Fighting COVID-19

So Much Hangs

On the Face Mask

Chronic/Long-term Care Facilities

Nursing Homes’ Systemic Ills

Open the Door to COVID-19

Advanced Technology

Telemedicine Steps Up

To Take on COVID-19

Healthcare-Acquired Infections

Should US Hospitals Attempt

To Find the Missing Link (Nurse)?

Environmental Services

How to Contain Infection Risk

During Hospital Building Projects

Vascular Access

Goodbye Vascular Access Nurse,

Hello Vascular Access Teams

Breathe easier.

We can help prevent SSIs.

Up to 6 log reduction of *Staph a.* in an in-vitro study.¹

Of the population is colonized with *Staph aureus*³

Of SSIs can be traced to a patient’s own nasal flora²

99.99995 percent at 15 sec.

80 percent

30 percent

Using evidence-based guidelines, we can help prevent 60 percent of SSIs.⁴

References:

Fighting COVID-19
So Much Hangs
On the Face Mask

Chronic/Long-term Care Facilities
Nursing Homes’ Systemic Ills
Open the Door to COVID-19

Advanced Technology
Telemedicine Steps Up
To Take on COVID-19

Healthcare-Acquired Infections
Should US Hospitals Attempt
To Find the Missing Link (Nurse)?

Environmental Services
How to Contain Infection Risk
During Hospital Building Projects

Vascular Access
Goodbye Vascular Access Nurse,
Hello Vascular Access Teams
CLEAN
PROTECT
COMPLY
VERIFY

WHAT
WE DO BEST

PROTECTING PATIENTS
With effective instrument & scope cleaning solutions

HELPING MEDICAL PROFESSIONALS
With a comprehensive offering of user friendly, efficient products that promote compliance

DRIVING INNOVATION
With progressive technologies that solve problems and improve outcomes
LIQUID CHEMISTRIES

SURFACE DISINFECTANTS

CLEANING VERIFICATION

SCOPE REPROCESSING

DETERGENT DELIVERY

PROTECTING PATIENTS
With effective instrument & scope cleaning solutions

HELPING MEDICAL PROFESSIONALS
With a comprehensive offering of user friendly, efficient products that promote compliance

DRIVING INNOVATION
With progressive technologies that solve problems and improve outcomes

WHAT WE DO BEST

1-800-537-8463 | WWW.RUHOF.COM
content

May 2020 | VOL. 24 | NO. 04

COVER STORY
personal protective equipment
18 When Fighting COVID-19
So Much Depends on Supply, Use of Face Masks
By Jan Dyer

LITERATURE REVIEW
healthcare-acquired infections
10 The Missing Link (Nurse)
By Frank Diamond

chronic/long-term care facilities
11 Long-Term Care Facilities
Too Often Blamed Unfairly
By Frank Diamond

IN ADDITION
hand hygiene
8 Bug of the Month
Move Over COVID-19: I Am the Baddest Bug on the Planet
By Frank Diamond

14 Medical World News
34 Product Locator

FEATURES
chronic/long-term care facilities
22 When COVID-19 Knocks on Nursing Homes’ Doors, It’s Often Let Right In
By Kevin Kavanagh, MD

environmental services
25 How to Better Contain Infection Risk During Hospital Construction
By Christopher Whiting

advanced technology
28 Q&A: How Telehealth Can Address the COVID-19 Outbreak

vascular access
30 Establish Vascular Access Teams for Patient Safety
By Nancy Moureau, RN, PhD, CRNI, CPUI, VA-BC

EDITORIAL
EDITORIAL DIRECTOR
Alexandra Ward
MANAGING EDITOR
Frank Diamond
CREATIVE DIRECTOR
Robert McGarr
SENIOR ART DIRECTOR
Nicole Slocum
GRAPHIC DESIGNER
Maia Thagard

SALES/MARKETING
EXECUTIVE VICE PRESIDENT
Brian Haug
bhaug@mmhgroup.com
609.325.4780

PUBLISHER
John Currid
jcurrid@mmhgroup.com
440.891.2655

REPRINTS, PERMISSIONS
& INTERNATIONAL LICENSING
Eric Temple-Morris
etemple-morris@mmhgroup.com
415.947.6231

SUBSCRIPTION CUSTOMER SERVICE
mmhinfo@mmhgroup.com

CORPORATE
CHAIRMAN & FOUNDER
Mike Hennessy, Sr
VICE CHAIRMAN
Jack Lepping
PRESIDENT & CEO
Mike Hennessy, Jr
CHIEF FINANCIAL OFFICER
Neil Glasser CPA/CFE
EXECUTIVE VICE PRESIDENT, OPERATIONS
Tom Tolvè
SENIOR VICE PRESIDENT, CONTENT
Silas Inman
SENIOR VICE PRESIDENT, LT. & ENTERPRISE SYSTEMS
John Moricone
SENIOR VICE PRESIDENT, AUDIENCE GENERATION & PRODUCT Fulfillment
Joy Puzzo
VICE PRESIDENT, HUMAN RESOURCES & ADMINISTRATION
Shari Lundenberg
VICE PRESIDENT, BUSINESS INTELLIGENCE
Chris Hennessy
VICE PRESIDENT, MARKETING
Amy Erdman
EXECUTIVE CREATIVE DIRECTOR,
CREATIVE SERVICES
Jeff Brown

ICT (INFECTION CONTROL TODAY) ICT subscription rates: is published 10 months print domestic $12 and is published 10 months print Canada USD $115. All subscriptions are non-refundable. Prices subject to change. Free digital subscriptions available at infectioncontroltoday.com for US, Canada and other foreign subscribers. Copyright © 2020 MultiMedia Healthcare LLC. All rights reserved. The publisher reserves the right to accept or reject any advertising or editorial material. Advertisers, and/or their agents, assume the responsibility for all content of published advertisements and assume responsibility for any claims against the publisher based on the advertisement. Editorial contributors assume responsibility for their published works and assume responsibility for any claims against the publisher based on the published work. No part of this publication may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without permission in writing from the publisher. All items submitted to ICT become the sole property of MultiMedia Healthcare LLC. Editorial content may not necessarily reflect the views of the publisher.

ICT May 2020 www.infectioncontroltoday.com
TRANSPORT CLEAN OR CONTAMINATED ENDOSCOPES SAFELY AND EFFICIENTLY

HEALTHMARK’S ENDO BIN & TROLLEY SET IS THE IDEAL SYSTEM TO MEET DEPARTMENT NEEDS AND INDUSTRY GUIDELINES

STAINLESS-STEEL TROLLEY
- Holds 5 Flexible Endoscope Trays
- Sturdy stainless-steel frame
- Lockable casters

5 FLEXIBLE ENDOSCOPE TRAYS
- Puncture resistant material
- 20” diameter for easy coiling
- Closed system with lockable lid

CLEAN & DIRTY SEAL PACK
- Tamper-evident
- Green seals for processed endoscopes
- Red seals for contaminated endoscopes

For more innovative tools to help effectively manage the proper reprocessing of endoscopes, visit HEALTHMARKGI.COM
Lives Depend on You, and We Want to Help

We’re going to get through this. We’re going to beat this invisible and insidious enemy, COVID-19, that’s caused by the novel virus SARS-CoV-2, and we’re going come out on the other end stronger and wiser. It won’t be easy. By now we’ve all accepted that, for the short-term, at least, there’s a new normal. Suddenly phrases and words that weren’t much in use just a couple of months ago pop up everywhere: “social distancing,” “flattening the curve,” “self-quarantine,” “containment,” “incubation,” “R-naught,” “fatality rate.”

Like every other business in the United States, MJH Life Sciences, the publisher of Infection Control Today®, has had to adjust. Most of us are working from home these days, but we’re working harder than ever to bring you—infection preventionists, hospital administrators, environmental services personnel, and others on the frontlines of infection control and prevention—the information you need to save lives.

We are your supply line.

And yes, there will be casualties. People are dying. You know that. You see it. And any death detracts from all of us. But because you’re in this fight—because, in many hospitals, you’re leading this fight—the casualty list will be much smaller than it otherwise might have been.

And you’re doing it, too often, without the weapons you need. Our cover story on page 18 shines a light on face masks, how just having them on hand (lucky you, if that’s the case) isn’t enough. As author Jan Dyer points out “they’re only effective when worn properly, and not everyone can—or does—wear them properly.”

Then we take direct aim at the epicenter of COVID-19 in the United States. As Editorial Advisory Board member Kevin Kavanagh, MD, points out on page 22, this opportunistic disease strikes hardest the healthcare facilities least likely to be able to handle it: long-term care facilities. There are deep-rooted, systemic problems in nursing homes that COVID-19 lays bare.

The emphasis on social distancing places a new premium on telehealth. As of this writing, federal legislators are working to ease restrictions and the states go even further. Eighteen states have either tweaked existing laws or issued new ones that expand telehealth’s scope.

Judd Hollander, MD, is an emergency department physician at Jefferson Health in Philadelphia, and also runs JeffConnect, that system’s telehealth services. In our Q&A on page 28, Hollander argues that telehealth was made for emergencies like this. Says Hollander: “The largest difference with COVID-19 and past disasters or outbreaks is twofold. First, telemedicine is much more advanced and is commonly used in some health systems…. The second difference is that there is not a problem with infrastructure as might happen after a hurricane so that communications methods are not disrupted.”

As I said: We’re your supply line. Tell us what you need. Contact Editorial Director Alexandra Ward at award@mjhlifesciences.com.

Thank you for reading,

Mike Hennessy, Sr
Chairman and Founder
Clean spaces can help save lives. That’s why you turn to Clorox Healthcare.

Patients come to the hospital to get better — not worse. That’s why Clorox Healthcare is dedicated to helping eliminate the environment as a source of infection, and why over 4,300* U.S. hospitals trust our products to help protect their patients. New VersaSure® Cleaner Disinfectant comes at-the-ready in the form of alcohol-free wipes. They’re equipped with the power to kill 44 pathogens in two minutes or less — offering versatility, and assurance.

Clorox Healthcare. Helping you protect the places where clean means everything. Visit CloroxHealthcare.com to learn more.

* Clorox Answers Shipment Report July 2018
COVID-19 this. COVID-19 that. COVID-19 the other. The saying goes that the greatest trick the Devil ever played is convincing the world he doesn’t exist. Well, I’m not the Devil, but I spread a lot of heartbreaking evil around. You haven’t exactly forgotten about me, but you don’t think about me that much either, that’s for sure. At least not if you’re living in a developed country. And that was the case even before COVID-19. Now? Forget it.

But I’m still out here. And although medicine is making strides against me, I’m far from finished. I’m going to kill about 4 million people this year. In 2018, I infected 10 million, and 1.5 million of them died.

The World Health Organization (WHO) listed me among its urgent health challenges that require global attention. I’m caused by bacteria that usually attack the lungs, but I can wreak havoc elsewhere, such as the kidney, spine, and even the brain.

Just like you-know-who, I come at you like the flu. You’ll suffer chills, exhaustion, a loss of appetite, chest pain, and weight loss. And coughing. Man, such coughing. Coughing fits, in fact; the hard, brutal kind that makes you hack up blood and sputum, the mucus that lies deep, deep inside your lungs.

I’m also sneaky. In my latent state I can live in your body without making you sick. You can thank your immune system for that. It keeps me from growing. It doesn’t always keep me from going, though, as in going on to infect others.

In my active state, if I’m not stopped by antibiotics, I’ll kill you. Common meds they throw at me include:

- Isoniazid
- Rifampin (Rifadin, Rimactane)
- Ethambutol (Myambutol)
- Pyrazinamide

What you take will depend on your age, overall health, and where I happen to be doing my dirty work in your body. You’ll probably have to take 2 or 3 drugs at once. You’ll need drugs against my latent stage, too, but maybe only 1 or 2.

So, go ahead, keep on obsessing about COVID-19. Don’t worry about me. I’m doing just fine.

Who am I? tuberculosis
Searching for the Missing Link (Nurse)

By Frank Diamond

A lot of it comes down to education and communication. That’s the primary takeaway from a study in *Antimicrobial Resistance & Infection Control* saying that the effectiveness of link nurses in helping to bolster infection prevention and control (IPC) efforts very much depends on the support those nurses and the programs they’re associated with have from hospital management, and the quality of interaction between link nurses and infection control personnel. A link nurse is a professional more common in Europe; in the United States they’re sometimes referred to as “nursing infection control champions,” according to Saskia v. Popescu, PhD, MPH, a nationally known infection preventionist and a member of *Infection Control Today*’s Editorial Advisory Board. “They are often rare, but they’re a wonderful resource if hospitals can encourage and support link nurse programs,” says Popescu.

Popescu speaks from a wealth of experience, but hard evidence on the effectiveness of link nurses is spotty. In January 2019, *ICT* reported on a study that concluded that there’s just not enough data to determine how well link nurse programs work. The authors of that study concluded that “available studies have methodological issues, small sample size or lack the consideration of the implementation process or patient outcomes.”

That study was also published in *Antimicrobial Resistance & Infection Control* and both studies have the same corresponding author, Mireille Dekker, of the department of medical microbiology and infection prevention with Amsterdam UMC, Vrije Universiteit Amsterdam. Last year’s study—January 2019—was titled “Infection Control Link Nurses in Acute Care Hospitals: A Scoping Review.”

Dekker tells *ICT*: “I am indeed on a bit of a mission to study the effects of link nurse programs and ways to improve their impact. I started out as a link nurse myself. Nowadays, I am a clinical epidemiologist working in infection control. In our hospital, this two-way communication between the infection control team and the nurses in the ward is vital, especially in these hectic times.”

The study published this year in February 2020 was titled “Infection Control Link Nurse Programs in Dutch Acute Care Hospitals: A Mixed-Methods Study.”

It examines ways to make link nurse programs more effective and although it too bemoans the dearth of data about such programs, it suggests ways hospitals can find out more.

“To evaluate the contribution of ICLN [infection control link nurse] programs to the implementation of IPC guidelines it is necessary to audit the program effects and to perform well-designed effectiveness studies,” the study states. “Social network analysis could contribute to understanding how knowledge on infection control and prevention is transferred best.”

Ideally, link nurses increase awareness of infection control issues and motivate colleagues to improve in that regard, keeping patients and themselves safer by limiting the spread of HAIs.

The link nurse provides just that—a link—between IPC and hospital wards and/or departments. Ideally, they increase awareness of infection control issues and motivate colleagues to improve in that regard, keeping patients and themselves safer by limiting the spread of healthcare-acquired infections (HAI).

Although infection control link nurse programs exist throughout the world, there’s wide variation on how the programs are organized and implemented. To be most effective, link nurses need to receive training from the infection control team.

In the study, Dekker and associates write that “the few studies that have evaluated effectiveness of these programs revealed that compliance with hand hygiene guidelines and incidence of MRSA infections indeed improve when ICLN are active. However, these studies do not describe their ICLN program in detail nor elaborate on the contextual factors that may have contributed to these improvements.”

“Contextual factors include factors that are not part of the ICLN program such as cultural, organizational and management characteristics of the hospital, but do play a role in the implementation of IPC practices.”

Nearly 90% of the hospitals made education a bulwark of ICLN efforts. That usually included 2-hour sessions given about 6 times a year. These sessions were conducted in-house.

Dekker and associates collected data through a mixed-methods process combining a survey and semi-structured interviews with infection control practitioners. Seventy-two infection control practitioners from 72 different hospitals...
Although infection control link nurse programs exist throughout the world, there’s wide variation on how they’re implemented. To be most effective, link nurses need to receive training from the infection control team.

participated in the survey (the Netherlands has 74 hospitals).

Investigators also conducted in-depth interviews with 4 of the infection control practitioners. Snippets of these interviews pepper the study and offer a snapshot of the challenges and rewards of ICLN efforts.

The survey was divided into five parts and asked whether their institution had an ICLN program or intended to set one up, what were the tasks of the link nurses, what infection prevention professionals felt ICLNs needed to be able to do a better job, what sort of education was provided and how respondents rated the programs. In the final part of the survey, respondents were asked to what extent they were able to accomplish their IPC goals through the help of ICLNs, the study states. This was expressed on a 10-point Likert scale.

Forty-eight (66.7%) completed surveys came from hospitals with an ICLN program; 18 (25%) from hospitals planning to implement one in the near future. Six (8.3%) said that their ICLN programs had been abandoned due to lack of support from the ward and/or hospital management.

The ICLN programs had been in operation from 3 to 8 years in the institutions that had them. In the hospitals where the infection control team initiated the program, the IP teams did so from an effort to disseminate IPC knowledge, and often in response to an infection control problem.

“The actual start of these programs was related to a more positive overall attitude of hospital management and healthcare workers towards IPC, it was sparked by threats such as a recent Ebola outbreak and the rise of antimicrobial resistance,” the study states.

As an interviewee put it, “We needed this outbreak of vancomycin-resistant enterococci to convince our hospital management that we needed to implement an ICLN program” (the interviewees were not identified).

The top 3 goals of the ICLN programs were to increase an awareness of infection prevention, create a liaison between the wards and the IPC team, and to make the ICLN a source of information for peers.

“Some infection control practitioners were able to described these program goals in a clear manner and incorporated knowledge and skills from other departments (e.g. quality department, training and education department) to supplement their own and ICLN’ competences whereas others found it challenging to prepare a plan of action,” the study states.

As an interviewee put it, “As an infection control practitioner I am obliged to support link nurses, but I don’t know how to do that best.”

The relationship between the ICLN and the IPC team was give-and-take, but exactly who was giving what and in what amount varied.

“Some infection control practitioners focused their efforts on providing support for the ICLN in implementing IPC policies, where others focused more on receiving support from the ICLN in monitoring the compliance with IPC measures,” the study states.

Many times, the programs were created on the run. “Infection control
practitioners described that they developed their programs while implementing them at the same time,” the study states. “Programs were adapted as IPC teams searched for an optimum strategy to collaborate with their link nurses to improve practice.

“Adjustments to the program were based on lessons learned during implementation and the dynamic IPC priorities. Infection control practitioners query what sort of training to provide, what topics to educate on and how to stimulate ICLN to be proactive.”

Communication doesn’t always flow freely. One interviewee said that, “Our link nurse meetings must become a bit more interactive. We need to ask: What did you learn? What will you do differently tomorrow? What is the next issue you will address?”

When it came to making ICLN program goals, the buck stopped with the IPC team in two thirds of the hospitals. “The IPC teams perceived the introduction of ICLN networks and the activities of ICLN as important assets that helped them to achieve their infection control goals,” the study states. “They scored this importance with a median of 7.0 (IQR 6.0–7.0) on a 10-point Likert scale.”

The study concludes “Although programs vary widely, education is an overall core component. Efforts to improve the uptake of IPC guidelines through ICLN programs should focus on enhancing infection control practitioners’ and link nurses’ knowledge on implementation science and designing these link nurse programs as multimodal interventions.”

### References


---

### Literature Review

**chronic/long-term care facilities**

**Long-Term Care Facilities Particularly Vulnerable To COVID-19 (and Criticism)**

By Frank Diamond

It’s a matter of demographics, say the authors of an article in press in the *Journal of Post-Acute and Long-Term Care Medicine.* COVID-19 will disproportionately hit nursing homes and other long-term care facilities because the disease is particularly lethal to the elderly.

With that in mind, investigators with Brown University and the Veterans Administration are putting out a call against the blame game.

Under a subtitle in the article that is, in fact, labeled, “The Blame Game,” they write: “In recent years, negative outcomes in nursing homes during disaster situations have led the media, public health officials, and politicians to find fault with nursing home providers.”

Investigators cite the case in which 4 nursing home workers were charged with criminal homicide in Florida during Hurricane Irma.

Without commenting on the particulars of that case, the “historical reality is chilling” given that the epicenter of COVID-19 in the United States is the Life Care Center in Kirkland, Washington where, as of this writing, COVID-19 was found in 81 residents, 34 staff members, and 14 visitors; and 35 people died.

“Quite clearly, mortality within long-term care environments related to COVID-19 will be significantly higher than among the general population as a function of resident advanced age and comorbidity rather than substandard care,” the article states. “Some understanding of this fact will certainly be welcomed by the long-term care industry, who are often responsible for delivering difficult care under sub-optimal circumstances.”

The fatality rate in China for those 70 to 79 is estimated at 8%, and for patients over 80, that shoots up to 14%. “Even as the overall care fatality rate drops, the risk of death among older adults may be 10-fold higher than for younger individuals,” the article states.

Mortality rates also increase with the presence of heart or chronic respiratory disease, which are common in long-term care facilities. Rates of heart disease exceed 30% and, for chronic obstructive pulmonary disease, it exceeds 20% in long-term care facilities, say investigators.

“Further, extreme functional impairment within long-term care facilities makes close contact between healthcare workers and residents inevitable,” the article states.

“Additionally, cognitive impairment among residents may make contact precautions and isolation a practical impossibility.”

Workers should wear gowns, gloves, facemask, and eye protection, but…

“This may be challenging in the nursing home environment, where supplies of these items may be limited and are prioritized for acute care hospitals,” the article states. “In long-term care settings, few of which have negative pressure (airborne isolation) rooms, simple measures like pulling room-dividing curtains and closing doors are helpful.”
Literature Review

Even the admonishment that workers with symptoms need to stay home can be problematic, as most of the workers live paycheck to paycheck and long-term care facilities are often understaffed. Workers are used to being pressured to work even when sick.

“Providing a work environment that allows healthcare workers to call out without repercussion will be critically important,” the study states.

Whether to admit someone who has been diagnosed with COVID-19 will be another concern. “Long-term care facilities are a key component of our healthcare system, and we can anticipate significant pressure to receive discharged hospitalized patients for convalescence or to accommodate sicker patients arriving from the community,” the article states. “We do not yet know how long individuals shed transmissible levels of virus, whether older individuals shed virus longer, nor whether cohorting confirmed cases can reduce risk of spread within a facility or contributes to disease severity among those cohorted.”

Mortality rates for COVID-19 increase with heart or chronic respiratory disease. Rates of heart disease is 30% and, for chronic obstructive pulmonary disease, it exceeds 20% in long-term care facilities.

References

Q&A
A Conversation With David Dosa, MD, MPH

Infection Control Today® reached out to the study’s corresponding author, David Dosa, MD, MPH, an associate professor of medicine and health service, policy & practice at Brown University’s School of Public Health.

Infection Control Today®: Your article seems to be a preemptive attempt to dissuade experts and the public for blaming the spread of COVID-19 on long-term care facilities. Is that a fair assessment?

David Dosa: I have worked in the area of disaster preparedness and nursing homes since 2003. The universal theme throughout this time is that nursing homes are often ignored by public health officials and at times unfairly held to standards in the post-disaster dialogue (eg, Monday morning quarterbacking) that they were never financially equipped or staffed to handle. Bottom line—nursing homes are not hospitals, yet they are asked to take care of some of our sickest patients. The point of the article was to raise awareness that there are a lot of unanswered questions that are not necessarily first and foremost on the minds of public health officials and politicians. As you have seen in the Washington state case, they really will need to be a key focus in this epidemic.

ICT®: You touch on many aspects of what makes dealing with COVID-19 especially difficult in long-term care facilities. Your point, as far as I can tell, is that LTCs are the most vulnerable institutions and yet they have the least to work with? True?

Dosa: Nursing homes do have some experience with outbreak situations such as influenza. Nevertheless, they are not set up with negative pressure rooms and staff members are not trained in most circumstances to gown up in full protective gear. In fact, most nursing home residents live in rooms with more than one resident, making infection control extremely difficult. Coupled with the intense functional needs that most nursing home residents require, this makes infection control challenging under optimal circumstances.

ICT®: How can that can be addressed?

Dosa: Immediate recognition that infection control in the nursing home remains a challenging situation to address. Help from infection control professionals in preparing these facilities to address the COVID-19 crisis. Some additional financial resources from federal and state governments to allow nursing homes to temporarily increase their staffing levels, acquire the necessary equipment, and allow for enhanced screening of staff, vendors, and visitors (if they are allowed) would also be important.

ICT®: It starts with making the public aware, correct?

Dosa: The public really does need to be aware of why some of the draconian policies related to visitation are going into effect in this environment. The experience in Washington state and the newly announced case in New Orleans makes this all the more apparent.

ICT®: Anything else?

Dosa: One of the key factors in preventing outbreaks within nursing homes will be paid sick leave for employees—often those with the most contact with patients (LPNs, aides, etc) work multiple jobs at hourly wages. If they don’t work, they don’t eat and that prompts many to come to work even when they don’t feel well. Nursing homes really do need to institute plans to check all who enter for symptoms and send those who are sick home. Paid leave would help in this situation.
at your fingertips.

Why stop learning when you’re finished enjoying this issue?

Go online to the source for science, policy and practice of infection control. You’ll find our latest on every vital topic — and a library of information that’s brought us to where we are today.

InfectionControlToday.com
Focus on Surface Disinfection When Fighting COVID-19

By William A. Rutala, PhD, MPH, CIC, and David J. Weber, MD, MPH

The perfect disinfectant or product for healthcare disinfection has not been introduced; however, there is a wide array of excellent disinfectants that offer a range of characteristics. As of March 10, 2020, the US Centers for Disease Control and Prevention (CDC) recommendation on disinfectant products for COVID-19 is to use an Environmental Protection Agency-registered disinfectant on List N on the EPA website that has qualified under the EPA’s emerging viral pathogens program for use against SARS-CoV-2.

The rationale for this recommendation is if disinfectants inactivate harder to inactivate microorganisms (e.g., mycobacteria, non-enveloped viruses) than coronaviruses, they should be expected to inactivate COVID-19. This logic is based on the recognition by the CDC and the EPA that certain microorganisms can be ranked with respect to their tolerance or resistance to chemical disinfectants (i.e., Spaulding classification model).

With this approach, the most susceptible to most resistant tiers of microorganisms are: lipid (i.e., enveloped) or medium-sized viruses (e.g., coronaviruses); vegetative bacteria (e.g., S. aureus); fungi (e.g., Candida, Aspergillus); non-lipid (i.e., non-enveloped) or small viruses (e.g., poliovirus, rhinovirus); mycobacteria (e.g., M. tuberculosis); coccidia (Cryptosporidium); and the most resistant, spores (e.g., C. difficile).

With this conservative approach, EPA divided the viruses into 3 subgroups based on size and type of virus: enveloped viruses (easiest to inactivate such as coronavirus); large (50-100nm) non-enveloped viruses (such as adenovirus and rotavirus, harder to inactivate than enveloped viruses); and small (<50nm) non-enveloped viruses (hardest to inactivate such as rhinovirus). This hierarchy is used to determine a product’s anticipated efficacy against an emerging viral pathogen.

SARS-CoV-2 is an enveloped virus and the easiest to inactivate of the 3 subgroups of viruses. Coronaviruses, such as SARS-CoV-2 and MERS-CoV, cause an acute respiratory illness in humans and are transmitted from animals to humans. Bats are likely the main mammalian reservoir.

Based on the EPA emerging viral pathogen criteria, an EPA-registered, hospital disinfectant must have a disinfectant efficacy claim against at least 1 small or 1 large non-enveloped virus to be eligible for use against an enveloped emerging viral pathogen. EPA’s List N identifies which registered products have this designation on their Master Label.

Why does this matter? Over the past decade, there has been a growing appreciation that environmental contamination of hospital surfaces promotes infection transmission for many pathogens. Studies with epidemiologically important pathogens (e.g., MRSA, VRE, C. difficile) have shown that surfaces are contaminated and the frequency of hand contamination correlates to the frequency of environmental contamination.

While the level of surface contamination with COVID-19 is not known, studies with other epidemiologically important pathogens have shown that disinfection leads to decreased transmission. Further, studies of coronaviruses have demonstrated that they may survive on surfaces for hours to days depending on temperature and humidity. Unfortunately, many studies have shown that disinfection of surfaces is suboptimal and effective disinfection requires not only an effective product but also, effective practice.

The combination of product and practice results in effective surface disinfection, including the reduction of risk via viral removal and/or inactivation of pathogens. The criticality of practice is highlighted by studies that demonstrate surface contamination with epidemiologically-important pathogens is due to a failure to thoroughly disinfect surfaces rather than a faulty product. While there are many factors that could influence the efficacy of disinfection, the surface must be completely and thoroughly wiped with an adequate number of antimicrobial wipes effective against the target pathogen (or harder to inactivate microorganisms) and a contact time specified by the label instructions.

The transmission of viral respiratory pathogens such as COVID-19 can be minimized by thorough and complete application of an EPA-registered disinfectant per the manufacturer’s instructions, that is included on EPA’s List N, to surfaces as well as good personal hygiene, including hand hygiene, minimize contact with your face, and respiratory hygiene/cough etiquette.

Many studies have shown that disinfection of surfaces is suboptimal and effective disinfection requires not only an effective product but also, effective practice.

William A. Rutala, PhD, MPH, CIC, is a consultant for PDI. He is also director of the North Carolina Statewide Program for Infection Control and Epidemiology (SPICE) and professor at the University of North Carolina School of Medicine.

David J. Weber, MD, MPH, is a consultant for PDI. He is also the medical director at UNC Hospitals’ Departments of Hospital Epidemiology (Infection Prevention).
Asymptomatic Carriers of COVID-19 Make It Tough to Target

By Infection Control Today® Staff

The rate of transmission seems to be what makes COVID-19 a more serious threat than an earlier iteration of a coronavirus outbreak, a transmission rate aided by carriers who are asymptomatic, according to a research letter in the New England Journal of Medicine (NEJM). The virus that causes COVID-19, SARS-CoV-2, was compared to SARS-CoV-1, which emerged in the early 2000s, but was quickly brought under control. SARS-CoV-1 is the human coronavirus most closely related to SARS-CoV-2.

The data in the NEJM letter—compiled by investigators with the National Institutes of Health (NIH), the US Centers for Disease Control and Prevention (CDC), the University of California, Los Angeles (UCLA), and Princeton University—were widely shared on a preprint server.

Investigators found that SARS-CoV-2 stays active on surfaces for about the same duration as SARS-CoV-1. It’s detectable in or on aerosols for up to 3 hours, copper for up to 4 hours, cardboard for up to 24 hours, and plastic and stainless steel for up to 2 to 3 days. The estimated differences in the half-lives of the viruses was small except in the case of cardboard.

“We found that the stability of SARS-CoV-2 was similar to that of SARS-CoV-1 under the experimental circumstances tested,” the study states. “This indicates that differences in the epidemiologic characteristics of these viruses probably arise from other factors, including high viral loads in the upper respiratory tract and the potential for persons infected with SARS-CoV-2 to shed and transmit the virus while asymptomatic.”

The measures used to successfully control SARS-CoV-1 will have a tougher time against SARS-CoV-2, the NIH pointed out in a press release. SARS-CoV-1 was stopped by intensive contact tracing and case isolation measures. No cases have been detected since 2004.

“In contrast to SARS-CoV-1, most secondary cases of virus transmission of SARS-CoV-2 appear to be occurring in community settings rather than healthcare settings,” the NIH says. “However, healthcare settings are also vulnerable to the introduction and spread of SARS-CoV-2, and the stability of SARS-CoV-2 in aerosols and on surfaces likely contributes to transmission of the virus in healthcare settings.”

The findings mirror those in 2 other studies by Dutch and Japanese investigators that also point to the problem of asymptomatic carriers of COVID-19. Japanese researchers looked at the 634 passengers who tested positive for COVID-19 on the Diamond Princess cruise ship. They found that 17.9% of these passengers were asymptomatic. Dutch researchers estimate that the “the proportion of pre-symptomatic transmission was 48% (95%CI 32-67%) for Singapore and 62% (95%CI 50-76%) for Tianjin, China.”

Fight COVID-19 With Telemedicine

By Infection Control Today® Staff

Infection preventionists, hospital administrators, and other healthcare professionals should turn to telemedicine to help deal with the COVID-19 pandemic. Add to that list the most important stakeholder of all—patients, says a study in the American Journal of Managed Care.

“Telemedicine systems are ideal for mitigating overcrowding of hospitals and clinics by triaging low-acuity patients while also preventing additional unnecessary human exposures and promoting delivery of high-quality care,” say investigators with the Jones Day law firm in Detroit. “Because state, federal, and international laws and regulations have expanded in recent years, months, and weeks to accommodate greater adoption of telemedicine systems (especially during this public health crisis), healthcare providers are now better situated to consider implementing such systems.”

One of the barriers that needed to be addressed was just how providers are to
the model of saturation, here are some US healthcare response moves more to begins. While guidance changes and the from putting out one fire as another this point, it often seems as if we’re going Every day brings new challenges and at

By Saskia v. Popescu, PhD, MPH, MA, CIC

takes Managing COVID-19 a Day at a Time

This Infection Preventionist

Frontlines Dispatch: This Infection Preventionist Takes Managing COVID-19 a Day at a Time

By Saskia v. Popescu, PhD, MPH, MA, CIC

This is a tough time. There’s no other way of saying it for those of us in healthcare and infection prevention. Every day brings new challenges and at this point, it often seems as if we’re going from putting out one fire as another begins. While guidance changes and the US healthcare response moves more to the model of saturation, here are some general findings and thoughts in the midst of this pandemic.

As more people get tested, we will see more cases. That’s a given. Part of this means that staff and healthcare workers will be exposed in the community and potentially when caring for patients. It is likely that moving away from contact tracing and exposure evaluation will occur and instead we will have to rely on staff symptom checks and not working when they are sick. Meaning that everyone has a critical role in acknowledging signs and symptoms and staying home to isolate and avoid further transmission.

Healthcare workers are scared. Everyone is at a heightened level of stress and worry as stores, restaurants, and many businesses are temporary closed to reduce further transmission and support social
distancing. This is a bizarre time and while it will likely be a while before the US moves past it, it is important that we support and lean on each other.

Infection preventionists should rely on support systems—meet with leadership and encourage transparency. Talk to staff and use those moments training when training about using personal protection equipment (PPE) and isolation precautions, to also answer questions.

Re-using and extended use of N95 masks is something most healthcare workers likely never experienced and goes against nearly everything infection preventionists have drilled into them over the years. Explain that things might change but that everyone is working hard to keep them safe and why isolation precautions are unique in this situation, but ultimately these are skills they’ve had for years.

Establish a process for information sharing. Daily meetings with leaders and sharing of the suspected or confirmed COVID-19 cases, goes a long way. Continued conversations ensure everyone is on the same page and questions are being answered real-time.

As everyone adapts to this new situation there will be modifications to make guidance work and ensure staff and patients are safe. Transparency means trust and right now, healthcare workers need to know they can trust their infection prevention team.

Take care of yourself. This might sound lofty as so many have been working nearly 24/7 for weeks or months now. This is not a sprint, but rather a marathon and so much of our private and home lives are being impacted. Take the time to establish guidance for staff that can be used instead of calling you for everything. You need a break. Rounding in the morning and before the end of the day helps answer a lot of questions that might have resulted in a late-night call.

Too often infection prevention work feels thankless, but the truth is that we are the backbone in this situation and now is the time that people really see that. This is the moment that infection prevention shines and it may not be perfect. In fact, it’ll be messy and at times frustrating, but stay the course.

Take those quiet moments if you can—eat lunch outside or talk about something other than COVID-19 as it feels that’s all we talk about lately. Infection preventionists and our efforts are so critical right now and it is important people understand that so much of this is new for us all but if we work together, we can flatten the curve for us all.

### advanced technology

**Newly Approved Machine Can Decontaminate 80,000 Respirator Masks Per Day**

*By Infection Control Today*® Staff

A machine that can decontaminate up to 80,000 respirators a day has been granted Emergency Use Authorization by the US Food and Drug Administration. The decontamination system, made by a company called Battelle, is the CCDS Critical Care Decontamination System and uses vapor phase hydrogen peroxide to decontaminate the masks. Respirators are in short and dwindling supply.

“This could be a game changer,” says Kevin Kavanagh, MD, a member of Infection Control Today®’s Editorial Advisory Board. “The process not only has to sterilize the mask but also preserve the integrity of the filtering material and straps. Even if these masks could just be re-sterilized a few times, it could potentially more than double a facility’s supply.”

In fact, the machine “can decontaminate the same respirator mask up to 20 times without degrading the mask’s performance,” according to a Battelle press release.

And it comes not a moment too soon. President Trump evoked the Defense Production Act to order General Motors to begin making respirators, the same day that the Association for Professionals in Infection Control and Epidemiology (APIC) painted a picture of just how desperate things have become.

Ann Marie Pettis, RN, BSN, CIC, FAPIC, APIC’s president-elect, works in New York State, which she called the epicenter of the COVID-19 outbreak in the United States and said that “as an infection preventionists our days are spent frantically searching for PPE, advising fellow clinicians on how to reuse masks, gowns, goggles, and all the other PPE that they currently have, or actually how to create their own. And truly this goes against everything we have known from the scientific evidence, and what we have always taught our staff.”

Battelle, which is based in Columbus, Ohio, said in its press release that “the respirator masks are exposed to the validated concentration level for 2.5 hours to decontaminate biological contaminates, including SARS-CoV-2.”

Two of the machines are expected to be employed in Ohio, while others will be heading to New York, Seattle, and Washington, D.C.
As the novel coronavirus COVID-19 continues its logarithmic leaps from person to person, across borders and oceans, trailing jokey and terrifying viral memes, it has triggered an odd assortment of hoarding behaviors in the panicky public: toilet paper, hand sanitizer, soap … and surgical face masks.

Early—and indeed, ongoing—lack of information about the virus’ etiology and pathology meant face masks have become a precious commodity. In early March, health authorities from Washington state (which by that time had announced the first COVID-19–related death in the US) sent an urgent request to the federal Strategic National Stockpile for 233,000 respirators and 200,000 surgical masks.

They received an answer—but not the one they hoped for. They would get less than half the amount they requested: 93,600 N95 respirators and 100,200 surgical masks.1

In late February, when US Department of Health and Human Services Secretary Alex Azar said the US needed at least 300 million N95 respirators for healthcare workers, the US had only 30 million.2 As of March 5, Prestige Ameritech, one of the few manufacturers still making face masks and respirators in the US, had received requests for 1.5 billion masks.3 As of March 10, the US had a national stockpile of 12 million N95 masks and 30 million surgical masks for a healthcare workforce of about 18 million, according to an article in STAT, which notes “[i]f only 6 million of them are working on any given day (certainly an underestimate) they would burn through the national N95 stockpile in two days if each worker only got one mask per day, which is neither sanitary nor pragmatic.”4

The US Centers for Disease Control and Pre-

---

**When It Comes to COVID-19 Fight, Some Problems Can't Be Masked**

By Jan Dyer
viation (CDC) in mid-March posted new guidelines, saying surgical masks are now an acceptable alternative for N95 respirators because “the supply chain of respirators cannot meet demand.”

The mismatch between demand and supply has opened questions about what actually is the best way to protect against infections like COVID-19, and who will benefit most from them. The World Health Organization (WHO) has said wearing masks may create a false sense of security among the general public. US Surgeon General Jerome Adams, MD, tweeted in exasperation: “Seriously—STOP BUYING MASKS! They are NOT effective in preventing general public from catching Coronavirus, but if healthcare providers can’t get them to care for sick patients, it puts them and our communities at risk.”

Shortfalls in protective masks have put a spotlight on 2 concerns in particular: utility and compliance. Experts agree that not every situation requires a face mask, even in this world of drug-resistant bacteria—although it isn’t always definitively clear which situations do.

In an interview with BBC News, David Carrington, MD, of the University of London, said although routine surgical masks could help lower the risk of contracting a virus via the “splash” from a sneeze or cough, and provide some protection against hand-to-mouth transmission, they aren’t effective against airborne viruses or bacteria because they’re too loose, have no air filter, and leave the eyes exposed.

**Long Journey**

Face masks have come a long way since the 1800s, when they were basically gauze strips placed over the mouth. Originally developed to minimize the risk of transmitting microorganisms from clinician to patient, they’re now intended to protect both patients and clinicians from drug-resistant pathogens transmitted by blood or other body fluids.

Masks come in different shapes, with different features, intended for different purposes: flat-fold tie-on, duckbill with or without shield, cone shaped, flat-fold with shields...theoretically, there should be something for everyone. But they’re only effective when worn properly, and not everyone can—or does—wear them properly. Most guidelines suggest changing a surgical mask any time it becomes wet. A mask wet with exhaled moisture has increased resistance to airflow, is less efficient at filtering bacteria, and vents more. It’s not uncommon, though, says Dianne Rawson, RN, MA, in *The Basics of Surgical Mask Selection*, to see masks poorly fitted, placed below the nose, or wet with blood or body fluids.

Even the correct mask can put clinicians at risk if not worn correctly: with nose and mouth completely covered to create a seal and prevent gaps. But fit can be an issue for anyone whose face doesn’t follow the median contours, or someone who has a beard or mustache. A 2000 study found that bacterial shedding from people with beards was increased (although an analysis of that study called it “an example of contamination being extrapolated to infection without measuring the endpoint of infection”).

One National Health Service hospital in England has responded to the coronavirus pandemic by asking staff to “consider” shaving their beards. “I recognize,” Derek Sandeman, MD, the medical director, said, “for some this is a big ask, that beards are so popular at present. However, I do believe it is the right thing to do.” He added that alternative types of respiratory equipment are available for people who have a good reason to keep their beards, including for religious reasons.

The CDC has helpfully published a visual aid for the kinds of facial hair that work, or don’t work, with mask use. Some styles, such as soul patches, pencil mustaches, and “the Zappa” made the cut.

The current health emergency (like other pandemics) has also put a new spotlight on compliance, a complicated subject. Studies have demonstrated that healthcare workers are generally poorly compliant with respiratory guidelines. But compliance studies often run into the Hawthorne effect: Knowing they’re being observed, staff tend to improve their adherence.

Interestingly, a 2019 study found that following hospital protocol for using N95 respirators was a given—until it wasn’t. Discussions with focus groups of nurses and nursing assistants at 4 Veterans Administration and academic medical centers revealed that discomfort was not the main issue. People wanted to follow respiratory protective equipment (RPE) protocol, the investigators said, but RPE misuse was driven by “personal” protocols, such as when people did not trust the protocol and instead relied on their experience. Generally, the misuse amounted to overuse—staff didn’t trust the safety protocols and wanted to protect themselves and patients. The overuse, of course, is a factor in supply shortages.
**Not Enough Time**

Moreover, according to researchers who reviewed studies on facial protection, healthcare workers may view standard precautions as adversely affecting job performance and their relationships with patients: They cite insufficient time, interference with job duties, reduced dexterity, and discomfort. But the investigators also found peer pressure and attitudes of family members who were afraid of contracting infection influenced the actions of the healthcare workers, making them more likely to adhere to safety procedures. One health professional said, “I think the fear of contracting the disease was palpable, very real. Nobody was trying to cut corners.”

The CDC has issued interim recommendations, tempered with reality: When possible—given the current shortages—patients with confirmed or possible infection should wear surgical masks, and healthcare workers treating potentially infected patients should wear N95 respirator masks and goggles. N95 respirators are more protective, reducing exposure to small particles, filtering out at least 95% of airborne particles, and, because of the tight fit, allowing minimal leakage (the National Institute for Occupational Safety and Health recommends fit assessment during the initial selection of a respirator and periodically as part of a respiratory protection program). But the tight fit that makes respirators safer than masks also makes them uncomfortable, especially when worn for long stretches. Julie Feuer, an oncology nurse practitioner in a large county hospital in Westchester County, New York, says she wears a mask for about half the day, depending on how many of her patients are on droplet isolation. Although she prefers the N95 for safety reasons, especially during this pandemic, “it’s pretty tight on my face, leaving marks—and it’s hot under there!” It’s a little claustrophobic, she says. “Regular surgical masks are easier to deal with and looser fitting.”

Kathy Manelis, RN, agrees. Recently retired after 37 years, she worked with critically ill patients and usually wore a mask for 20 to 30 minutes at a time. She, too, found the masks claustrophobia-inducing—and they steamed up her glasses.

Alessia Bonari, a young nurse in Italy, posted a photo of the chafe marks from the respirator, saying, “I’m afraid because the mask might not stick properly to the face… I’m physically tired because the protective devices hurt…”

Respirators have also been associated with mild adverse effects, including acne, skin rashes, dehydration, and headaches. About one third of healthcare providers in one study reported headaches, which could be due to hypoxemia, hypercapnia, or stress, the researchers say. It’s also possible, they note, that the pressure from the strap on the neck over the superficial nerves might aggravate neck strain.

**Crisis Strategies**

Researchers who surveyed healthcare workers about respirator use said the respondents were looking for respirators that are more comfortable, interfere less with breathing, diminish heat buildup, are disposable, and permit the user to have facial hair. Healthcare workers have also said time constraints related to donning, doffing, and changing masks frequently are very real: “…In triage, you change your goggles, gloves, mask and gown between every patient and it’s 100% not feasible,” said one. “Patients would be dying waiting at the triage desk.”

The CDC offers alternatives to N95 respirators, such as other classes of filtering facepiece respirators, elastomeric half-mask and full facepiece air-purifying respirators (which can be repeatedly disinfected, cleaned, and reused), all of which provide equivalent or higher protection than N95 respirators (“when properly worn,” the CDC cautions). Crisis strategies also include using respirators beyond the manufacturer-designated shelf life, and “limited” re-use.

Health authorities have a double-pronged problem to tackle: The pandemic-driven urgency for enough protection and the daily-use desire for more comfortable protection.
Acute care progress, here and now

Be there when news happens.

*Infection Control Today*®'s eNewsletter spotlights the week’s biggest headlines. Our digital edition brings you infection control and disinfection news, education and information you can take anywhere. **Subscribe today!**

InfectionControlToday.com/subscribe
Despite nursing homes becoming a nidus of multi-drug resistant organisms (MDROs), the regulations for staffing infection preventionists (IPs) at nursing homes are far too lax. Nursing homes should have a full-time IP. Presently the regulations only specify a part-time IP without a specific required time commitment. In view of the large number of nursing home residents and the high drug-resistant carriage rate, a full-time position is certainly needed.¹

That’s especially true these days, as coronavirus disease 2019 (COVID-19) hits nursing homes with particularly devastating results. At the now-infamous Life Care Center, a 130-resident nursing home facility in King County, Washington, COVID-19 caused 35 deaths, 34 of whom were residents as of this writing. As of March 23, 127 of the 15,000 nursing homes in the United States had at least 1 resident who tested positive for COVID-19.³

Mortality rates also increase with the presence of heart or chronic respiratory diseases, which are common in nursing homes and other long-term care facilities. Rates of chronic obstructive pulmonary disease are greater than 20%, and for heart disease they are greater than 30% in long-term care facilities.

So, expect mortality from COVID-19 to be significantly higher at nursing homes and other long-term care environments than among the general population just as a function of advanced age and comorbidities of the residents. In China, the case fatality rate (CFR) is estimated to be 8.0% for those 70 to 79 years of age, and for patients over 80, that shoots up to 14.8%.⁴ Even as the CFR drops with improved treatment options, it is expected that those over the age of 80 will have a 10 times higher fatality rate than younger patients.⁵

Systemic Problems

Many nursing homes around the nation have suspended all visitations, which hopefully will increase the awareness of the importance of controlling the microbiome in nursing homes. Most hospitals routinely screen patients admitted from nursing homes for MDROs, but nursing homes seldom engage in similar action. Nurse staffing in nursing homes is also all too often inadequate, although state requirements may vary. The federal government relies on the requirement to have “sufficient nursing staff.” The definition of “sufficient” is largely in the eyes of the facility.⁶

In addition to low staffing, salaries for nursing home nurses are lower than they are at hospitals. According to payscale.com, the average RN working at a nursing home is paid on average $28 per hour compared to $29 at a hospital. Certified nursing
assistants are paid on average $12 per hour at nursing homes and $13 at hospitals. Even at these salaries, coverage of living expenses can be difficult.

In terms of quality of care, none of the US Centers for Disease Control and Prevention’s (CDC) 5 most “urgent threats” are mandated to be reported on a national basis by nursing homes. The only nationally reported data on infectious disease, which can be found on Nursing Home Compare, are for urinary tract infections. State requirements vary widely. Nursing homes need to have a comprehensive mandatorily reported national tracking system for infectious disease.

Even before the COVID-19 virus refocused the nation’s attention on nursing homes, there were severe deficiencies in infection control. A recent study in California found that over 50% of nursing home residents harbor MDROs. Of course, extrapolating this data to the entire nation needs to be done with caution, but California has one of the lowest rates of antibiotic usage in the nation. Some states in Appalachia, such as Kentucky, have over twice the utilization. At the very least, this study raises grave concerns.

Required antibiotic stewardship programs are all too often ineffective. The CDC estimates that up to 75% of antibiotics in nursing homes are not prescribed correctly. One study found that 42% of the residents in nursing homes are carriers for methicillin-resistant Staphylococcus aureus (MRSA) and 34% carry extended-spectrum β-lactamase-producing organisms. Both of these organisms are defined as “serious threats” by the CDC. The US Centers for Medicare and Medicaid Services (CMS) tolerates a medication error rate of 1 in 20 prescriptions. There are few requirements for antibiotic prescription oversight. The CDC recommends antibiotics administered for sepsis be rechecked by a professional within 48 to 72 hours after initiation. This standard should also be applied for all antibiotics given in nursing homes. A common failing is the unnecessary continuation of antibiotics in newly admitted residents, since a facility physician visit is not required for up to 30 days post-admission and, if requested, it is considered timely if it occurs within 10 days.

In response to this threat, CMS in collaboration with the CDC, will be initiating targeted infection control inspections with streamlined checklists. During this time standard inspections of nursing homes will be suspended. However, the current CMS suspension of standard inspections indicates a temporary shifting of resources and unless a permanent commitment of new resources is made, there may well be a rapid return to the status quo.

Enhanced Barrier Precautions

The CDC has also attempted to strengthen regulations, which give little if any firm guidance. The CDC has developed a program for nursing home infection prevention referred to as “enhanced barrier precautions.” Although the name implies strict infection control procedures, it may actually be recommending far too little to control the frequent occurrence of dangerous contagions in nursing homes.

The premise behind the protection of healthcare workers and residents with enhanced barrier precautions is that some resident encounters have a higher risk of transmission of pathogens than others. And that contact precautions should be reserved for those encounters with the highest risk, thus, helping to preserve the patient’s dignity. However, recommendations need to be effective, since no nursing home resident wishes to preserve dignity by infecting visiting grandchildren with a dangerous contagion.

Three of the organisms that are targeted for control with enhanced barrier precautions are contained on the CDC’s list of “urgent threats.” MRSA, another common nursing home pathogen, is also targeted and is on the CDC’s list of “severe threats.”

There are 2 concerns. The first is that although lower risk encounters carry a relatively low risk of transmission, some encounters, such as passing meds, occur so frequently that the risk to the healthcare worker over time can be high. For example: The passing of meds to a MRSA carrier is defined as a low-risk activity. Each encounter was found by Roghman, et al., to contaminate healthcare workers’ gowns and gloves with MRSA 8% and 16% of the time, respectively.

Even before COVID-19 refocused the nation’s attention on nursing homes, there were severe deficiencies in infection control. Required antibiotic stewardship programs are all too often ineffective. The CDC estimates that 75% of antibiotics in nursing homes are not prescribed correctly.
The study found a 25% MRSA carrier rate in nursing home residents and, if one assumes a healthcare worker passes meds to 25 patients 3 times a day, they would be expected to contaminate their clothes 11 times a week.

Another study by Blanco, et al., evaluated the risk of contamination with gram-negative bacillus. Using the same methodology, it can be predicted that the passing of meds would result in the contamination of a healthcare worker’s clothes once a week.

The second is that enhanced barrier precautions do not restrict the movements of a carrier within a facility, which is problematic. The CDC notes that environmental colonization with MDROs can last longer than 6 months.

In the case of MRSA, one study has found colonized patients contaminated the environment more frequently than those with an active infection. MRSA carrier contamination of the environment can occur very rapidly with 35% of carriers contaminating their environment within 33 hours and the contamination may last as long as 2.33 to 8.35 years.

We need to start fostering an optimal patient microbiome, but the United States does not even adequately screen for MDROs. S. aureus, for example, is a major cause of post-operative infections.

The WHO recommends that in affluent countries, all patients undergoing surgery be screened and decolonized for S. aureus. However, in the US we do not even do this for MRSA.

Dangerous Contagions
In nursing homes, we need to develop and implement a strategy based upon the existing microbiome of the facility and the compatibility with the resident’s microbiome. The average resident resides in a nursing home for over 2 years and determining the resident’s microbiome before admission should become standard. If the resident carries dangerous contagions, then decolonization should be attempted. Some organisms such as carbapenem-resistant Enterobacteriaceae (CRE) may have very long durations of colonization (over a year) and how to best decolonize is not known. In such cases, admission into a compatible facility or zone isolation should be implemented.

Finally, the health and wellbeing of infection preventionists along with all healthcare workers needs to be safeguarded. At a minimum, workers should be periodically screened for dangerous contagions and a national registry created for acquisitions.

Recommendations need to be effective. For instance, although lower risk encounters carry a relatively low risk of transmission, some encounters, such as passing meds, occur so frequently that the risk to the healthcare worker over time can be high.

Decolonization of healthcare workers should be undertaken. For MRSA this has been found to have up to an 88% success rate. In addition, a healthcare worker’s economic safety net needs to be established.

There can be no doubt that COVID-19, along with other MDROs, pose unacceptable risks to nursing home residents, IPs, and all healthcare workers, along with their families. Correction will require a sustained commitment to invest in infrastructure, new technologies, and implement resource intense strategies.

These pathogens are relentless, they are evolutionarily programed to win, and they are currently doing just that.

References available at InfectionControlToday.com.
Construction is a dirty business. All sorts of dust, debris, concrete, and wiring will be part of any expansion. When a hospital is adding onto an existing department or is making changes within that department, it is often referred to as a phased build. When engaging in a phased build, hospital administrators, infection preventionists, and other staff must deal with the threat that the construction could spread contaminants into adjacent areas. Early discussion and risk assessment associated with the type of construction, scope of construction, and length of construction is key to minimizing the potential impact. Do not lose sight of the fact that many patients and families spend time adjacent to these areas.

Construction in healthcare happens for a reason. Most likely it is driven by growth, regulations, or improving the patient experience. Hospital administration should identify key stakeholders and subject matter experts who have relevant knowledge of the expansion being considered. The most important area of concentration is keeping in mind that the goal is best outcomes for patients. If best patient outcomes are the deciding factor, decision making becomes much easier. For example, it may be necessary to change materials flow near a construction zone in order to keep consistent separation between clean and dirty materials. If patient flow or experience is impacted by the need for new materials or pathways, the safety and experience of the patient should be the most influential factor in decision making.

Different Challenges
Renovation or construction that happens in preexisting spaces or occupied areas have very different sets of challenges than the building of new facilities. The current phase of the construction and the assessment of risk will help determine necessary intervention. Demolition, for example, in the existing or adjacent areas creates dust and debris. It also creates a need to remove construction debris from the site to an appropriate disposal location. In some cases, thousands of pounds of concrete, dirt, and other contaminates will need to be moved from point A to point B. During construction planning, ensure that the commingling of pathways of construction materials is minimized with clean pathways and patient transport.

After demolition, the project moves into an active construction phase. Have you ever sanded or seen someone sanding drywall? After a short time, the person looks like they have been...
covered in baby powder. Hopefully the individual is wearing a mask that keeps he or she from inhaling the dust. Imagine the amount of drywall dust that is produced in a large expansion. All of that fine particulate has to go somewhere. What happens to all that dust in an adjacent construction zone? These are just some of the considerations the group—and especially infection preventionists—should address in order to contain possible contaminants that become more prevalent during construction in pre-existing departments.

Construction contaminates follow a similar pathway as the chain of infection. The illustration of a chain is often used to show how illness can be transmitted between individuals. Most importantly, the illustration also indicates that if a link of this chain is removed, then the cycle of infection is broken. Imagine infection prevention during construction and breaking the chain. If the “EXIT” link is properly managed, it can minimize or prevent issues downstream. Concentration on the first 3 links in the chain is important; these 3 links are the most actionable when dealing with infection control risk during construction.

### Chain of Infection

1. Infectious agent
2. A reservoir
3. Portal of exit
4. Mode of transmission
5. Portal in entry
6. A new host

### Risk 1: Agents, more precisely infectious agents in a construction zone, are not difficult to find. Spores, bacteria, and molds are readily found in air and soil. Many of these common contaminants are harmless to most people with healthy immune systems. Focus on the patient. Patients in healthcare are diverse and their healthcare needs vary drastically. Patients may have suppressed immune systems, respiratory issues, or other comorbidities that could place them in a higher risk category for getting an infection than that of a healthy individual. Hospitals manage the risk of transmission on a daily basis as part of their current infection control and cleaning protocols. Daily hospital practices are focused on the current state of business. When a construction project is added to the mix, special attention needs to be taken to identify the risk of possibly increasing the presence of these infectious agents.

### Risk 2: In the infection control chain, a reservoir is an object or person that agents can attach to and live on. During a construction project, there are limitless reservoirs moving in and out of the construction zone with great frequency. Retained agents on individuals’ clothing, wheels on carts, and work boots all need to be evaluated. These reservoirs are an essential part of the construction business and cannot simply be removed. The goal in this situation is mitigating the risk of spread by addressing the next link in the chain, the exit.

**Have you ever seen someone sanding drywall?**
After a short time, the person looks like they have been covered in baby powder. Imagine the amount of drywall dust that is produced in a large expansion.

### Risk 3: The exit link in the infection control chain cannot be overemphasized as a key area of attention. If all construction projects could be contained in an airtight bubble and all reservoirs never left the bubble, contamination would be eliminated. In reality we all know that this scenario is impossible. Assessing the exit link is critical because it is the link of infection prevention that during construction projects is most actionable. Countless steps could be taken to eliminate exit risk. However, there also needs to be an awareness that the institution needs to remain operational. Restricting material flow patterns is a potential risk management strategy. Design and communicate to key individuals pathways that prevent commingling of construction reservoirs with clean and patient pathways. Consider designating an elevator for construction use while the highest risk materials are being transported in and out of the facility. When addressing foot traffic, assess the benefit of clean mats...
at entrance and exit points. Once heavy construction and demolition have been completed, removable shoe or boot covers are another means to limit contaminants from leaving the construction zone. Ensure collaboration between infection preventionist and environmental services to assess the need for additional floor cleaning and surface cleaning during the extent of the project.

When appropriate, separate construction zones with sealed walls in order to eliminate airborne contaminates from exiting the zones. If appropriate use high-efficiency particulate air (HEPA) filtration in order to reduce airborne particulates in the construction zone.

**Explain Why**

Many of these considerations also bring temporary challenges to daily operations. When pathways are closed and elevators are dedicated, it impacts staff and the patient experience. Ensure key stakeholders that these changes are important for patient and staff safety. The inconvenience is only temporary and the need for containment is crucial.

Construction is a dirty business, but also a doorway to potential change. During the construction planning, infection preventionists, hospital administrators, and others on the frontlines of infection control should take a moment to consider the future state of the new space. Infection prevention is an ever-changing world.

Careful design of the new space can eliminate need for construction in the future and improve the facility’s ability to carry out effective infection control in the long run.

Considerations during planning could include adequate storage and the availability of personal protective equipment. Ensure isolation signs are placed at focus points.

Ensure that hand hygiene can be performed easily and is readily accessible. What might seem like a small consideration during the planning of a new space might have the most significant impact to operations and patient safety for years to come.

As healthcare providers, the goal should be zero patient harm. Timeouts, patient verification, and medication reconciliation are some of the safety standards clinicians exercise every day.

Ensure the individuals on the construction team, especially those who are not clinicians, have a reverence and acknowledgment that lives are potentially at risk and that they are making the difference. 

Christopher Whiting is the sterile processing manager at Nationwide Children’s Hospital in Columbus, Ohio. He has been in the field of sterile processing for 22 years. Whiting graduated from Bowling Green State University with a bachelors in English and Sociology. He is a CRCST and vice president of the Mid-Ohio Central Service Professionals chapter of the International Association of Healthcare Central Service Materiel Management (IAHCSMM).

www.infectioncontroltoday.com
In response to COVID-19, some federal legislators want to ease restrictions on telehealth coverage. States, meanwhile, have already dived in. As of this writing, 18 states and Washington, D.C., have either tweaked existing laws or issued new ones that would expand the use of telehealth. The Center for Connected Health Policy says that the states have primarily been applying laws to where they have the most leverage: Medicaid, the program jointly operated by the states and federal government. Some of the laws would count telehealth contact as establishing a doctor-patient relationship, and some have even included phone calls as a legitimate contact. In addition, some states have allowed patients to access telehealth services from their homes, eliminating the rule that patients need to commute to a specific location to access telehealth.

A lot of changes afoot regarding telehealth, in other words, but Judd Hollander, MD, has been preparing for this moment for a long time. Hollander is an emergency department physician and the senior vice president for healthcare delivery innovation at Jefferson Health in Philadelphia. Under Hollander’s guidance, JeffConnect, an umbrella name for Jefferson’s telehealth services, in 2015 launched an on-demand app allowing patients to connect with Jefferson emergency medicine physicians from home via their cell phones, tablets, or computers with a webcam. Jefferson officials say that the app encourages those who think they may have been exposed to COVID-19 to consult with an emergency medicine physician via a webcam. Infection Control Today® caught up with Hollander (before some of the legislative efforts mentioned above) to ask him about how telehealth can help combat COVID-19 spread.

**Infection Control Today®:** Is telehealth in general better positioned to help during the COVID-19 outbreaks than in past outbreaks? If so, how so?

**Hollander:** The largest difference with COVID-19 and past disasters or outbreaks is twofold. First, telemedicine is much more advanced and is commonly used in some health systems. For example, Jefferson has done over 150,000 synchronous audio/video visits across over 1000 providers. Thus, when a crisis comes, it is possible to rapidly scale. The second difference is that there is not a problem with infrastructure as might happen after a hurricane so that communications methods are not disrupted.

**ICT®:** Are doctors and patients more inclined to use telehealth than they were even 5 years ago? Are there concerns among physicians about reimbursement for services?

**Hollander:** Without a doubt, reimbursement is the main thing that has prevented further adoption of
telehealth. Only a few states mandate the payers pay for the services regardless of how they are delivered (in-person or via telemedicine). Thus, when payers prioritize their shareholders and try to avoid paying while physicians try to prioritize their patients, there is a large financial liability to providers and health systems that is not filled by the payers. Thus, fewer systems are using telemedicine than would otherwise use it if it was reimbursed. When you do not have a baseline program, you cannot really scale it overnight.

ICT®: You say that telehealth services have increased in popularity in recent years. Can you give me a better idea of how much that popularity has increased?
Hollander: At Jefferson, we have a 200-400% increase year over year depending upon which use cases. We are now doing nearly 300 telemedicine encounters per day, and that was before COVID-19.

ICT®: Do some conditions/diseases lend themselves to telehealth better than others? For instance, would oncology be something that’s telehealth-friendly?
Hollander: The best use case for telemedicine is for the patient who is happy to do a telemedicine call. We have been surprised to learn that it can be used and be very well accepted in areas we never would have predicted. A couple examples include post-mastectomy care, care following surgical procedures and nutritional consultations for diabetes. We tend to let patients drive the decision to do telemedicine rather than in-person care.

ICT®: How has telehealth been used against the flu?
Hollander: Jefferson has JeffConnect, a direct-to-consumer on-demand app that anyone in our service area can download for free, register and within 5 minutes do a visit with an emergency physician—the same people who work in our urgent care centers and emergency departments. We treat a lot of patients with the flu or presumptive flu. Patients that do not meet evidence-based criteria for anti-viral agents can be treated symptomatically. Patients who meet criteria can either be sent for testing or be treated empirically. We have been doing this for years.

ICT®: What is the process for a COVID-19 telehealth screening?
Hollander: The approach to COVID-19 via telemedicine begins with screening the patient for risk of COVID-19 using the latest CDC recommendations. Then the approach is much like that with influenza, except for an increased emphasis on social distancing. If patients are stable and have a COVID-19 exposure risk, we have coordinated with the local department of health so that they can go home for home quarantine and the DOH can come to the house to perform testing. Our goal is very much to prevent exposure of anyone else to the person under investigation while providing the best care for the patient, in accordance with the latest CDC guidelines.

ICT®: How can telehealth help infection preventi- onists and hospital administrators do their jobs better? For IPs especially; that seems to be very much of a hands-on job. Where would telehealth fit in?
Hollander: We use telehealth in the outpatient setting but we also use it in the in-person setting. Let’s face it, consults give advice over the phone. They don’t need to touch each patient. We try to limit the number of people in the room and leverage telemedicine so the person inside the room can be the eyes and ears of the others. Of course, when procedures are needed, the best person to do the procedure needs to don PPE and go in the room, but the more we can limit exposure the better.

References available at InfectionControlToday.com.

Read More Online at InfectionControlToday.com

Infection Preventionists Not Used Properly
https://www.infectioncontroltoday.com/articles/infection-preventionists-support

Nanomachines Take on Resistant Bugs
https://www.infectioncontroltoday.com/articles/molecular-nanomachines

How to Prevent C. diff Progression
https://www.infectioncontroltoday.com/articles/preventing-progression-c-diff

Investigators Pinpoint VRE’s Achilles Heel
https://www.infectioncontroltoday.com/articles/investigators-pinpoint-vres-achilles-heel
Vascular access devices (VAD) are used in almost all medical, surgical, and critical care specialties, pre-hospital, hospital, long-term care, and home-care settings. The range of catheters and devices referred to as VADs include: peripheral intravenous catheter (PIVC), midlines, peripherally inserted central catheter (PICC), central venous catheter (CVC), tunneled CVC, subcutaneous port, arterial catheter, intraosseous device, apheresis catheter, umbilical, and ECMO catheters. As a result of VADs being used daily in almost all inpatient settings a range of healthcare professional roles share the responsibility for insertion, management, and removal of VADs. The varied interdisciplinary members responsible for 1 such VAD, the PIVC, were researched in a qualitative study. The research suggested the accepted practice of allowing multiple professional entities to insert and manage PIVCs jeopardizes patient safety. They called for consistent approaches for all interdisciplinary professionals to follow. This suggests there is an opportunity to improve the current fragmented process to achieve positive outcomes with vascular access ownership of (i) assessment, (ii) insertion, (iii) care maintenance, and (iv) education.

Vascular Access Team
According to the US Centers for Disease Control and Prevention (CDC) in 2011, “Specialized teams have demonstrated unequivocal effectiveness in reducing infections, complications and cost of infusion therapy.” Although there are studies reporting that a vascular access services team (VAST) positively impacts patients’ vascular access outcomes, there are no randomized controlled trials to support or refute the role of the VAST. A Cochrane systematic review on VAST describes a lack of high quality research on teams. The Cochrane review defines these groups as any of the following: infusion teams, intravenous teams, individual specialists (nurse, doctor, respiratory therapist, radiological technologist, nurse practitioner, and physician assistant) who have knowledge and skills, through formal training, and who frequently perform insertion or manage VADs.

The Infusion Nurses Society standards of practice present practice criteria for an infusion team and include benchmarks for peripheral and central catheters which include: first time insertion success; daily assessments; decrease in catheter related blood stream infections (CRBSI); increase in patient satisfaction; data collection for reporting quality outcomes; and impact on patient safety. The purpose and function of a VAST or trained
individual may include the initial assessment, insertion and management of PIVCs, midlines, PICCs, arterial catheters, external and/or internal jugular, femoral, and subclavian placed catheters.7

Teams and individual specialist functions will vary and may exclude the insertion and maintenance of some of the devices and associated activities listed above. Other functions embraced by these specialists may include patient access for difficult blood draws, use of ultrasound guidance for any or all of the functions, dressing changes for central catheters, daily evaluation of catheter necessity, removal of unnecessary catheters, and monitoring of dressing and insertion site for complication identification. Additionally, they provide a professional point of care for education and resource of VAD queries for device maintenance and management of complications. However strong the evidence for specialized teams, professional application of empirical guidelines for teams within the acute care setting is limited.8

Whether through lack of awareness of guidelines and recommendations, changing administrative priorities or perceived economic constraints, the hospital adoption and support of VAST has been erratic. Similar to specific services where a cardiologist is required for a specific cardiac problem to provide the best evidence-based care, it is logical that seeking the services of a trained vascular access clinician to initiate and maintain the most appropriate intravenous device, is a worthy mandate. Given the growing complexity in patient needs, a unique specialist discipline, namely the VAST, is surely needed to provide for patient needs. Specialty teams are also seen as models that not only improve patient safety and outcomes but also can serve as a platform for clinical training of junior residents, medical students, and nursing clinicians. The evidence to date is suggestive that the highest achieving system of initiating and delivering treatment to patients in acute care is inexplicably tied to a purpose-driven group of skilled individuals and the processes that guide their practices.8

Value of a Specialized Team
Evidence supports the value of a specialized infusion team for improved success with access, reduced insertion attempts, and reduced complications associated with intravenous or arterial device insertion. According to da Silva in 2010, use of a specialized team increased first attempt success with only 16% of attempts resulting in more than 1 attempt.10 Teams of specialized individuals performing insertion of PIVCs report increased first-time insertion success.11 Complications associated with VADs relate to the skill and knowledge of the operator for insertion12-15 and for post-insertion complications related to maintenance by clinicians and patient specific risk factors.16-19 Specialized education has led to infection prevention practices that reduce complications.20-22 Advanced practice nurses and those teams receiving specialized training to perform insertions of all CVADs that work in collaboration with medical providers offer valuable contributions to the clinical care by performing insertions with low incidence of complications.23-28 Consistent across all VADs, peripheral and central, teams historically represented the lowest levels of device-related complications.19,29-33 Adoption of a team approach for care and maintenance has resulted in reduction of CVAD-associated infections.34

Device Selection Reduces Risk
Adverse vascular events are largely avoidable through specific practices of assessment and selection of the vascular access device with the lowest infection risk for the patient and their treatment (Figure 1). Improving selection of the best device and inserter skill reduces unnecessary central venous catheter insertions.35 These practices are evidenced in a variety of specific models, recommendations, and guidelines such as the Society of Healthcare Epidemiology of America (SHEA),36 Vessel Health and Preservation (VHP),37 MAGIC,38 Infusion Nurses Society (INS) Standards of Practice,39 European Society for Parenteral and Enteral Nutrition (ESPEN),39 World Congress of Vascular Access (WoCoVA) consensus,40 Evidence-based Guidelines for Preventing Healthcare-associated Infections (EPIC),41 and National Institute for Clinical Excellence (NICE)42 all recommend a focus on the necessity of specialized training for inserters and those managing VADs that integrate infection prevention and practices that avoid complications. Despite these recommendations, many insertion attempts of VADs are performed by clinical professionals with little to no formalized education or current training on insertion or the means to prevent complications.43

Many insertion attempts of vascular access devices are performed by clinical professionals with little to no formalized education or current training on insertion or the means to prevent complications.

Qualified and Experienced Inserters
Vascular access catheter insertion is accepted as an invasive clinical procedure that exposes patients to
iatrogenic risks such as procedural pain, bruising, bleeding, vessel depletion, and inadvertent anatomical injury of adjacent structure, infection, and in extreme cases death.\textsuperscript{34,44,45} When intravenous, peripheral, or central catheters are required, patients may undergo multiple attempts to successfully insert these devices. Moreover, initial device insertion can be associated with procedural complexity that involves repeated attempts following insertion failures leading to increased patient risk of complications.

Such complications associated with VADs are increased as the number of attempts and time during the insertion procedure increases.\textsuperscript{46} Insertion of peripheral catheters by a variety of skilled and unskilled clinicians result in failure rates of 1.9 vs 2.9 insertions\textsuperscript{46} or 12\% to 26\% in adults and 24\% to 54\%\textsuperscript{46} in children.\textsuperscript{47,48} For these reasons alone hospitals with VASTs reported higher insertion success rates and greater patient satisfaction.\textsuperscript{5} Results of unsuccessful peripheral catheter attempts lead to vein depletion,\textsuperscript{44} bruising and pain at the insertion sites,\textsuperscript{49} and multiple punctures of the skin predisposing microorganism entry into the bloodstream.

Consistent with the VHP model for selecting the right device, right site, inserted by the right clinician (people) at the right time, the clinician performing the insertion must have training, qualification, and competence to perform the procedure in a safe manner.\textsuperscript{40} Education and training of staff integrates technology that facilitates increased success. Ultrasound and visualization technology knowledge and training aid inserters in gaining access on the first pass and minimize number of attempts and complications associated with multiple attempts and traumatic insertions.\textsuperscript{50-53} Complications increase in number when there is difficulty with insertion. Currently, most patients will experience insertion failure and post-insertion failure prior to definitive device placement during their course of treatment. In research by Eisen and associates (2006), there was a 54\% increase in complications when 2 or more puncture attempts are performed.\textsuperscript{54} Inserters with experience of fewer than 50 CVAD procedures have greater than 50\% risk of a complication occurring and more difficulty achieving successful insertions.\textsuperscript{13} The use of specialist teams has demonstrated more positive clinical outcomes for patients including greater first attempt success, reduced CLABSIs, and subsequent economic advantages.\textsuperscript{2,4,55,56}

Insertion of VADs is not without risk, but risk is also associated with management of these devices that comprises the largest time component of each patient’s treatment process. Management of VADs requires the performance of regular assessment of device function, insertion site, securement, dressing adherence, and observation for signs of other complications. Of greatest concern is catheter-associated bloodstream infection (CABSI), as in the case of peripheral or central venous catheters, and specifically central line-associated bloodstream infection (CLABSI).\textsuperscript{4,45}

In a study of maintenance bundles, CLABSI rates fell from a peak of 5.2/1000 catheter days to zero infections for 24 months by using a bundle incorpo-
rating antimicrobial sponge dressing, chlorhexidine body wash, and daily device assessment by a specialist nurse.\textsuperscript{57} Results of a cross-functional team demonstrated effectiveness in post-insertional care with statistically significant CLABSI reduction with major economic impact.\textsuperscript{59} Evidence has demonstrated that education and training for insertion and maintenance of VADs, which includes criteria for educational content, simulation of practice and supervision, results in improved staff compliance with safe practices.\textsuperscript{13,51,59-61}

Recommendations for education in the clinical setting are to provide consistent and varied staff education on infection prevention, best practices and consequences of poor technique.\textsuperscript{62,63} Clinicians performing consistent insertions and maintaining current education with evidence-based practices are better equipped to provide safe patient care.\textsuperscript{64,66} Application of evidence through education, while promoting peer to peer engagement, lead to high performance and consistency in safety practices.\textsuperscript{67}

Effective device and site selection necessitates a heightened awareness of infection prevention guidelines that aid in site selection and insertion and the ability to choose the number of lumens necessary to complete treatment to minimize risk.\textsuperscript{59} A higher risk of infection and other complications is associated with CVAD insertion when performed by unskilled, inexperienced, or unqualified inserters.\textsuperscript{14,15} Therefore, integration of education, simulation practice, ultrasound training, and knowledge of complication management for CVAD insertions are part of the procedural competency necessary for those clinicians inserting or managing VADs.\textsuperscript{59}

**The Future: Valuing Vascular Access Teams**

Patient-focused safety initiatives should apply evidence of improved outcomes such as those represented in establishing and maintaining effective vascular access teams. Providing a consistent VAD assessment, insertion, and management service to patients in the pursuit of risk minimization involves healthcare personnel who have received special training. VAST contribute to infection prevention efforts to reduce CLABSI, CRBSI, and CABSIs. Patients indicate the inadequate skill level of those performing these types of procedures is a source of great dissatisfaction, while use of technology and increased skills of the VAST promotes higher satisfaction.\textsuperscript{56,69}

These occurrences were exposed in the qualitative study of patient and staff experience indicating a need for vascular access specialist as a quality initiative.\textsuperscript{1} Device and vein selection and insertion processes, qualified inserters, effective management and evaluation of practices, clinical outcomes are all improved as reflected in the elimination or reduction of complications, prolonged dwell times, reduced length of stay and improvements in patient satisfaction.\textsuperscript{48,56} Teams have the potential to effect significant improvements through both insertion and post-insertion care of patients. Providing dependable vascular access assessment, insertion techniques, and post-insertion care and management is a necessary patient requirement to support modern healthcare treatment plans, patient safety, and promote economic savings through efficiency of insertions.\textsuperscript{70}

**Conclusions**

The value of specialized teams for insertion and management of vascular access has been demonstrated through numerous publications in a variety of research designs. Although there are currently no randomized controlled clinical trials that support the benefits of teams, the recommendation of the CDC and others continues for specialists as a method to reduce complications and infection associated with vascular access devices. Additionally, standards for infusion therapy call for teams for CVAD insertion, maintenance, and removal to promote patient safety and better outcomes. The discussion and research underscore the potential advantages of VAST for assessment, insertion, management, complications reduction, and staff education. Supported by the concepts of vessel health and preservation, the application of specialty teams in every hospital for insertion and management of vascular access devices could significantly contribute to the pursuit of making VADs complications history.\textsuperscript{21,71}

References available at InfectionControlToday.com.

Nancy Moureau, RN, PhD, CRNI, CPUI, VA-BC, is the chief executive officer at PICC Excellence, Inc., an associate researcher for the Alliance for Vascular Access Teaching and Research (AVATAR) Group, and an adjunct associate professor at Griffith University in Brisbane, Australia.
SeekNFind Helps Quickly Locate Objects in a Healthcare Setting

Made from PTFE Teflon, the SeekNFind by Hallmark Industries Company, Inc., helps healthcare facility workers locate missing or mislaid trays or other items. The 240 x 86mm RFID tag is assembled with stainless steel eyelets for attachment to instrument baskets and other assets, according to a Hallmark press release. The RFID reader and label is how the system works. Each label is placed on trays so when a healthcare facility worker is searching for specific trays in a room, she or he can walk around with the RFID and it will beep when that particular item is located.

SeekNFind is just the latest addition to Hallmark’s labeling line. The company has been developing and marketing systems and devices to help healthcare facilities since 1969.

“Healthmark Industries mission is to continue to innovate, continue to support and continue to serve the healthcare provider industry and support services that make it possible to deliver quality healthcare,” the company said in a press release.

www.hmark.com

EvaClean Infection Prevention Products Used Against COVID-19 in China

A partnership between the Boston-based EarthSafe Partners and Beijing Kanghui Yingda, a medical equipment supplier in China, has placed EarthSafe’s EvaClean infection prevention products on the frontlines in the battle against COVID-19 in China.

EvaClean products are built around one disinfectant, a hypochlorous acid (HClO)-based chemistry derived from sodium dichloroisocyanurate (NaDCC.)

“Not only is this chemistry EPA List-K approved as a sporicidal disinfectant for hard surfaces, but it has a top-level 2c classification with four kill claims against non-enveloped viruses, which are the most difficult pathogens to kill,” EarthSafe said in a press release. “It’s also the first chemistry to receive EPA registration as effective against bacteria present in biofilm, another potential contamination source, particularly in healthcare environments.”

EarthSafe says that EvaClean products are much safer than most sporicidal disinfectants used today. EarthSafe developed two versions of disinfectant products—PURTABS for electrostatic sprayers and PUR:ONE for other application methods like microfiber, wipes or spray bottles.

www.evaclean.com

WISER System Tracks Possible Routes of Infection

To help deal with the constant and constantly vexing problem of person-to-person pathogenic infection at hospitals and other healthcare facilities, the WISER Locator system tracks the real-time movement of medical staff, patients, and visitors. The system is a product of WISER Systems, Inc., a developer of wireless programs that guard against infectious diseases.

Hospital administrators and infection preventionists can use the system to track perimeter adherence, objects or people moving through decontamination protocols, or proximity interactions between medical staff, patients, visitors, and medical implements likely to be contaminated, the company said in a press release.

WISER CEO Elaine Rideout, PhD, says that the WISER system “can pinpoint in-person contact within six feet—typically within inches—and the system logs date, time, and duration of contact. This data will be invaluable when it comes to preventing the spread of disease and knowing who to quarantine. Historic data will help researchers explore and better understand how specific diseases spread. It will also help prevent unauthorized access to triage and staging areas or quarantined zones.”

WISER is offering free on-site tests and demonstrations of the system to crowded facilities at risk of contagion. These could include regional hospitals, assisted living centers, nursing homes, or prisons, among other facilities.

www.wisersystems.com/blog/stemming-coronavirus
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.


The Mölnlycke and Hibiclens trademarks, names and logos types are registered globally to one or more of the Mölnlycke Health Care Group of Companies. Distributed by Mölnlycke Health Care US, 3350 Peachtree Parkway, Suite 501, Norcross, © 2019 Mölnlycke Health Care AB. All rights reserved. MHC-2018-37774
Skin + Site contamination accounts for 72% of CLABSIs.¹

Skin: 7 days continued antimicrobial activity + Site: 5 second scrub / 5 second dry time

To learn more, visit: pdihc.com/SkinPlusSite

Nasal decolonization is a critical part of your pre-op plan, and we have the antiseptic alternative you're looking for.

Refresh your prep with our new 62% Ethyl Alcohol Nasal Swab. It’s highly effective, quicker for nurses and features added emollients and a pleasant kiwi scent—making it more refreshing for your patients.

Ordering Information

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Pkg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDS1972</td>
<td>Nasal Swabs, 62% Ethyl Alcohol</td>
<td>48/cs</td>
</tr>
</tbody>
</table>

References:

Antiseptic Nasal Swabs can help reduce bacteria that potentially can cause skin infection. Contact your Medline Representative to schedule a trial or visit medline.com.

Skin: 7 days continued antimicrobial activity + Site: 5 second scrub / 5 second dry time

To learn more, visit: pdihc.com/SkinPlusSite

*Disinfects needleless access sites