a healthy mental attitude can increase job satisfaction and employee retention. Further, including well-being content in your orientation will...
High Tech in a High-Touch Environment: Keeping the Best of Both

BY JAN DYER

Never has the phrase “necessity is the mother of invention” been truer than in the past year. For beleaguered hospitals, not always known as early adopters of change, the need to cope with an unprecedented pandemic has led to (maybe forced is the better word) an exceptional openness to inventive ways of delivering health care services.

And everything is happening at maximum velocity. Changes that once would have taken months, if not years, are now being deployed while the ink is still wet. “The urgency of decision-making and new ideas...has led to so much change that we now refer to it as ‘COVID time,’” writes Emily C. Webber, MD, chief medical information officer at Riley Children’s Health and Indiana University Health.1

Some of the changes have been sticking-the-finger-in-the-dike-type solutions: Whatever works, do it, and do it fast. This includes nurses wearing garbage bags because they don’t have enough personal protective equipment, for instance.

Some changes will not only have staying power, but spur innovation; say, in technology.

Health care has already realized what technology can do. According to Zebra Technologies’ 2019 Intelligent Enterprise Index survey, health care facilities were among the 17% of businesses that self-identify as fully “intelligent enterprises.” In other words, they have “connected the physical and digital worlds” by, for example, digitizing workflow and using cloud computing.2

The Atlantic Council GeoTech Center surveyed more than 100 technology experts on the impact of COVID-19 on 5 key fields: the future of work, data and artificial intelligence (AI), trust and supply chains, space commercialization, and health and medicine. Nearly all respondents believe that the coronavirus pandemic will “accelerate invention significantly” in 4 of those fields, with “little impact” on space tech innovation (quite a statement, considering we’re now getting weather reports from Mars).

“As the virus imposes heavy demands on health care systems, strains international supply chains, and changes the way we work, it will spur innovation in those areas,” the report says. “Likewise, as cloud infrastructure is forced to cope with increased traffic and public health professionals strive to harness massive data sets to fight the pandemic, developments in the fields of data and AI will accelerate.”

Be Fluid

For institutions, initiating change is often like trying to turn an ocean liner around. But in an interview with MedCity News, Bill Cox, director of quality at Hospital Sisters Health System in Springfield, Illinois, said, “Over the past year, we quickly learned that implementing technology during a pandemic required us to be as fluid as possible. We couldn’t be locked into a strict timeline with no flexibility or willingness to shift key milestones. Once lockdown began, we had to rethink our timing and learn to plan for uncertainty.”

Being constantly in crisis mode has meant maximizing and repurposing existing technology. And the advanced-tech innovations are coming fast and furious from around the world. But what if the appropriate technology isn’t ready yet? Individuals and institutions step up.

Consider Manan Gandhi. In India, where the situation is now so dire that people are dying in hospital parking lots if they aren’t dying at home, Gandhi teamed up with Amit Sarda, an app developer, to tackle the problem of finding COVID-19 essentials such as medicines, oxygen cylinders, and hospital beds. They created a free online app, Covid Resource, that collects all the information into 1 uniform platform. The developers have crowdsourced a user-friendly way to search, with information created from Google Docs shared on social media and regularly updated by a Twitter community.3

The staff at Massachusetts General Hospital also took the initiative. They repurposed nearly 600 iPads from closed outpatient units to create video portals to communicate with patients in isolation rooms.4 First, though, they had to figure out the most efficient way to display the iPads, which turned out to be on poles for intravenous (IV) therapy. “We had to pull together things we had on the shelves, like clamps to secure the iPads to the IV poles, and repurpose and reconfigure that equipment, and it takes a lot of work to take something to go from zero to 100 and implement [it],” said Keith Jennings, chief information officer, in one of the hospital’s publications. The devices reside on bedside tables; patients can initiate a conversation without having to push buttons. The hospital also reprogrammed advanced technology
secure phones and iPads so patients can receive video calls from family and friends.

Video capabilities and telehealth, already in use since 1959, became an even more essential connection between doctors and patients during the pandemic, particularly for patients who did not have COVID-19 but still needed care. With strict isolation, video and “chatbots” have allowed caregivers to keep track of signs and symptoms from a distance. Northwell Health in New York added thousands of Amazon Echo Show smart displays to its facilities, 2-way video-calling devices for providers and patients (and configured the devices to comply with federal telehealth guidelines on privacy and data protection).

A top priority everywhere has been to ensure that staff and patients are as safe as possible. Hospital Sisters’ 15-hospital system has, for example, implemented SwipeSense electronic hand hygiene monitoring systemwide. “Change is always difficult—and change across 15 hospitals is change magnified times 15,” Cox said. “Since electronic hand hygiene was a new technology, the culture change and education was really about the value of moving from a manual process to an automated process.... We had to get staff [to] buy into the rationale for a new electronic process and emphasize that it’s best for our patients.”

He adds, “With any technology or culture change, there will always be people who don’t like the new process and question everything.” The answer, he believes, is to engage in the conversation and show how the process is valuable and how it changes outcomes. It’s also important, he says, to reward compliance and success.

Odd-Looking Aide

“COVID-19 actually surfaced a very challenging issue—the dependence on manpower,” said Ng Kian Swan, chief operating officer of the National University Health System (NUHS) in Singapore, in an article for channelnewsasia.com. Many hospitals have been “hiring” extra help in the form of robots for years, but the pandemic has pushed robots to the front line of the front line, so to speak. Robots don’t need personal protective equipment (PPE) and they don’t get sick. Nor do they mind endlessly going from room to room doing repetitive tasks such as bringing supplies, so they free up staff to focus on caregiving. They also keep human interactions to a minimum, reducing the chance of virus transmission.

Take Moxi, for instance. Moxi has been working full time at Medical City Heart Hospital and Medical City Spine Hospital in Dallas, Texas, for more than a year now. It delivers PPE, coronavirus and other lab samples, and COVID-19 tests. It picks up and delivers things dropped off for patients. “When you add [everything] up,...it could add maybe 10 to 15 minutes per task,” the hospitals’ chief operating officer, Josh Kemph,
Tech area with the most impactful innovation in the next 2-5 years

| FUTURE OF WORK | 17.4% |
| DATA & AI | 33.0% |
| TRUST & SUPPLY CHAINS | 19.3% |
| SPACE TECH | 1.8% |
| MEDICAL BIOENGINEERING | 25.7% |
| OTHER | 2.8% |


...told KXAN Austin, an NBC affiliate in Texas. And with Moxi running anywhere from 50 to 75 tasks during a shift, “it’s hours and hours back to the staff.” At one of the hospitals, Moxi delivered more than 4000 items of PPE in a month. “[E]very one of those is something that a nurse did not have to run down to another unit to grab,” Andrea Thomaz, CEO and cofounder of Diligent Robotics, which built Moxi, told KXAN.

Robots are used to disinfect patient rooms with equipment using UV light. One type of bot uses UV-C lights to destroy the genetic material of viruses in minutes. Others enforce social-distancing rules. In Belgium, Antwerp University Hospital employs robots that speak more than 53 languages and determine whether face masks are being worn appropriately.

In a “smart” field hospital in China, robots backed up exhausted staff by flagging patients with fevers, measuring blood oxygen levels via smart bracelets, delivering medications, and cleaning infected areas. They even provided exercise lessons and entertainment for quarantined patients. Drones also have been pressed into service, for jobs such as building inspections.

Some fear that hospitals will become “Robots R Us” environments, but that is unlikely. Health care is, at its core, in the business of connecting people to people. Chatbots, although useful, are poor stand-ins for an in-depth, in-person conversation with a health care provider. And if COVID-19 did anything, it put a million faces to the tragedy of what it’s like to die without human contact.

“Quit trying to get robots to replace people,” said Robin Murphy, PhD, Raytheon Professor of Computer Science and Engineering at Texas A&M University, speaking to the Robotics for Infectious Disease consortium last year. Robots should not (and cannot) take the place of skilled workers and should not be used in situations where human empathy is important, she stated. Instead, they should be used to protect human workers and help them by minimizing the time they waste on unskilled tasks.

The most sensible way to use robots in a pandemic, Murphy advised, is to use the ones that already exist, that people are already comfortable using, and that can scale up to be immediately useful. The middle of a pandemic—or anytime during a pandemic for that matter—isn’t the right time to drop a new bit of technology into the mix. The people needed to operate the robot (most need adult supervision) are already exhausted and stressed. They shouldn’t have to take valuable time to get up to speed on the robot.

John Wall, principal technical adviser at Metro North Hospital and Health Service in Brisbane, Australia, observed that the pandemic has caused a number of changes there too. Leading IT design for redevelopment for hospitals, he has found that with COVID-19 “everyone’s had to learn to adapt and be agile. Normally in health care, staff are too busy, but there’s been a real change in the dynamic over the past 6 months. There has been so much more ownership and interaction, and people are more open to working through the solutions and being a part of them.”

Here to Stay?

Many tech-driven systems and ways of providing care have proved their worth during the pressurized time of COVID-19 and have a guaranteed future in health. Telemedicine, so crucial, has received a tremendous leg up in the past year. The CARES Act, for example, delivered $200 million to start the COVID-19 Telehealth Program. The funding will support broadband connectivity and telemedicine kiosks, among other things.

The pandemic also revealed yawning gaps in infrastructure. Many facilities have been working on becoming more agile, making it possible to switch spaces from purpose to purpose more fluidly. “One of the many lessons of this crisis is that flexibility of space is paramount to enable optimum resilience and provide readiness for the unknown,” said Suzanne MacCormick, global health care business growth lead at WSP, a professional services firm. “Smart” building solutions, such as a system that combines various technologies to monitor power, lighting, patient logistics, and air quality, all in real time, can support that resilience.

This month, the VA Palo Alto Medical Center began rolling out Bitscopic’s Preadi-Alert clinical surveillance tool, which includes a dashboard for automatically monitoring patient blood samples for COVID-19 infection. “Many infection control processes in hospitals are still done manually,” said Farshid Sedghi, Bitscopic’s chief operating officer and cofounder, “which means that problems are detected only after they occur and countless hours of manual...
work is done, which could have happened automatically, 24 hours a day, with the right software system."

Then there’s the tech tool that bridges many different health care areas: barcoding. From keeping track of patients throughout their hospital stay to labeling specimens, barcoding can help manage surges in volume, such as when a pandemic arises.

Ng Kian Swan of NUHS says leveraging the new types of technology “helps us to drive efficiency, productivity, safety. Most importantly, it also provides a platform for us to upskill our fellow colleagues... it is actually preparing a future-ready workforce.”

Knowledge is power, and data of all kinds have become a powerful weapon against future crises. Capturing data from this pandemic could mean that the next one is much more easily managed. Health informatics, the clinical application of data and digital technology, is one of the fastest growing fields, according to WSP.

But a STAT news article warns, “Some AI systems could also be susceptible to overfitting, meaning they’ve modeled their training data so well that they have trouble analyzing new data—which is coming constantly...” And according to Wall, “Smart projects fail because they don’t get to the heart of the way that humans do things.”

The pandemic’s impact has been massive, in lives lost, services rendered, and money spent. Now, (hopefully) on the downward slope of the mountain, we can begin to act on lessons learned and incorporate the most useful into the so-called new normal. Identifying at-risk patients, screening staff and patients, distinguishing COVID-19 from other respiratory illnesses, predicting which patients will get worse, and tracking supplies are all things that can be improved and adapted for postpandemic use. They’re not just here for the pandemic, they’re here for the future.

In 1942, Isaac Asimov defined the Three Laws of Robotics, the first being: A robot may not injure a human being or, through inaction, allow a human being to come to harm. Technology at its best serves us well and health care will always be people based. But technology will always have to make room for the individual, like Manan Gandhi, who just wants to help people live.

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REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

Onboarding Infection Preventionists?

Onboarding Infection Preventionists? CONTINUED FROM PAGE 27

Contribute to the quality of patient care.

Certification

Can you provide membership for your new hire in the professional organization? After the successful orientation of your new employee, you may want to consider having them sit for the certification examination. This credential shows mastery in knowledge of infection prevention and control. Assisting in their attaining certification shows the employee you are committed to their success and professional development. Encouraging certification shows a commitment on the part of the health care facility to best practices in infection prevention and control. Supporting the education process and acknowledging a level of expertise through certification advances patient care and safety within the organization.

New employees are seeking positions that provide orientation, support, and educational resources to develop the knowledge and skill set they need to meet the demands of the job and life-changing events. By establishing a comprehensive and well-structured orientation process, the facility is investing in generating competent employees who demonstrate their allegiance to the mission and goals of the institution and, most importantly, to the safety and welfare of all the patients and staff members.

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RESOURCES USED AVAILABLE AT INFECTIONCONTROLTODAY.COM
The dictionary defines certification as “the action or process of providing someone or something with an official document attesting to a status or level of achievement.” When certification pertains to health care, the definition is “a voluntary process by which a nongovernmental agency grants a time-limited recognition to an individual after verifying they have met predetermined and standardized criteria.” To become certified, an individual must meet eligibility requirements and pass an assessment.

Infection preventionists (IPs) can attain this level of achievement, or certification, through the Certification Board of Infection Control and Epidemiology (CBIC) examination once they meet the eligibility requirements and feel ready to take the exam. This initial exam, although not perfect, does assess many of the areas that an IP with 2 years of health care experience should know.

It is a broad assessment of the subject matter that all IPs in a health care setting should be familiar with:

1. Identification of infectious disease processes
2. Surveillance and epidemiologic investigation
3. Preventing/controling the transmission of infectious agents
4. Employee/occupational health
5. Management and communication
6. Education and research
7. Environment of care (EOC)
8. Cleaning, sterilization, disinfection, and asepsis

This list may look daunting, but 2 years of on-the-job experience goes a long way toward helping you prepare for the initial exam. The daily tracking and tracing of transmissions, working on the construction and renovation of infection control risk assessments, participating in EOC rounds, auditing insertion practices, and reporting and investigating outbreaks are what that initial certification examination is all about. Preparing for the exam helps us learn, grow, and become better IPs. Better IPs means better outcomes for patients, and this is what infection prevention is about.

This day-to-day learning can only come from actual experience in a health care setting. I firmly believe this is the best way to help IPs become the best they can be. I am a visual learner and learned most of what I know from being out on the floors, watching, listening, and questioning everyone who would let me bother them. What an eye-opener it can be to watch actual practices versus a training module on central line insertion!

And that’s not all. The infection prevention activities must include:
1. Identification of the infectious disease processes
2. Surveillance and epidemiologic investigation
3. Preventing and controlling the transmission of infectious agents
4. EOC
5. Cleaning, disinfection, sterilization, and asepsis

AND at least 2 of the remaining 3 components:
1. Employee/occupational health
2. Management and communication
3. Education and research

These requirements are the meat and potatoes of infection prevention and are what, I believe, give it value and prestige. This certification is not for everyone because it shouldn’t be. It should be for those actively working in health care supporting health care providers by providing education and training. It is for those who...
have earned the right to take the test not just because they have a degree but because they learned by “boots-on-the-ground” everyday practice.

This certification shows your dedication to your craft. This is how we distinguish ourselves and stand with other professionals. So take this opportunity to distinguish yourself and get the credit you deserve for your education, experience, and perseverance. Stand with the 7000 other IPs who decided it’s important to be certified. It isn’t easy, but the satisfaction of achievement far outweighs the preparation needed to pass.

This year I am due to recertify my Certification in Infection Prevention and Control (CIC). I have recertified by self-achievement recertification examination (SARE) once and will now recertify using continuing education (CE) credits, such as infection prevention units (IPUs) training, a new option instead of taking the SARE. Recertification feels even more important to me than ever.

During this pandemic everyone thinks they know infection prevention—from my hairdresser, who I have not seen in a year, to the gym attendant, who I have also not seen in a year. They will tell you they are experts in infection prevention. So when I strike up a conversation with someone and mention that I am certified in infection prevention, they are somewhat impressed but mostly curious.

What exactly is recertification? According to the dictionary, it is “to renew the certification of something.” That really doesn’t cover it for me because the intent of CIC recertification is so much more. Recertification of the CIC revalidates all the education and experience that continues to accrue while working as an infection preventionist. Health care is not a static environment. The amount of information, practices, and procedures that change is overwhelming. Recertification challenges IPs to keep up with changes and continue to learn.

Do you remember the definition of certification as it concerns health care from the beginning of this article? Certification: “a voluntary process by which a nongovernmental agency grants a time-limited recognition to an individual after verifying they have met predetermined and standardized criteria.” Time limited. The key words to striving to keep up-to-date with what is happening in your profession. Recertification every 5 years is not exactly popular, but I believe it is necessary so our thinking and practices don’t become stale. It pushes us to keep up-to-date.

The CBIC is responsible for administering these exams. And to its credit, CBIC heard the issues about the SARE and came up with the CE/IPU option for recertification. You can still sit for the SARE or input 40 hours of CE/IPU, the choice is yours.

And the 40 hours of CE must include 6 of 8 of the following learning domains:

1. Identification of infectious disease processes
2. Surveillance and epidemiologic investigation
3. Preventing/controlling the transmission of infectious agents
4. Employee/occupational health
5. Management and communication
6. Education and research
7. EOC
8. Cleaning, sterilization, disinfection, and asepsis

Do these look familiar? They are the same categories that are tested in the initial certification exam and the recertification SARE. So you can’t just input a bunch of nonsense. You must participate in specific domains of learning. Even if you work in only 1 setting type, you are expected to stretch yourself professionally and attend other educational learning. This is a good thing. It forces us out of our silos.

I have begun the process of inputting all the necessary CE/IPUs into the CBIC system. Word of advice: Input the CE/IPUs as you get them. Don’t wait and enter them all at 1 time as I have done. It is time consuming. But as the infection prevention professional that I have worked so hard to become, CIC certified, I will keep on plugging. I see the value in the certification and the CE for recertification. You should too. Just do it.

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REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
Surveillance System Promises to Keep an Eye on HAIs

The problem with health care–acquired infections (HAIs) has long been reported on by Infection Control Today® and practically every other medical/health care media outlet. It’s a problem that’s impossible to ignore seeing as how HAIs cause more than 2 million infections, and about 23,000 deaths a year. A company called Bitscopic says that its PraediAlert platform for clinical surveillance can greatly curtail HAI infection and spread. Which is exactly what it’s doing at the Veteran’s Affairs (VA) Palo Alto Medical Center, the company says.

“We incorporate data from other sources besides just the VA’s electronic medical record system, VistA, and we can provide years of historical data, which is a critical part of clinical surveillance for understanding trends for HAI, antimicrobial usage, or bacterial resistance right out of the gate,” says Farshid Sedghi, Bitscopic’s chief operating officer, in a press release. “In addition, because we don’t rely on a third party for data integration, we can be up and running for users within 90 days or even less.”

The company says that it can investigate data from a single facility as well as the national level because there’s no need for separate installations of the platform from site to site.

“In the months ahead, the PraediAlert system will also include a new dashboard for automatically monitoring patient blood samples for potential COVID-19 infections, utilizing a new machine learning algorithm developed by Bitscopic,” the company says in the press release.

Based in Silicon Valley, Bitscopic was created in 2012 specifically to help improve health outcomes for military veterans.

www.bitscopic.com

Disposable Disinfection Wipes Called Effective

When it comes to disinfection and cleaning, doing the job more thoroughly at less cost seems like a combination that would be hard to resist for not only health care facilities but all industries. A company called EarthSafe Chemical Alternatives claims to have delivered that result in a one-two punch. In a press release, the company announced the launch of its the EvaClean Dry Wipes System, which is best used with the company’s cleaning solution PUR:ONE.

“PUR:ONE comes in sporicidal tablet form [that] not only provides more accurate dilution but, the compact packaging uses less plastic and takes less fuel to transport, which lowers shipping costs nearly 90%,” the company says in a press release. “It also requires less storage space and remains shelf stable for 3 years in closed containers. The new EvaClean wipes are available in bucket starter kits, and the buckets can be reused with dry wipes refill packs, thus reducing waste.”

Health care and other industries will often use quaternary ammonium chloride, or Quats, to clean but the problem with that is that the solution often adheres to the cloth, so it’s difficult for cleaning crews to know whether the surface has been properly disinfected, according to EarthSafe. On the other hand, thanks to “a broad-spectrum chemistry that works for everything from daily cleaning to floor disinfection, EvaClean disposable environmental surface wipes eliminate the potential for cross-contamination that woven wipes can cause,” the press release states.

In addition, EarthSafe uses NaDCC-based chemistries that create hypochlorous acid when mixed with tap water that is pH neutral and safer for not only surfaces but housekeeping personnel.

www.earthsafeca.com

Single-Use Beard Net Hits the Market

Beards in a health care setting have always presented a bit of a problem for hospital administrators, infection preventionists, and other health care professionals who want to limit the possible spread of pathogens. The issue got even closer scrutiny during the COVID-19 pandemic. Not only beards, but mutton chops and chin-curtains can give pause. Last year, health care workers in the United Kingdom were told that they must shave off all facial hair. And even well before COVID-19, the US Centers for Disease Control and Prevention (CDC) in November 2017 issued guidance on what kinds of beards can remain, and what should go. The CDC said that in the case of some beard styles “the vast majority of particles, gases, and vapors follow the air stream right through the facial hair and into respiratory tract of the wearer.”

In April, Healthmark Industries, a company that has been manufacturing health care devices such as surgical instruments and other medical devices, introduced the Beard Net as part of the company’s personal protective equipment line.

“Manufactured from polypropylene, the single-use Beard Net is latex-free and designed to cover beards to limit as a source of possible contamination,” the company states in a press release. “The Beard Net is a one size fits most, colored white and available for purchase in a pack of one hundred.”

www.hmark.com
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*Healthcare-associated infections