COVID-19
Battling the Flu and COVID-19
A Guide for How Infection Preventionists Can Handle Both

PERSONAL PROTECTIVE EQUIPMENT
Methods IPs Should Know To Better Monitor PPE Use

HEALTHCARE-ACQUIRED INFECTIONS
So Much Talk About a Vaccine, But Will It Change an IP’s Job?

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# TABLE OF CONTENTS

## LITERATURE REVIEW

**PERSONAL PROTECTIVE EQUIPMENT**
- **10** Say Later to Neck Gaiters  
  By Saskia v. Popescu, PhD, MPH, MA, CIC

**PERSONAL PROTECTIVE EQUIPMENT**
- **11** Training Tips for N95 Use  
  By Frank Diamond

## ENVIRONMENTAL SERVICES
- **12** Contact Precaution Works  
  By Frank Diamond

## FEATURES

**HEALTHCARE-ACQUIRED INFECTIONS**
- **22** Beware of Vaccine Overhype  
  By Rebecca Leach, RN, BSN, MPH, CIC

**COVID-19**
- **24** Navajo Nation Takes on COVID-19  
  By Jan Dyer

**DISINFECTION/STERILE PROCESSING**
- **28** Schools Harbor Pathogens  
  By Kevin Kavanagh, MD

**VASCULAR ACCESS**
- **30** Let Vascular Nurses, IPs Team Up  
  By Maya Grossman, RN

**PERSONAL PROTECTIVE EQUIPMENT**
- **32** Methods for Monitoring PPE Use

## IN ADDITION

**HAND HYGIENE**
- **8** Bug of the Month  
  By Frank Diamond

**14** Medical World News

**34** Product Locator

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A PORTION OF SALES WILL BE DONATED TO GILDA’S CLUB A CANCER SUPPORT COMMUNITY.

Healthmark’s Disposable Custom-Printed Scrub Caps can be printed with a pink pattern of your choice.
Infection Preventionists Will Play Vital Role in Reopening Process

Step by step we’re starting to reopen. Of course, sometimes it’s a matter of 2 steps forward and 1 step back. By the time you read this, children will be in their classrooms. Or not. Office workers will be back in their offices. Or not. Professional sports will be played in front of capacity crowds again. Or not.

One thing we’ve learned about coronavirus disease 2019 (COVID-19) is that it’s difficult to make predictions. All of the above will eventually happen because it has to happen if we’re going to live in a viable society again. The question continues to be when?

Some of these baby steps will be taken while the healthcare system will be dealing with the convergence of influenza and COVID-19 for the first time. It’s complicated business, as our cover story on page 18 points out. Linda Spaulding, RN, CIC, BC, CHEC, CHOP, a member of *Infection Control Today®’s* Editorial Advisory Board (EAB), offers tips on how infection preventionists (IPs) might best weather that storm.

On page 22, another EAB member—Rebecca Leach, RN, BSN, MPH, CIC—talks about what IPs can expect once the long-anticipated COVID-19 vaccine arrives. No matter how potent that vaccine might be, it will need to be used along with what everybody can now call these old standbys: hand hygiene, social distancing, and masking.

EAB member Kevin Kavanagh, MD, reports on page 28 that there will need to be major improvements in the way schools are built and maintained if we’re to keep students safe from COVID-19 or any other dangerous pathogen. We also look at how COVID-19 was contained in the Navajo Nation reservation (page 30) and how vascular access teams and IPs can work together for best results (page 24).

IPs will find a lot that will help them protect patients and fellow healthcare workers in this issue.

Meanwhile, we want to hear from you. Please contact Editorial Director Alexandra Ward at award@mjhlifesciences.com with any questions, or for opportunities to contribute.

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I Can Be Deadly for Cystic Fibrosis Patients

BY FRANK DIAMOND

I’m just waiting for a healthcare provider to make a mistake. Or a pharmaceutical company. Many antibiotics can’t stop me, including aminoglycosides and polymyxin B. I contaminate medications, medical tools, and respiratory medical devices. And, yes, I can also contaminate through human-to-human contact, such as kissing or being around people in social occasions. I can survive on surfaces such as doorknobs and spread that way, as well. I can do a lot of damage to patients with respiratory problems, especially those with cystic fibrosis (CF). I also go after patients with chronic granulomatous disease and people who are immunocompromised.

I colonize the lungs, and in some CF patients that can lead to rapid decline in lung function. This means, in some cases, severe lung disease and maybe death.

At one time I was thought to be a single bacterial species, but now science knows that I am composed of 22 closely related opportunistic pathogenic species. I have what a study this year in Clinical Microbiology Reviews called “an extraordinary metabolic versatility, a complex genome with 3 chromosomes, and a high capacity for rapid mutation and adaptation.”

True, I am rare; I infected 2.6% of CF patients in the United States in 2018. But one of my iterations can prevent lung transplants because of the severe infection I can cause following the procedure.

I’ve caused many nosocomial outbreaks in healthcare facilities. I frequently launch outbreaks in small hospitals, and it’s usually because of a single contaminated source, such as a disinfectant. You can also sometimes find me in mouthwash, nebulizer solutions, and intravenous solutions.

I live and can grow in nutrient-poor water. I’m resistant to chemical preservatives, and water-based products are especially susceptible to me because of my ability to stay active in harsh conditions.

I give the pharmaceutical companies a big headache. I often evade their quality control efforts and that has caused frequent recalls of products. In fact, the testing of finished pharma products by conventional methods often leads to false-negative results. Where there’s a poorly designed water system, you’re likely to find me.

Healthcare professionals can determine if I’m causing trouble by examining sputum or blood. When I’m discovered, they’ll throw different antibiotics at me, including trimethoprim/sulfamethoxazole(co-trimoxazole), piperacillin, meropenem, ceftazidime, doxycycline, and chloramphenicol. Co-trimoxazole is usually considered the drug of choice for me, but the others will do in a pinch.

Science might be catching up. The Cystic Fibrosis Foundation is funding research that’s looking at whole new classes of antibiotics to fight me. Earlier this year, the Foundation awarded a $700,000 grant to Calibr, the drug development arm of Scripps Research, specifically to find compounds that can successfully treat infections that I cause.

Maybe they’ll succeed and you won’t have to worry about me anymore. But, in the meantime, worry.

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Neck Gaiters for COVID-19 Worse Than No Face Covering At All

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

People who’ve tried to exercise outside wearing a mask other than a neck gaiter have come to the unsurprising conclusion that they find it harder to breathe. The neck gaiter, made of very thin, stretchable material, addresses that problem, allowing exercisers to get as much air as they need. Unfortunately, investigators with Duke University also found that neck gaiters provide no protection against coronavirus disease 2019 (COVID-19) and that wearing them may be worse than wearing no face covering at all when it comes to stopping the spread of the virus. The findings were published in a study in Science Advances.¹

Neck gaiters weren’t the only face coverings tested; in all, 14 were analyzed, from N95s (unsurprisingly judged to be the most effective in containing COVID-19 spread) to bandanas (not much more effective than neck gaiters, according to the study).

As a news release from the university explains, the disconcerting discovery about neck gaiters came about as a result of a Duke professor wanting to find out what are the most effective face coverings. That professor needed the information in his effort to provide masks and other face coverings to an underserved population in Durham, North Carolina.

Enter Martin Fischer, a chemist and physicist at the university. He constructed a simple testing device using a laser (you can find them online for about $200), a cell phone camera, a cardboard box, and a lens. Armed with these, Fisher was able to track particles emitted by individuals.

The investigators noted that “in brief, an operator wears a face mask and speaks into the direction of an expanded laser beam inside a dark enclosure. Droplets that propagate through the laser beam scatter light, which is recorded with a cell phone camera. A simple computer algorithm is used to count the droplets in the video.”

After testing the 14 masks that were considered commonly available, they ended up with some fascinating results. First and, again, not surprisingly, N95 respirators and surgical masks provided the most protection/containment of droplets.

Cotton masks performed quite well, which is reassuring as they are frequently used in the community. Two important findings were also reported: “We noticed that speaking through some masks (particularly the neck fleece) seemed to disperse the largest droplets into a multitude of smaller droplets…which explains the apparent increase in droplet count relative to no mask in that case. Considering that smaller particles are airborne longer than large droplets (larger droplets sink faster), the use of such a mask might be counter-productive. Furthermore, the performance of the valved N95 mask is likely affected by the exhalation valve, which opens for strong outwards airflow.” The emphasis on valved N95s is a good reminder about the role of exhaust valves and how they not only provide poor source control, but also cannot be used in sterile environments.

The findings of this study are not only informative in terms of the potential amplification of droplets associated with neck fleece masks, but also reiterate the importance of infection preventionists making informed decisions for the community in terms of masks. Ideally, surgical masks would be helpful as they offer protection for not only those around the wearer, but also for the person wearing them.

As hospitals consider more sustainable approaches to ensure masking compliance in visitors but also want to support employees beyond the walls of the healthcare facility, cloth masks might pose a viable option. Moreover, providing the public with better guidance on masks that offer more protection while not impacting healthcare supply chains, is beneficial to all. More insight into the efficacy of widely available masks is immensely important.

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

REFERENCE
Best N95 Training: Watch, Learn, Then Do While Being Watched

BY FRANK DIAMOND

The first thing that needs to be said about a study\(^1\) in the American Journal of Infection Control that examines the best methods to train proper donning and doffing of N95 respirators is that it was conducted prior to the onslaught of coronavirus disease 2019 (COVID-19). The second thing that needs to be said is that that fact shouldn’t detract from what investigators with the University of Nebraska found out about N95 use (the investigators’ backgrounds include industrial hygiene, infection control, and research design).

“The lack of critical personal protective equipment (PPE) supplies internationally presented unique challenges,” the study states. “Unexpected educational needs arose with the pandemic including the need for training on extended use and limited reuse of N95 respirators. While the content of instruction may be altered by this global experience, the educational strategies demonstrated in this study would likely remain effective.”

What exactly would remain effective, according to investigators, involved filming healthcare workers as they don and doff N95s, showing that video to participants (explaining where they got it right, and where they got it wrong), and then having the participants don and doff again with more input from trainers.

That’s what one of the groups of 24 healthcare workers did, which the investigators described as a reflective practice (RP) intervention. The other group of 24 workers did not undergo the final phase, the donning and doffing of the N95s while trainers watched and commented. This was the video alone (VA) group. The VA option took about 5 minutes, and the RP option took between 8 and 10 minutes.

“A critical safety behavior scoring tool (CSBST) was developed to compare the performance of the participants over time at pretest, post-test and 1 month later for follow-up,” the study states.

The study was conducted in 2 locations between August 2018 and April 2019. One was a 700-bed tertiary care teaching hospital; the other, a 100-bed hospital.

“The reflective practice intervention group was found to have significantly higher scores on the CSBST at post-test and follow-up than the video alone group,” the study states.

The 10-point CSBST for N95 test included 6 measures for donning and 4 for doffing.

“Hand hygiene was a critical component of both donning and doffing processes, accounting for 4 of the 10 total points,” the study states. “Correct strap placement and performing a proper seal check were key behaviors noted in donning. Doffing safety behaviors included limiting touch to the respirator straps for removal and gently moving the respirator from the face to the wastebasket.”

During the video assessments, the research team did not know whether the participant belonged to the RP or VA group. The participants returned a month later to see what they retained of their training and to repeat the video donning and doffing exercise.

“Both groups declined from post-test to follow-up, but the VA group at follow-up was not significantly higher than their pretest score \([paired \ t(23) = 1.79, P = .088]\),” the study states. “The RP group was still significantly higher at the follow-up than they were at pretest \([paired \ t(23) = 6.12, P < .001]\].”

The study concludes that “these practical interventions and tools to measure performance may substantially improve the safety of our health care workforce in the care of patients with infectious respiratory pathogens as well as other clinical tasks that require use of the N95 respirator.”

**REFERENCE**

Hospital rooms housing patients with, or patients suspected of having, coronavirus disease 2019 (COVID-19) need to be handled with special care when it comes to cleaning and disinfecting. That’s not much debated these days, and a recent study in the *American Journal of Infection Control* reinforces the importance of strict contact precaution, routine cleaning, and disinfection when it comes to surfaces in those rooms.¹

Education about infection prevention and maintaining adequate supplies of personal protective equipment (PPE)—2 areas of focus for infection preventionists—also play a part, according to investigators with the Gyeongsang National University Changwon Hospital, Changwon, in South Korea, who conducted the study.

For instance, they note that the standard cleaning procedures include using solutions made up of 0.1% hypochlorite. “However, due to the shortage of (PPE) and vague fears of cleaners, room cleaning, and disinfection were not performed every day,” the study states.

The data come from 13 patients with COVID-19 who were admitted to 2 hospitals in South Korea in March. The hospitals are identified as Hospital A and B. Hospital A had 5 patients, 2 of whom had severe pneumonia and required oxygen, who were sent to negative pressure rooms off of the intensive care unit (ICU). The other 3 patients were admitted to negative pressure rooms in the isolation ward. Meanwhile, in Hospital B, 8 asymptomatic patients were admitted to 2 common 4-bed rooms without negative pressure or ventilation systems. The beds were placed in the 4 corners of the room and divided by curtains.

“Environmental samples were collected from each patient’s room and ancillary spaces, such as the anteroom, adjacent common corridor, and nursing station,” the study states. “Dacron swabs premoistened with viral transport medium … were used to swab environmental surfaces aseptically.”

The surfaces tested included: patient monitor, ventilator monitor, blood pressure cuff, pillow, suction bottle and line, infusion pump, fluid stand, door button or knob, bedside rail, head and foot of the bed, nurse call controller, lower part of the window frame, top of the television, air exhaust damper, wall and floor of the room, toilet paper holder, and inside and seat of the toilet. Surfaces in anterooms were also tested, such as door buttons, computer keyboard and mouse, and the floor. The nurse station surfaces were tested as well (counter, interphone, keyboard, computer mouse, chair, and floor).

“In Hospital A, SARS-CoV-2 was detected in 10 of 57 (17.5%) samples from inside the rooms including the Ambu bag and infusion pump,” the study states. “Two samples obtained at more than 2 meters from the patients showed positive results. In Hospital B, 3 of 22 (13.6%) samples from inside the rooms were positive. Areas outside the rooms, such as the anteroom, corridor, and nursing station, were all negative in both hospitals.”

Investigators found SARS-CoV-2 “on various hospital objects, and these surfaces can be sources of nosocomial transmission via direct contact. Therefore, our findings provide an important basis for justification of strict contact precaution.”

The investigators conclude: “Our results clearly show environmental contamination of the COVID-19 patients’ surroundings by SARS-CoV-2. Indeed, viruses have been found on various hospital objects, and these surfaces can be sources of nosocomial transmission via direct contact. Therefore, our findings provide an important basis for justification of strict contact precaution.”

**REFERENCE**

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Face It: Clear Masks Let Us See So Much More

BY INFECTION CONTROL TODAY® EDITORIAL STAFF

Everybody but everybody has experienced it. The feeling that you’re not quite getting the full communicative experience when talking to somebody wearing a face mask—which, in this era of coronavirus disease 2019 (COVID-19), means practically everybody. You miss so much in terms of the facial expressions that we use when we’re talking; the kind of physical expressions that can separate an obligatory “good morning” from something more heartfelt and genuine.

Especially in healthcare settings, when infection preventionists (IPs) need to explain protocols and guidelines to their fellow healthcare workers and patients, something can always be lost in translation if much of the face remains hidden.

Well, the US Food and Drug Administration (FDA) may have helped address that problem by granting 510(k) clearance to a company called ClearMask LLC to manufacture a mask that protects the wearer with a clear covering. The mask can be used in hospitals and other healthcare settings, as well as in stores, schools, hotels … you name it.

“The mask is optimized for maximum clarity and comfort, and meets applicable ASTM Level 3 requirements for fluid resistance and flammability, which offers a high level of protection for medical use in environments such as operating rooms,” the company says in a press release accompanied by a photo of what looks to be a young healthcare worker sporting a dazzling smile. (It must be good news!)

Perhaps it’s no surprise the mask is the brainchild of graduate students and alumni of Johns Hopkins University, an institution that’s placed itself squarely at the center of the world’s battle against COVID-19. Johns Hopkins data trackers tell us how many people have been infected and how many have died in every nation on Earth every day. Those data are quoted by practically every media outlet in the world, including Infection Control Today®.

The invention of the Clear-Mask was not rushed. Work began on it in 2017 after the company’s “deaf co-founder experienced an adverse experience during her surgery. Traditional surgical masks blocked her providers’ faces, impeding effective communication and safety,” according to the press release.

Allysa Dittmar, the president of ClearMask, said in the press release that “after three years of research, development, and testing, we are thrilled to bring a human-centered mask to everyone who needs it, especially those who can benefit from improved visual communication, such as children, older adults, deaf and hard of hearing people, and those who do not speak the same language.”

Disrupting Healthcare Through Tech: The Next Wave of Health IT Innovation

BY LUCIENNE MARIE IDE, MD, PHD

COVID-19 has continued to spread across the nation, with the current focus shifting to how we can safely return to the office, open schools, play fall sports and more. But as our country works to contain the virus and prevent further outbreaks—especially with the looming flu season—it’s clear that new approaches are needed to slow the spread and flatten the curve once and for all.

Technology is playing a crucial role in this fight, with rapid development of solutions that involve contact tracing, enable remote care, provide thermal scanning and much more. The next wave of innovation in the fight against COVID-19, however, must focus on expanding the use of remote patient monitoring (RPM) tools to help predict future outbreaks and serve as early warning systems for detecting the virus in individuals in order to contain exposure and spread.

Before the pandemic, RPM was becoming more widespread. About 88% of healthcare providers said they had invested—or were evaluating—RPM technologies such as tools to measure blood pressure and blood glucose. As the pandemic enveloped
Since remote patient monitoring technology is digitally connected and non-invasive, healthcare providers can use these tools to monitor temperature, pulmonary function, blood pressure and other physiological changes.

The pandemic also led healthcare leaders to look at new ways to remotely and automatically detect signs of COVID-19 in asymptomatic or pre-symptomatic individuals, or perhaps identify signs of long-term side effects, such as heart and lung damage, that has been linked to the virus. RPM tools seemed the obvious choice.

The U.S. Food and Drug Administration (FDA) issued a new policy in mid-March 2020 that enabled manufacturers of certain FDA-cleared non-invasive, vital sign-measuring devices to expand their use so that healthcare providers can use them to monitor patients remotely during the COVID-19 crisis. “Allowing these devices to be used remotely can help healthcare providers access information about a patient’s vital signs while the patient is at home, reducing the need for hospital visits and minimizing the risk of exposure to coronavirus,” FDA Principal Deputy Commissioner Amy Abernethy, MD, PhD, said at the time. In addition, the Centers for Medicare and Medicaid Services (CMS) clarified that RPM was reimbursable both for chronic conditions and acute conditions—like COVID-19.

But the potential is greater than simply monitoring patients who may need consistent care for chronic conditions, or who are hesitant to venture out and potentially be exposed to COVID-19. Since RPM technology is digitally connected and non-invasive, healthcare providers can use these tools to monitor temperature, pulmonary function, blood pressure and other physiological changes to not only identify individuals with the disease, but to watch for emergency warning signs of more serious problems, such as difficulty breathing. If pulse-oximetry falls below prescribed levels, for example, patients will know to seek further care, and they will be flagged as high-risk to their provider.

More sophisticated than the average Apple Watch or Fitbit—which are known for activity monitoring, but only monitor physiological outputs intermittently or with user-initiated point tests—emerging RPM tools continually monitor key physiological indicators with sufficient sampling and precision to be the basis for accurate detection of changes in health status. These systems need to not only identify that an individual is deviating from their normal health signature, but also be able to identify changes that are unique to COVID-19. These tools have the potential to ultimately supplement or replace symptom and exposure self-reporting to help healthcare providers identify high-risk patients and speed testing.

The healthcare sector must explore every weapon in its arsenal to continually fight and control COVID-19. And while technology overall is the key to addressing prevention, containment and recovery, COVID-19 is accelerating innovation across healthcare. Looking to a post-COVID environment, high fidelity wearable devices will become an integral part of health monitoring as virtual care becomes the new norm.

Lucienne Marie Ide, MD, PhD, is the founder and chair of Rimidi, a cloud-based software platform that enables personalized management of health conditions across populations.

To read more, visit https://bit.ly/2FsNoRN
Lessons From the COVID Frontlines...of New Zealand

Dalilah Restrepo, MD: “I think now infection preventionists should be part of a school board, should be part of any executive board, of any corporate area, because there is no way that you can expect this expertise to just come about for other folks that aren’t trained in infection prevention.”
WATCH: bit.ly/3gKKcfY

Infection Preventionists, Vascular Access Nurses Line Up

Maya Gossman, RN: “I tell people, I put tubes in veins, that’s what I do for a living. Anytime you break the skin and you place a tube into the bloodstream, that’s a huge risk for infection.”
WATCH: bit.ly/2YPnux7

When COVID Came Calling, Telemedicine Answered

Jody Feigel, RN, MSN: “You find when you’re at home, you roll out of bed, you get your coffee, you immediately get on your computer, and you just work. When we’re at the hospital, we have a lot of interruptions and a lot of times they’re good interruptions, sometimes not so much. And we head out to see whatever fires need to be put out.”
WATCH: bit.ly/3b9QVPq

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Notable Quotables

“No one can really predict what is going to happen, but take heart, because seasoned infection preventionists (IPs) will be ready to accept and take on the challenge of the flu/COVID-19 season.”

— LINDA SPAULDING, RN, BC, CIC, CHEC, CHOP
Infection prevention consultant
Founder, InCo and Associates International
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Even today, as of this writing and very likely as of your reading, many healthcare facilities in the United States—whether acute care, assisted living, or long-term care—are not equipped to handle a surge in coronavirus disease 2019 (COVID-19) cases, even though the world has wrestled with this history-altering pandemic since last year, and even though systemic problems should be fixed by now, but are not.

Some facilities continue to refine policies, procedures, and protocols for COVID-19. In some instances, healthcare is not succeeding with social distancing and proper use of personal protective equipment (PPE) (note: fabric and cloth masks ARE NOT considered PPE and should not be used within a healthcare setting) and proper cleaning of high-touch areas. There is still a lack of testing for COVID-19 as well as a lack of PPE and hand sanitizer—the basic items needed to protect healthcare workers and patients.

And just when many healthcare facilities thought it couldn’t get any worse, here comes influenza. Flu season on top of COVID-19 will make many hospitals and other healthcare facilities feel as if they’ve been caught in a whirlwind.

No one can really predict what is going to happen, but take heart, because seasoned infection preventionists (IPs) will be ready to accept and take on the challenge of the COVID season. Novice IPs should use all the resources available to them to help them develop strong infection prevention and control programs within their facilities.

Seasoned and novice IPs should reach out to websites such as:
- www.cdc.gov/flu
- www.who.int
- apic.org
- Websites for local health departments

These organizations will keep IPs up to date on what is happening across the United States and the world so IPs can adjust practices as needed in their facilities.

Keep Reminding Them
The wearing of masks and face shields or goggles have become part of healthcare workers’ uniforms. The responsibility of IPs and management continues to be reminding all disciplines within the healthcare facility to wear their PPE appropriately and to social distance. All disciplines must work as a cohesive group to remind and protect each other. If you see something, say something. Let coworkers know when they may have breached infection control practices such as forgetting to wash their hands, not wearing PPE properly, or missed opportunities to clean high-touch surfaces. Whether dealing with influenza or COVID-19, practices are the same. The only difference is that COVID-19 is more infectious and transmittable and more deadly than influenza.

As of September 10, the United States has seen a total of 6,310,663 cases of COVID-19, with 189,147 deaths. Data have been collected for 4,759,198 people, but...
healthcare personnel status was only available for 1,140,611 (23.97%) individuals. For the 134,397 cases of COVID-19 among healthcare personnel, death status was available for 93,236 (69.4%). Among the data available for healthcare workers, there have been 697 deaths.²

The 2019-2020 US flu season data reported on April 17, 2020, showed that the number of flu illnesses reported were between 39,000,000 and 56,000,000, with between 24,000 and 62,000 flu deaths occurring from October 1, 2019, to April 4, 2020.¹ This was a total of 7 months. When deaths from influenza are compared with deaths from COVID-19, there have been fewer cases of COVID-19 than influenza, but there have been more than double the number of deaths from COVID-19 than from influenza.

So, what do we know for sure about influenza and COVID-19? (See table below.) Vaccination to protect against influenza is extremely important. And when the flu is here, there are also a lot of other respiratory viruses circulating. It’s not just influenza A and influenza B that’re seen during flu season. Healthcare professionals only test for the virus that they suspect is going to cause the illness.

### Table. Differences Between Influenza and COVID-19

<table>
<thead>
<tr>
<th>Signs and symptoms</th>
<th>Influenza</th>
<th>COVID-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fever</td>
<td>• Fever</td>
<td>• Fever</td>
</tr>
<tr>
<td>• Chills</td>
<td>• Chills</td>
<td>• Chills</td>
</tr>
<tr>
<td>• Cough</td>
<td>• Cough</td>
<td>• Cough</td>
</tr>
<tr>
<td>• Fatigue/tiredness</td>
<td>• Fatigue/tiredness</td>
<td>• Fatigue/tiredness</td>
</tr>
<tr>
<td>• Muscle pain or body aches</td>
<td>• Muscle pain or body aches</td>
<td>• Muscle pain or body aches</td>
</tr>
<tr>
<td>• Sore throat</td>
<td>• Sore throat</td>
<td>• Sore throat</td>
</tr>
<tr>
<td>• Headache</td>
<td>• Headache</td>
<td>• Headache</td>
</tr>
<tr>
<td>• Runny nose</td>
<td>• Runny nose</td>
<td>• Runny nose</td>
</tr>
<tr>
<td>• Nausea/vomiting</td>
<td>• Nausea/vomiting</td>
<td>• Nausea/vomiting</td>
</tr>
<tr>
<td>• Diarrhea</td>
<td>• Diarrhea</td>
<td>• Diarrhea</td>
</tr>
<tr>
<td>• Headache</td>
<td>• Headache</td>
<td>• Headache</td>
</tr>
<tr>
<td>• Runny nose</td>
<td>• Runny nose</td>
<td>• Runny nose</td>
</tr>
<tr>
<td>• Nausea/vomiting</td>
<td>• Nausea/vomiting</td>
<td>• Nausea/vomiting</td>
</tr>
<tr>
<td>• Loss of sense of taste</td>
<td>• Loss of sense of taste</td>
<td>• Loss of sense of taste</td>
</tr>
<tr>
<td>• Loss of sense of smell</td>
<td>• Loss of sense of smell</td>
<td>• Loss of sense of smell</td>
</tr>
</tbody>
</table>

| Time between exposure/infection to when symptoms appear | 1-4 days                                                                 | Typically, 5 days after infection, but could be as few as 2 days or as many as 14 days |

| How long an infected person can transmit virus to others | A person can spread the flu 1 day before their first symptoms. A person with flu is most contagious during the initial 3–4 days of infections but could be contagious up to 7 days. | A person can spread COVID-19 2 days before symptoms appear. An asymptomatic person with COVID-19 can still spread the virus but their viral load might be lower. Not enough is known yet about asymptomatic carriers. |

| Complications                           | Pneumonia, Respiratory failure, Acute respiratory distress syndrome, Sepsis, Heart attack/stroke, Multiple organ failure, Secondary bacterial infections, Worsening of other chronic illness, Inflammation of heart, brain, or muscle tissue | Pneumonia, Respiratory failure, Acute respiratory distress syndrome, Sepsis, Heart attack/stroke, Multiple organ failure, Secondary bacterial infections, Worsening of other chronic illness, Inflammation of heart, brain, or muscle tissue, Blood clots, Rare but serious multisytem inflammatory syndrome (MIS-C)
- Abdominal pain
- Nausea
- Diarrhea
- Neck pain
- Rash
- Increased tiredness
- Bloodshot eyes |
cause the most deaths for that year. That’s how the government decides what the flu vaccine is going to be. There is still respiratory syncytial virus (RSV) among young kids, and even the elderly.

Infection control personnel really have to monitor closely all respiratory viruses that are out there and be sure to work with management to put in place whatever needs to be put in place. Communicate well with the nursing staff and communicate well with all departments because if environmental services teams see nurses wearing a particular PPE, but they’re not being given it to wear, they’re going to be scared and wondering “why do they get better protection than me?”

IPs need to have all lines of communication open and really work hard at it. This can get very complicated.

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

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

Continued. Differences Between Influenza and COVID-19

<table>
<thead>
<tr>
<th></th>
<th>Influenza</th>
<th>COVID-19</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Protect Equipment</strong></td>
<td>When caring for a known case:</td>
<td>When caring for all patients whether or not they are known to have COVID-19:</td>
</tr>
<tr>
<td></td>
<td>• Mask</td>
<td>• Procedure or surgical mask with all patient visitor contact.</td>
</tr>
<tr>
<td></td>
<td>• Goggles or face shield</td>
<td>• Face shield or goggles with all patient and visitor contact.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• N-95 mask or greater for all patients with confirmed COVID-19 infection and non-confirmed patient contact having an aerosolized procedure (bronchoscopy, nebulization, noninvasive positive-pressure ventilation, open tracheal suctioning, intubation/ extubation, ear, nose and throat or gastrointestinal endoscopies, transesophageal echocardiography, high-flow O2, naso-enteric tube placement).</td>
</tr>
<tr>
<td><strong>Precautions</strong></td>
<td>• Standard Precautions</td>
<td>• Standard Precautions</td>
</tr>
<tr>
<td></td>
<td>• Droplet Precautions</td>
<td>• Droplet Precautions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Contact Precautions in situations involving vomiting and diarrhea (currently it is unknown if COVID) can be transmitted through the GI tract.</td>
</tr>
<tr>
<td><strong>Vaccine</strong></td>
<td>FDA-approved vaccines available</td>
<td>Under development</td>
</tr>
<tr>
<td><strong>Treatment</strong></td>
<td>Antivirals such as Tamiflu</td>
<td>There are no drugs or other therapeutics presently approved by the US Food and Drug Administration to prevent or treat COVID-19. Current clinical management includes infection prevention and control measures and supportive care, including supplemental oxygen and mechanical ventilatory support when indicated. Some clinical trials are currently going on.</td>
</tr>
</tbody>
</table>

Source: US Centers for Disease Control and Prevention www.CDC.gov

COVID-19, coronavirus disease 2019; GI, gastrointestinal; O2, oxygen.
When it comes to your Safety, There can be No Compromise

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As the coronavirus disease 2019 (COVID-19) pandemic has disrupted and derailed 2020, many see the promise of a vaccine as the pathway back to “normal.” As of this August writing, there are 26 vaccines in various stages of clinical trials and 139 vaccines in preclinical trials across the globe.1 Vaccine development typically takes years from design to US Food and Drug Administration (FDA) approval and readiness for mass market. Even with the increased funding and drive to create and distribute a vaccine that protects against COVID-19, it may be well into 2021 before one is available for the public. And even when it is available, the efficacy of the vaccine will be unknown until large populations have received it.2 Given this timeframe, and other factors associated with vaccination as a tool in pandemic response, the road to normalcy may not be as smooth as many hope.

Infection preventionists (IPs) are collaborators with other departments, such as occupational health, human resources, and clinical leadership, to promote and implement vaccination programs for healthcare providers (HCPs). Typically, staff vaccination programs are owned by occupational health departments and IPs work closely to monitor trends and help remove barriers and provide recommendations on special cases or accommodations. When the vaccine for COVID-19 is available, this again will be a collaborative moment to develop the plan for vaccination, tracking, and promoting.

Infection prevention will likely need to be a resource for education about the vaccine, including concerns over side effects or any booster or follow-up needed based on how the vaccine is designed.

Promote to Public
Another role for IPs in this pandemic will be to work with local public health programs to promote vaccination of the public, including patients and residents of congregate settings, such as nursing homes, acute rehab facilities, and inpatient mental health centers.

One example of a way that IPs can collaborate with other departments to implement a vaccination program is to work with occupational health and emergency response departments to have a mass vaccination drill.

This is a way for many programs to meet requirements and also provide a vaccine to staff in a rapid and coordinated process. When having these types of drills, it’s important that the vaccine be brought to the staff where the staff is located, so having roving carts or teams is important. Also having stations at staff entrances that are manned during shift change can capture staff members as they come into the facility.

There are many examples of vaccination programs and lessons-learned about ways to increase staff compliance; however, even with a vaccine in development, the role of infection prevention will need to be strong for COVID-19 response for the foreseeable future.

Vaccines are one weapon that is often used in outbreak response for vaccine-preventable diseases (VPD). Countries with strong emergency response and public health programs have vaccination plans in place for such diseases as cholera, polio, and Hepatitis A.3

Disaster preparedness teams in hospitals need to have plans in place for potential increases in VPD and recognize that the typical vaccine administration will be interrupted by that disaster, whether it is a natural disaster, conflict and warfare, or a pandemic.

In this case, given the lag time we have until the vaccine is developed, planning can be done to address the other issues of regulatory barriers, looking at how to store and stockpile vaccine doses and administration supplies, roles of local, national and international partners in the distribution, communication and marketing, enhanced surveillance for adverse response and for effectiveness and the general mobilization and operationalization of the vaccine to the populations of need.4 These are huge undertakings, especially within a global pandemic. However, looking at historical mass-vaccination efforts can provide some guidelines on best practices and lessons learned and can be a resource to help guide the COVID-19 vaccine response plan. In order for the vaccine response to be successful, these areas of operation need to be addressed. Also, the social aspects of vaccine administration are equally important to understand and develop plans for before the vaccine is ready. These areas include vaccine hesitancy, access to healthcare, health equity, and mistrust of government institutions.5

Many of these barriers can be addressed with similar tactics, including assessing areas of vulnerable populations where these social constructs exist and working with local community leaders to build relationships and establish trust. Build capacity in healthcare organizations to address these.
concerns and to engage the community to provide accurate information. Healthcare providers are the most trusted source on vaccine acceptance. If providers have a clear understanding of the benefits of vaccination and have the communication skills to educate their patients, then the likelihood of vaccine uptake may increase. Similarly, HCPs are a high-risk group and their opinions on the COVID-19 vaccine can sway others.

**Vaccination Required**

When looking at influenza vaccine compliance, in recent years the percentage of HCPs taking the vaccine has increased, with a reported 81.1% overall compliance in 2019. One reason this has increased is because of many organizations making a flu vaccine a requirement for employment. In HCPs who did not have a work requirement or any work-related promotion, the compliance rate was just 42.1%. If we extrapolate this data to a COVID-19 vaccine, likely without work requirements, we would see low levels of uptake within HCPs as well. Not only does this increase potential for transmission in this high-risk population, but it also sends the message to their patients and community that the vaccine is not important.

A recent survey found that less than half of Americans would get a COVID-19 vaccine right away compared with other races and ethnicities. These data show that there is much pre-work to be done, in particular with minority groups who have been disproportionately impacted by the disease, to increase vaccine acceptance and address underlying issues that are influencing these responses. Interestingly, respondents who reported receiving the annual flu vaccine were nearly twice as likely to report willingness to get the COVID-19 vaccine. Understanding what influences people to get the annual flu vaccine may help guide programs to use similar tactics to influence COVID-19 vaccine uptake.

Even if the vaccine is widely accepted and trusted, how long will it take to establish the level of population immunity necessary to prevent transmission? It’s estimated that, for COVID-19, with the reproduction number (R_0) of around 1, about 50% of the population needs to have immunity. This is ideally achieved through vaccination, but can also include natural disease acquisition. With COVID-19, most speculate that the vaccine will not provide 100% immunity, and liken it more to the influenza vaccine, with 40%-60% efficacy depending on the annual strains.

**High-Risk Groups First**

Certainly, in the early days of a COVID-19 vaccine roll-out, high-risk groups and vulnerable populations should be targeted first, with prioritization then expanding to the general population over time. Given the complexities of such an effort, the timing to reach the 50% threshold could be months to years. Confounding this work is the concept that we may need to have annual boosters or vaccine modifications if the predominant viral strains mutate.

Based on all these challenges with vaccine development, acceptance, and administration, there will need to be a continued emphasis on the basic infection control practices we are currently employing to mitigate risks: wearing masks, social distancing, updating personal protective equipment guidelines in healthcare facilities for universal masking/eye protection, and developing surveillance programs tracking coronavirus activity to be able to adjust the vaccine to fit predominant strains.

These basic tenants are what will provide the most protection against transmission until such a time as we have an effective and widely accepted vaccine.

In disease prevention, it is important to remember that the science exists on a continuum and having all-or-none thinking only impedes progress and understanding. When dealing with a pandemic, multiple approaches are necessary to reach full effect. In infection prevention, we are used to working with bundles for prevention of central line infections, surgical site infections, and other hospital-associated infections. The same approach needs to be taken with COVID-19. We must not dilute the response to relying on a vaccine to “cure” the pandemic. Disease prevention requires a broad range of interventions, including vaccines, in order to be effective and truly address the risks of transmission.

**REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM**

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One example of a way that IPs can collaborate with other departments to implement a vaccination program is to work with occupational health and emergency response departments to have a mass vaccination drill.
Practicing Infection Prevention in Isolated Populations: How Navajo Nation Took on COVID-19

BY JAN DYER

When the first tentacles of the coronavirus disease 2019 (COVID-19) pandemic reached Navajo Nation—the Native American territory occupying more than 17 million acres in Arizona, Utah, and New Mexico—leaders President Jonathan Nez and Vice President Myron Lizer responded quickly. They instituted strict curfews, issued stay-home orders, and shut casinos down—even though those are central to the local economy.

They also ramped up testing and contact tracing. They had the highest test rate per capita in the country: As of August 15, more than 40%, or about 80,000 individuals of a 200,000 service population.1 By comparison, on August 13, the United States as a whole had a testing rate of 2.14 tests per thousand.2

President Nez and Vice President Lizer were proactive in every way they could think of. In fact, Nez declared COVID-19 a public health emergency on March 11, 2 days before President Donald Trump did. Nez and Lizer were urging people to wear masks in public even before the US Centers for Disease Control and Prevention (CDC) did, and they issued a public health emergency order to do so in mid-April.

Nonetheless, the Navajo Nation was hit devastatingly hard by the virus. In May, the Nation had the highest infection rate per capita in the country, surpassing the epicenter of New York: 2344 cases per 100,000 residents.3

On August 13, though, the population reported 48 consecutive days of fewer than 100 daily cases of COVID-19 reported and 13 consecutive days with under 50 daily cases.4 The Navajo Health Command and Operations Center declared the Nation to be in Orange status, or “moderate-high restrictions,” in which most businesses are allowed to reopen with 25% maximum occupancy, and restaurants and banks are allowed to operate drive-through business (casinos and other places where groups gather are still closed).5

The Navajo leadership achieved this despite the fact that many Navajo live far from hospitals and clinics, about one third don’t have access to running water, and many live with extended families in small homes. Add to this a seriously debilitated infrastructure in the form of miles of dirt or gravel roads (70% of roads are in “poor or failing condition,” according to the 2016 Navajo Nation long-range transportation plan).6 There is also no electricity in many areas.7 In 2012, only about 60% of Navajo natives had landline phones; many now have cellphones but live miles from a tower8 (access has been improving since
2014, and has been accelerated due to the COVID-19 crisis.

**Prompt Action**
How do you handle infection prevention and control under extreme conditions—exacerbated by a nightmarish virus that has claimed hundreds of thousands of lives worldwide? Jonathan Iralu, MD, FACP, Indian Health Service (IHS) Chief Clinical Consultant for Infectious Diseases, Gallup Indian Medical Center (GIMC), and his staff are exemplars of tackling it promptly and effectively.

GIMC, located on the border of the Navajo Reservation, has one of the largest workloads in the IHS—250,000 outpatient encounters and 5800 inpatient admissions annually—and the largest staff of all Navajo Area IHS facilities. Its catchment area is roughly a 50-mile radius, but if patients need to contact an infectious disease specialist, they may need to travel up to 150 miles one way, often on those bad roads. Telehealth is difficult because of the technological obstacles.

Given those parameters, GIMC personnel had to be deliberate and practical—and they had to make dramatic shifts in the way they delivered care. Early on, they shut down the clinics to focus on the influx of people coming in with COVID-19. They also set up drive-up testing, including rapid testing, “really early,” Iralu says, in part to take the potential pressure off the “aging facility” (the hospital is about 60 years old). Patients go through a screening and triage is handled outside the hospital.

Staff also prepared to focus on patients who would require hospitalization—at 99 beds, GIMC is small (“but large for the IHS”). They had only 2 medical-surgical wards and a small intensive care unit. To get ready, they repurposed rooms that were formerly used for tuberculosis (TB) patients, plus some pre-op and office space. In early March they were short on supplies, like most of the country. So, they created a personal protective equipment (PPE) committee to order, track, and project what the hospital’s needs would be.

Meanwhile, they had to factor in their regular patient responsibilities for a population rife with chronic health issues including diabetes, alcoholism, and cardiovascular disease. GIMC transferred staff into the inpatient and emergency departments and left a skeleton crew back in the clinics to handle emergencies and routine primary care.

**Public Health**
Unlike many rural hospitals, GIMC delivers not only direct patient care, but it is also responsible for public health. Where another hospital might make referrals to the county Department of Health to do contact tracing investigations, for instance, Gallup staff members have to do that themselves.

Patient education—a critical part of managing the public health crisis throughout the country—is not always easy in an area on the wrong side of the “digital divide,” where fewer than half of the residents have access to high-speed Internet service. So GIMC healthcare providers have to make the most of every opportunity. In addition to public service information and social media posts, they do their educating at the drive-up testing sites, for instance, and have a follow-up system in which public health nurses do more education.

Iralu has worked at GIMC since 1994, with special interest in HIV, TB, and sexually transmitted disease (STD) care in rural communities. His research has focused on undifferentiated febrile illness in the American Southwest and on rural HIV care delivery. In the 1970s, the tribe, along with the IHS, created a TB treatment program using Navajo-speaking community health workers who made home visits to manage care and medications. About 14 years ago, Iralu says, he and his staff started doing the same with HIV care. Now they’re taking lessons learned from the established TB, HIV, and STD programs and translating those for this latest health challenge.

Necessarily, much of the care for the spread-out and isolated patient population is home care. The hospital has a 3-person HIV team and about 6 public health nurses who visit patients in their homes. They all speak Navajo (COVID-19 is Diko Ntsaaígíí-Náhást’éíts’i‘adah).

The home-care teams emphasize the importance of handwashing, of course. Although water may be in short supply in some places, Iralu says it hasn’t been an insurmountable problem. For one thing, “it’s been easy to get alcohol wipes.” He also points to volunteer groups that take water out into the isolated rural areas. Contrary to reports of lack of water being a major issue, he says, “it’s a bit of an exaggeration” to say so.

**Alternate Facilities**
Another thing that they’ve done “beautifully,” he says, is to create “alternate facilities” to care for patients with COVID-19—albeit in a kind of countereintuitive way. When a member of a multigenerational family is diagnosed with COVID-19, the first idea might be to isolate that person...
in a different room from the rest of the family. “That’s really impractical,” Iralu says. So they do the opposite. They quarantine the healthy members in a hotel.

GIMC physicians Jennie Wei, MD, MPH, and Mia Lozada, MD, run the program, working in a federal/nonprofit/volunteer consortium to take care of people who have been exposed to the virus and have no other place to stay. More than 800 patients have been isolated in hotels since March.9 Lozada credits the program with helping to drive down the case numbers in Gallup.

Those kinds of culturally sensitive care solutions are important for all their patients, but particularly for Native American elders, who are vulnerable to the SARS-CoV-2 virus. Older people are highly valued in Native American culture, and protecting them is a high priority. “Elders carry tradition,” Iralu says. “We have to keep them safe.”

President Nez has also made this plain in his overall pandemic plans. “I challenge the Navajo people: Let’s protect [our elders] by staying home,” he said during a virtual town hall on June 9.12 “It’s our responsibility as family members.” Vice President Lizer echoed that, saying supporting elders benefits everyone. “Love for our elders means we all win.”

In the early days of what became a pandemic, Iralu and his colleagues were reassuring people that there were few cases. Then, as things worsened, they began advising extreme caution. They’re still advising caution. In an interview in July, Iralu expressed “cautious optimism” about managing the COVID-19 case numbers. He’s now relying on shared transportation, limited access to running water, household size, and other factors that might facilitate COVID-19 community transmission.

The pandemic has been good for something, too. “It has been really beautiful to see the staff rally together with single-minded purpose,” Iralu says. “We’re working better as a team now than ever in my 26 years here.”

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The investigators also note that there have been numerous studies showing a greater incidence of underlying health conditions among the AI/AN populations than what exists among non-Hispanic whites. Unfortunately, for this particular study “data on underlying health conditions were unknown or missing for 91.6% of AI/AN patients compared with 72.7% of white patients, preventing examination of the association between underlying health conditions and COVID-19 incidence. The excessive absence of data among AI/AN persons represents an important gap in public health data for AI/AN persons and suggests a need for additional resources to support case investigation and reporting infrastructure in AI/AN communities.”

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REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM

**COVID-19 Hits Native Americans, Alaska Natives Hard**

The data collected by the US Centers for Disease Control and Prevention (CDC) tell of the heavy burden borne by Native Americans (who the CDC refers to as American Indians—AIs) and Alaska Natives (ANs). The agency looked at incidence of confirmed cases of coronavirus disease 2019 (COVID-19) among the AI/AN population in 23 states and found that those groups are 3.5 times more likely to get the disease than non-Hispanic white persons. The CDC’s data were published in its Morbidity and Mortality Weekly Report (MMWR).

“Historical trauma and persisting racial inequity have contributed to disparities in health and socioeconomic factors between AI/AN and white populations that have adversely affected AI/AN communities; these factors likely contribute to the observed elevated incidence of COVID-19 among the AI/AN population,” the CDC investigators write. “The elevated incidence within this group might also reflect differences in reliance on shared transportation, limited access to running water, household size, and other factors that might facilitate COVID-19 community transmission.”

The investigators also note that there have been numerous studies showing a greater incidence of underlying health conditions among the AI/AN populations than what exists among non-Hispanic whites. Unfortunately, for this particular study “data on underlying health conditions were unknown or missing for 91.6% of AI/AN patients compared with 72.7% of white patients, preventing examination of the association between underlying health conditions and COVID-19 incidence. The excessive absence of data among AI/AN persons represents an important gap in public health data for AI/AN persons and suggests a need for additional resources to support case investigation and reporting infrastructure in AI/AN communities.”

**REFERENCE**


**Demographic characteristics and data quality among laboratory-confirmed COVID-19 cases, by race/ethnicity — 23 states,** January 31–July 3, 2020: American Indian and Alaska Native† (N = 9,072)

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<tr>
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<tr>
<td>≥65</td>
<td>1,141</td>
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</tbody>
</table>

1. Are defined as “yes” if any of the following symptoms were reported as present or absent: fevers (measured ≥100.4°F [38°C] or subjective), cough, shortness of breath, wheezing, difficulty breathing, chills, rigors, myalgia, rhinorrhea, sore throat, nausea or vomiting, abdominal pain, headache, fatigue, diarrhea (≥3 loose stools in a 24-hour period), or other symptoms not otherwise specified on the form.

2. Includes those with unknown or missing death status. Source: US Centers for Disease Control and Prevention.
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October 21-25, 2020

www.idweek.org
The myriad of the widely different strategies emerging throughout our nation when it comes to the reopening of schools (as of, it must be stressed, this August writing) can be called nothing other than a Great American Experiment, and our children are the subjects with little safeguards in place. We know that school-aged children are less likely to develop severe coronavirus disease 2019 (COVID-19) illnesses. In a recent study, the US Centers for Disease Control and Prevention’s COVID-19 Response Team reported that only 1.6% to 2.5% of children below the age of 20 who acquired COVID-19 required hospitalization. And intensive care unit (ICU) admissions and deaths were not observed in 123 patients.1

When Europe opened its schools this summer, it did so during an exceptionally low nadir of community spread. Even then, viral outbreaks occurred, and some schools had to be closed in France and Germany.2,3 In one country, Israel, public health guidance was reported to be thrown to the wind, allowing older students to attend early on and, because of the hot desert, without masks.4 This was associated with spiking cases and the closure of 130 schools.5 South Korea also had to reclose more than 800 schools.6

Infection preventionists (IPs) are a critical asset that school systems should lean on to provide the safest strategies and environmental modifications to suppress the transmission of the SARS-CoV-2 virus. That’s because deaths can rarely occur, and severe disease in children can manifest 2 to 4 weeks later in the form of multisystem inflammatory syndrome in children (MIS-C). MIS-C can cause shock, cardiac, respiratory, renal, gastrointestinal, and neurological disorders. MIS-C occurs in less than 1% of children diagnosed with the SARS-CoV-2 virus.7 As of the end of July, more than 300 cases have been reported in the United States. In one study, 80% of children with MIS-C required ICU admission, 80% had cardiovascular involvement, 20% required mechanical ventilation, and 2% died.8 Finally, infants less than 12 months of age appear to be at high risk for severe COVID-19, possibly due to their underdeveloped immune systems.

Two Possibilities
However, 2 possibilities exist: That children are not as likely to get infected by the SARS-CoV-2 virus, or that they contract the infection, but the vast majority of children are asymptomatic.

Studies are indicating that both may be a factor. Davies et al, writing in Nature Medicine, reported that almost 80% of the children who acquire the SARS-CoV-2 virus are asymptomatic as compared with only 31% of the elderly.9 They also estimated that children were half as susceptible to infection as adults. In addition, infected children shed the virus similar to adults and that “pre- or mildly symptomatic children carry viral loads likely to represent infectivity.” There was “little evidence in the present study to support the suggestion that children may not be as infectious as adults.”10

A report from South Korea studied the chances of spreading the virus based upon age of those infected11. Ten to 19-year-olds were found to spread the virus to 18.6% of family members, higher than any other age group, including adults. Young children, from age 0 to 9, spread the virus between 0.29 to 0.76 times less than adults. But...
against a backdrop of a raging epidemic, even this level of spread is too much. Before opening schools, many experts advise that the SARS-CoV-2 diagnostic test positivity rate needs to be less than 5% and there should be less than 5 cases per 100,000 residents per day.

These children also pose a risk of spreading SARS-CoV-2 to their parents, grandparents and very young siblings, all of whom are at risk of developing severe COVID-19 infection. Finally, 24% of the teachers are also at a higher risk for severe COVID-19 disease, having co-morbidities, such as diabetes, COPD, BMI over 40 or being older than 65.

There are unknowns. One is whether the virus can aerosolize. Another is whether the high-pitched, often loud vocalization of our children will promote such aerosolization. At least one study has shown loud talking can produce small viral droplets, and studies of various settings such as churches, restaurants, and hospitals strongly suggest aerosolization of this virus. If so, the virus may linger in the air, surviving for up to 3 hours and spread widely via heating and air conditioning units.

Our schools are anything but healthy buildings. Concerns have existed for decades regarding both the air quality and the crowded conditions our children are exposed to, but no one has been watching, with the last US Government Accountability Office report conducted in 1995.

Upgrade Schools Now

We need to upgrade our schools with extensive infrastructure investments to prevent the spread of infectious diseases, with larger rooms to allow at least 6 feet of social distancing between desks and with windows that open to allow in fresh air. We need to upgrade substandard and dilapidated HVAC systems to increase airflow and to filter and serialize the air. Common areas need to be made safer; and cafeterias, restrooms, and hallways redesigned with attention to student flow and contact. School districts should even consider switching to classroom models that can easily be changed from indoor to outdoor environments. We do this for sports stadiums, why can’t we do the same for our schools?

IN ONE STUDY, 80% OF CHILDREN WITH MIS-C REQUIRED ICU ADMISSION, 80% HAD CARDIOVASCULAR INVOLVEMENT, 20% REQUIRED MECHANICAL VENTILATION, AND 2% DIED.

There is no doubt that the COVID-19 pandemic may be on its way to resolution before all of this can be accomplished, but schools are also a nidus for other infectious diseases, such as influenza. After Middle East Respiratory Syndrome (MERS), SARS and Ebola, let’s not delude ourselves into thinking this epidemic will be our last.

School bubbling, or keeping a small number of children and teachers together and not exposed to others, needs to be implemented. Students may need to eat in their classrooms with intermittent bubble privileges for the cafeteria. Initially, schools should scale back to basic core activities. Pool testing will become extremely important for the testing of students in the bubble and their families. Testing is key to safely opening schools. If professional sports teams are employing bubbling strategies, along with extensive and frequent testing, the same should be true for our children.

We need ample hand sanitizer stations, bathroom soap dispensers that work, and pristine cleaning of fixtures and contact surfaces. This should be standard, but in the COVID-19 pandemic, availability of janitorial supplies is of utmost concern. Masks need to be worn by all.

Mounting evidence has found that children become infected and shed the virus, that the virus aerosolizes, that school buildings are crowded with poor air circulation and quality, and finally that 24% of teachers are at high risk for COVID-19. What could possibly go wrong?

Lessons Learned

Similar to our healthcare system as a whole, COVID-19 is shedding a light on deficiencies and the dearth of personal safeguards in our schools. Let us not forget, schools are a nidus for spreading the flu and other diseases. Opening schools should depend upon low rates of viral spread in the community, widespread testing, rigorous following of public health guidelines, and upgrading the physical infrastructure of our buildings. COVID-19 should be viewed as an opportunity for transformation, allowing us to build a better school system with smaller class sizes for better education and implement strategies to prevent the spread of all infectious diseases.

KEVIN KAVANAGH, MD, is the founder of the patient advocacy group Health Watch USA and a frequent contributor to Infection Control Today.

REFERENCES AVAILABLE AT INFECTIONCONTROLTODAY.COM
How This Vascular Access Nurse Relies on an Infection Preventionist

BY MAYA GOSSMAN, RN

A vascular access consultation order is placed, and the process begins. What is the patient’s admission diagnosis? Ordered medications? Expected length of stay? What is their vascular access history and what might they need in the future? Are there any physical, psychological, or perceptual barriers in regard to the placement of a vascular access device (VAD)? What is the patient, nursing staff, and physician preference in VAD? All these questions are addressed by the vascular access specialist working in today’s health-care environment.

As healthcare has evolved, so too has the role of those working in the vascular access specialty. At my 117-bed community hospital, I have been a part of much of this evolution. When I started placing peripherally inserted central catheters (PICC) 7 years ago, I knew very little about vascular access as a specialty. PICC placement was a skill I had wanted to learn since I witnessed my first placement while still in nursing school and, once I became part of the “PICC Team,” I worked hard to improve my skill.

Growing Knowledge
I did not look at vascular access in a holistic way, and I did little in the way of assessment prior to placing an ordered PICC. As my knowledge grew, I joined national professional organizations, attended local chapter meetings, and read professional journals, and it became clear that the PICC nurse was evolving into the vascular access nurse. I realized the next step would be forming a vascular access team.

Although both vascular access and infection prevention have their own focus, our commonality is in ensuring patients get the care they need while minimizing their chances of nosocomial infections.

The vascular access team at my facility was created 2 years ago with the goal of improving patient outcomes and increasing staffing and patient satisfaction. Although we have never had a large number of central line-associated bloodstream infections (CLABSIs), one of our biggest goals was to prevent CLABSI by ensuring that only the most skilled inserters place PICC and midlines and that daily rounding by specialists is performed on all central lines. Although our infection preventionist is not an official member of the vascular access team, we do work closely with her to update and create new policies and interventions pertaining to vascular access. We also work together to stay current on best practices and to trial any products we feel might benefit our patients in reducing infection rates.

Our close working relationship with the infection preventionist stems from the fact that we trust each other to keep what is best for patients at the center of everything we do. We also have great respect for each other’s expertise and recognize that our specialties intersect in many areas.

Although both vascular access and infection prevention have their own focus, our commonality is in ensuring patients get the care they need while minimizing their chances of nosocomial infections. Infection preventionists have a wide scope, as infections can be caused by many factors while in the hospital, from medical devices to the hands of the healthcare workers caring for them. Vascular access specialists focus on the devices placed into the bloodstream of patients in order to deliver needed medications, allow access for dialysis, or accurately monitor blood pressure. It is because we know that these devices can be a conduit for life-threatening infectious agents that infection preventionists are vital to our specialty.

Since we are a smaller facility with a team of 2 vascular access nurses, we only officially round on central lines; however, we are called daily to assess VADs of all types, intervene when necessary, and replace VADs when required. Our

ADDITIONAL RESOURCES
IV Access and Blood Draw Algorithm Medicine Inpatients During COVID-19
objective is to get the patient through their hospital stay with the least invasive vascular access device that is appropriate for their condition while experiencing as few needle sticks as possible. Not only do fewer vascular access devices and needle sticks decrease cost and increase patient satisfaction, but each time the skin is broken there is an increased risk for infection. As we continue to grow our team, our goal is to provide care for all VADs as they each provide an entry into the same circulatory system and are therefore capable of serving as a source of serious (even deadly) infection. We were working toward this goal when COVID hit and both delayed our plans and helped justify our team.

First COVID-19 Case
My hospital received our first possible case of coronavirus disease 2019 (COVID-19) on a Sunday afternoon in March. The patient was in a negative pressure room in our intensive care unit (ICU), and a vascular access consult was ordered. Due to the patient’s condition and multiple ordered medications, a PICC line was selected as the most appropriate device. I had personally never placed a vascular access device while wearing airborne precautions personal protective equipment (PPE), but I did remember our infection control nurse teaching me how to don the powered air-purifying respirators (PAPR), gown, gloves, and shoe covers in the correct order. As the ICU staff assisted me into the PPE, I wondered about the feasibility of performing a sterile procedure while covered almost head to toe in PPE, but I knew the patient needed vascular access.

Because of my experience as a vascular access specialist and my collaboration with infection preventionists both at my facility and through professional organizations and journals, I was able to place a PICC that successfully delivered the needed medications. That patient ended up being discharged home at the completion of their stay while only undergoing 1 needle stick for vascular access during their stay at my facility.

Less than 24 hours after placing that PICC line I met with our infection control nurse to discuss how the COVID-19 team was going to interact with the vascular access team. We collaborated to create a plan for best protecting our team of 2 from exposure while also ensuring that our patients were protected from further infection caused by a vascular access device.

In addition, the infection control nurse and I met with the directors of the lab, the medical floor, and the intensive care unit to discuss ways to minimize exposure of their staff to the patients with confirmed COVID-19 infection.

We also spoke with the emergency department and the hospitalists to plan for the vascular access needs of these patients. When it became clear we would have to change some of our normal practice to work within the national PPE shortage while still protecting staff, we worked together with our materials department to ensure we would have the needed supplies.

One concern we had was maintaining ideal positioning of vascular access devices once they were placed; to this end, we ordered a subcutaneous securement device we had been trialing.

Although there were many areas of the country where PPE shortages did negatively impact healthcare systems, the incident command center at our facility was able to maintain an adequate supply for our staff. Through teamwork we were all able to navigate the unknown waters of COVID-19 while providing the highest level of care for all of our patients and protecting our staff.

The healthcare team is composed of different specialists from widely varied backgrounds. Although we each have our own focus, we all work together to care for our patients in an effective and efficient manner. Collaboration between specialties is vital to maximizing patient outcomes while minimizing complications.

Although complications with vascular access devices are sometimes dismissed as a necessary evil associated with hospitalization, through the collaboration of vascular access specialists and infection preventionists we can decrease complications, decrease costs, and increase positive outcomes for our patients.

MAYA GOSSMAN, RN, is a vascular access nurse at Stillwater Medical Center in Stillwater, Oklahoma.
Infection Preventionists
Need to Monitor PPE Use

Healthcare professionals across the nation have been battling coronavirus disease 2019 (COVID-19) for months. They’re tired. They’re worried. They’re always in a rush. That’s when the proper use of personal protective equipment (PPE) might fall by the wayside, warns infection control consultant Sharon Ward-Fore, MS, MT(ASCP), CIC. Ward-Fore, a member of Infection Control Today®’s Editorial Advisory Board, says that there’s an art to encouraging the proper use of PPE and she gives fellow infection preventionists (IPs) some tips on how it can be done. “Some people receive things well—criticism or compliments—and others don’t,” says Ward-Fore. “It’s not a one-size-fits-all.”

Infection Preventionists
Need to Monitor PPE Use

Infection Control Today®: We’re going to talk a little about PPE and where we are with that thanks to the COVID-19 pandemic. Proper donning and doffing has to be a part of that conversation, correct?

Sharon Ward-Fore, MS, MT(ASCP), CIC: It does, it does. I think one of the things we need to talk about with PPE is as we’re continuing to go through this COVID-19 pandemic, the level of infections waxed and waned in certain areas. And now we’re seeing quite a surge in the South. So those hospitals that are able to inventory their PPE and figure out how to ration it should be doing so right now. IPs should continue to audit PPE usage on their units—including donning and doffing—and then they also should be speaking to how to reuse or encourage staff how to do extended reuse of PPE if that becomes necessary. And the problem with reuse and extended reuse is the probability of contamination from reusing something you’ve already used. So IPs, the burden would be to teach staff how to safely don and doff equipment that’s been stored and then reused.

ICT®: Is that a constant problem during this pandemic?

Ward-Fore: It is. It is in areas like the South where they’re just pretty much on fire. Staff have been told that they need to reuse PPE, especially things that are in short supply in those areas. Apparently, it’s still N95s. So, the caution is that manufacturers say N95s can be reused up to five times. But what that really means depends on what that N95 looks like when you’re going to reuse it. So, areas to pay attention to when you’re reusing any piece of equipment like an N95 is make sure the straps are still intact. Make sure the metal nose clip where you kind of fold the mask around your nose is intact, and make sure the mask itself isn’t showing any kind of wear and tear. That’s really important for those areas that have to reuse that kind of equipment. I think with reuse, sometimes staff tend to forget not to touch the outside of the mask, which is the most contaminated part. Or when they’re putting it on, they’ll touch the inside of the mask, which then puts them at risk, and they need to discard that mask. So careful attention to detail. And maybe in the areas that are hotspots now that maybe weren’t, just a refresh on how you put on and take off PPE that’s been reused would be a nice thing for IPs to focus on.

ICT®: Careful attention to detail. Do you think that’s going to be easier now? Since COVID-19, do you think people are paying attention more to detail?

Ward-Fore: I think you’re going to find a spectrum of that because people are fatigued. Our healthcare workers have been at this since—in Illinois, March 21—is when the lockdown came down and we saw a surge. They’ve been at this for a long time. Fatigue. Practices drift. You can become complacent and maybe your level of awareness has decreased. I think you’ll see people who are really, really attentive to detail. And those that have maybe thought, “Well, I haven’t gotten it yet. Maybe I won’t get it and I don’t need to adjust my practices.” So, infection preventionists need to be really aware of what’s happening in the areas they cover as far as PPE usage is concerned.

ICT®: Do IPs work with anybody else as far as monitoring PPE usage? Are there nurse managers or even doctors who are involved in overseeing PPE usage and how it’s done? Or does the buck stop with the IP?

Ward-Fore: It doesn’t, but typically it’s under our purview. But nurse managers, even nurses, working with each other, should be aware of what their colleagues is doing as far as their PPE usage. And healthcare workers, they look out for each other. I think we can hopefully rely on a level of awareness where someone else will mention to somebody, “Oh, you didn’t put that on right. Or, “You didn’t do hand hygiene.” Hopefully it’ll be taken in a way that will help prevent contamination as opposed to being criti-
cal of someone.

ICT®: That sounds like an art more than a science. How do you do that?

Ward-Fore: It is an art. It’s being proactive, but showing concern instead of criticism. It’s saying, “You know, I want you to stay healthy. So maybe you should discard that mask because I think you touched the inside which may contaminate you.” It is an art and you need to tread lightly. Some people receive things well—criticism or compliments—and others don’t. It’s not a one-size-fits-all.

ICT®: Do you recall any kind of pushback that was particularly forceful? And how did you manage to finesse that?

Ward-Fore: Way back in the day, I had a physician who refused to wear the PPE for contact precautions. And he went from patient to patient to patient. And I just asked him, “Do you mind if I asked you why you’re not wearing that PPE?” And he pretty much said it was stupid, and there was no science behind it. So, in situations like that, it’s just like with kids, you have to know how to pick your battles. I sort of stepped away from that and mentioned that my medical director might be contacting him because, with some folks, it’s not about the science, it’s about how it feels. He felt it was not a science-based approach.

ICT®: Now everybody wants to know if it stopped there? Did you actually have to contact the medical director?

Ward-Fore: I did and then this person then became one of our PPE champions.

ICT®: No kidding.

Ward-Fore: Well, at the request of the medical director, it all worked out. Sometimes maybe from a peer, things are better received than from someone who’s lower on the pecking chain as I was. I was merely an IP, as opposed to this pretty well-recognized physician.

ICT®: Any final words of advice for your fellow IPs about PPE?

Ward-Fore: Just remind everyone to not become complacent. And the importance of hand hygiene cannot be understated in every instance of handling any kind of PPE, donning and doffing.

THIS INTERVIEW HAS BEEN EDITED FOR CLARITY AND LENGTH.

Watch the full interview online with Sharon Ward-Fore, MS, MT(ASCP), CIC

infectioncontroltoday.com/view/infection-preventionists-need-to-monitor-ppe-use

Miss anything? Check out these Q&As online!

What Infection Preventionists Should Expect From a COVID Vaccine
A vaccine won’t drastically change how IPs do their jobs—at least at first.
infectioncontroltoday.com/view/q-and-a-what-infection-preventionists-should-expect-from-a-covid-vaccine

Flu Data Show Potency of Anti-COVID Tactics Like Masking, Hand Hygiene
COVID-19 precautions seem to be drastically slowing down the flu.

Getting Healthcare Workers to Wear Masks
Infection preventionists need to make sure practices don’t drift.
infectioncontroltoday.com/view/q-and-a-getting-healthcare-workers-to-wear-masks
Treatment Protects Masks, Gloves from COVID-19, Company Says

A bio barrier treatment called Goldshield 5 can greatly reduce the amount of coronavirus disease 2019 (COVID-19) on surgical masks and gloves. The maker, Goldshield Technologies, says that surgical masks treated with Goldshield 5 can inactivate COVID-19 at a 99.88% rate. On gloves, Goldsmith 5 says it can reduce the pathogen at a rate of 94.87% compared to the control group.

The product was invented in 2009. “Goldshield 5 was developed to help reduce hospital-acquired-infections (HAI’s) which kill over 200 people daily in the United States,” the company says in a press release. “Given the rapid spread of COVID-19, Goldshield Technologies moved quickly to understand how their patented Goldshield 5 product could be adapted to combat this particular virus.”

Goldsmith 5 was tested in a study sponsored by a Chinese company called Guilin HBM Health Protections Inc. “The results of this study found that when applied to medical masks and gloves, Goldshield 5 created a residual protective bio barrier against the pathogenic COVID-19, killing it on treated medical masks and rubber medical gloves for up to 72 hours,” Goldsmith Technologies said in its press release.

Thomas Higgins, the CEO of Goldshield Technologies, said in the press release that “we’re incredibly encouraged to learn that Goldshield 5 is effective in killing the COVID-19 virus on essential PPE products like masks and gloves which we know our healthcare workers need more than ever right now. This will be an international game-changer to aid against the spread of COVID-19 and we plan to move as swiftly as possible to make them available worldwide.”

https://goldshield1.com

Device Said to Stop Pathogens at the Door

Nobody wants dangerous pathogens to get a foot in the door in hospitals; that goes for all pathogens, but especially coronavirus disease 2019 (COVID-19). A company called Berner International says that it has helped with that problem with the development of the Berner PureAir Package. “This is the industry’s first air curtain to include needlepoint bipolar ionization (NPBI) technology, enabling users to safely disinfect and purify the air in the space, beginning at the doorway,” the company says in a press release.

The parts include the NPBI module; a washable one-inch-thick (25-mm) aluminum mesh MERV-8 particulate filter; a 10-speed 1/2-hp electronically commutated (EC) motor; and a factory-installed Intelliswitch™ with Pure Mode operation, according to the company.

“During periods when the door is open, the air curtain operates as both an air curtain and an air purifier,” the company says. “When the door closes for longer than 60 seconds, the air curtain automatically transitions to Pure Mode for continuous NPBI ion distribution throughout the space with one of its lowest, quietest speeds.”

The company also states that “NPBI has been third-party surface tested by Innovative Bioanalysis, Cypress, Calif., to neutralize airborne viruses, including the source of COVID-19 disease, SARS CoV-2, at a 99.4-percent success rate during 30-minute exposures. NPBI also disinfects mold, mildew, allergens, bacteria and other biological contaminants using an ionization process that’s Environmental Claim Validated through UL-2998 for zero ozone emission and byproducts free.”

https://berner.com

Process Improves Transport of Contaminated Surgical Instruments

There’s always been a lot of focus on decontaminating and reprocessing surgical instruments in compliance with guidelines from the Occupational Safety and Health Administration. The onslaught of coronavirus disease 2019 (COVID-19) may have even increased that focus; COVID-19 has already changed so much about healthcare.

The SST System by Healthmark provides a way to safely transport surgical instruments through hospitals to their decontamination sites, company officials say. The SSTs are three-part container systems: a solid base tray, a SteriStrainer drain basket, and a cover. “Covered, it is then safely transported to the decontamination site,” the company says in a press release.

“There, the cover is removed, and the SteriStrainer is lifted out of the solution and the decontamination process safely begins.”

As with most processes in a healthcare system, communication is key. Healthmark officials say that it’s important to let staff know whether the items being transported are clean or biohazard. “Removable labels are important to implement in your department’s process in order to safely identify the status of the contents inside,” the company says.

https://hmark.com
75,000 deaths occur annually in US hospitals due to HAIs

(It’s time to take proven infection prevention further)

Figures released from the CDC make stark reading for Infection Preventionists. An estimated 722,000 healthcare-associated infections occur annually, resulting in 75,000 deaths and billions in additional costs. More than half of these occurred outside of the intensive care unit.

To change these numbers, hospitals are adopting Hibiclens® for housewide daily patient bathing as an easy, valuable, infection prevention strategy. Hibiclens is helping to reduce facility-wide HAI risks, such as CLABSIs, CDI, and MRSA.

For more information on how daily bathing with Hibiclens can help you in your infection prevention strategy visit www.hibiclens.com.

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to PROTECT YOUR
PATIENTS and EQUIPMENT

Standardize your disinfection protocols with a powerful Hydrogen Peroxide formula that kills *C. diff*¹ without compromising compatibility.²

One product for all your needs.

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Together...We Got This!

1. *Clostridiosis difficile* spores formerly known as *Clostridium difficile* spores.
2. Refer to device manufacturer’s instructions for use.