

# Infectious Disease News®

COVER STORY

## More than 1 year into Ebola outbreak, DRC facing 'a new normal'

The Democratic Republic of the Congo, or DRC, has experienced 10 outbreaks of Ebola since the virus was discovered there in 1976. None have challenged the country and the global health community like the latest outbreak, which was declared Aug. 1, 2018, in an area of insecurity in the country's northeast.

Despite the availability of an effective and widely used vaccine, the outbreak has resulted in more than 3,000 infections and 2,000 deaths — more than the country's nine previous outbreaks combined. It has grown to become the second-largest outbreak of Ebola in history after the West African epidemic, which included more than 28,000 cases and 11,000 deaths.

According to **Pierre Rollin, MD**, retired deputy chief of the CDC's Viral Special Pathogens Branch and a prominent Ebola expert, the conditions are in place for Ebola to become

endemic in northeast DRC — a catastrophic prospect for its inhabitants and the international community, he said.

"Some experts don't want to say 'endemic' because it's a dirty word that nobody wants to hear," Rollin told *Infectious Disease News*. "But

I'd like to see the data on the better response, better results and improvement that say otherwise."

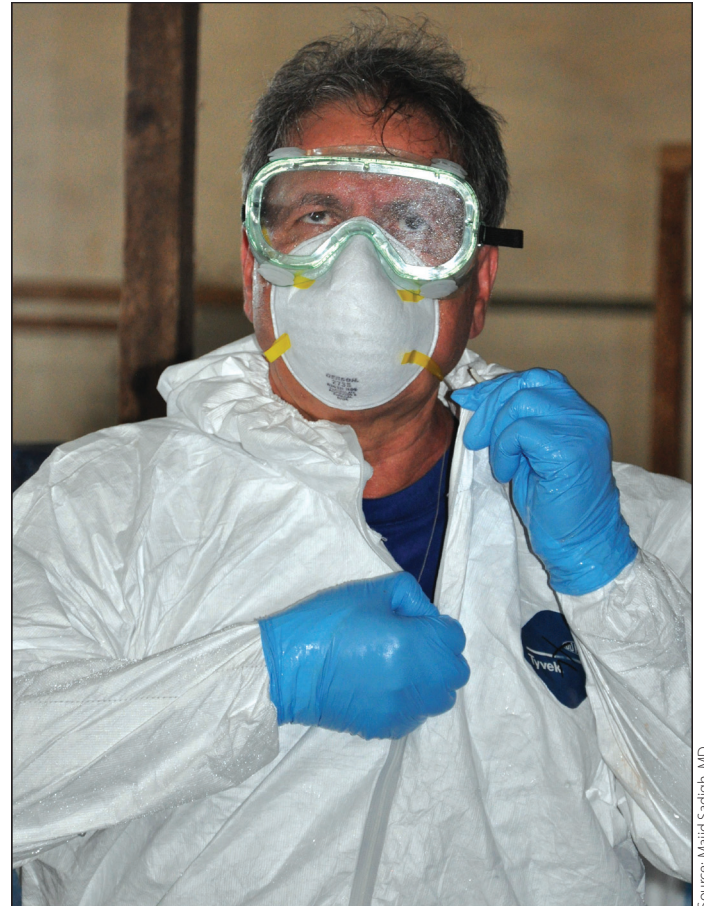
Experts acknowledge that numerous circumstances have prevented the outbreak from reaching its end, including "local instability, violence and large nearby refugee populations," said **Ronald**

**Klain**, who coordinated the United States' Ebola response during the West African epidemic. WHO declared the current outbreak a Public Health Emergency of International Concern (PHEIC) in July. The timeline for that decision, as

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**"We are now more than 1 year into the DRC outbreak, and we haven't seen much progress. The same problems that we encountered last year are still present."**

— PIERRE ROLLIN, MD



Source: Majid Sadigh, MD

According to **Majid Sadigh, MD**, seen here in 2014 training to be the chief medical officer at an Ebola treatment unit during the West African epidemic, containing the Congo outbreak has been complicated by governmental and social dynamics.

Infectious Disease News® BY THE NUMBERS

Only **52%** of U.S. adults plan to get a flu shot this season.

Source: National Foundation for Infectious Diseases.

Healio

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## New technologies have potential to prevent HAIs

**Curtis J. Donskey, MD**, and colleagues at the Louis Stokes Cleveland VA Medical Center had a novel idea to prevent some infections in their facility.

During influenza season, patients entering the hospital coughing and sneezing can use one of the many available touchscreens to check in.

"Dozens of people in the course of the day will be touching the same screen and they

are very seldom practicing hand hygiene after doing that. And what we asked is if we could come up with some automated way to decontaminate the screens with each use — that could be a useful technology," Donskey, an infectious disease physician at the hospital and professor of medicine at Case Western Reserve University, told *Infectious Disease News*.

The idea inspired the cre-

ation of an automated device that uses ultraviolet C light as a disinfectant to clean the touchscreens. A prototype of the device was designed by a scientist and then tested by Donskey. In his experiments, Donskey found that the UV-C device, which was designed to automatically scan the touchscreen after patient use, reduced the transmission of viruses from

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**HOOKED ON ID**

**Jeanne M. Marrazzo, MD, MPH, FACP, FIDSA**, discusses connecting with "brave visionary mentors."

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**PRACTICE MANAGEMENT**

Researchers argue for new ID subspecialty covering addiction.

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Facebook, Instagram to promote CDC, WHO vaccine information.

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## New technology

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contaminated screens to fingertips in simulations.

The UV-C touchscreen cleaner is just one of many new technologies that have been developed and tested recently to prevent health care-associated infections (HAIs).

### 'One jumbo jet's worth of people'

Although the prevalence of HAIs in hospital patients in the United States decreased from 4% in 2011 to 3.2% in 2015, they remain a significant issue for patients and health care facilities.

Each year, about 2 million Americans contract an HAI and between

precisely the number of U.S. citizens who die each day from a health care-associated infection. One jumbo jet's worth of people," Schmidt said.

Additionally, he noted the large financial burden, observing that HAIs may cost taxpayers an estimated \$150 billion per year, according to a study published in the *Journal of Medical Economics*.

"Imagine what we could do if we just cut that rate by 10%," Schmidt said. "What could we do with \$15 billion?"

### New technologies

Different types of technologies aimed at decreasing the risk for HAIs have emerged in recent years, **Hilary M. Babcock, MD, MPH**, president of

Donskey said. Efforts have focused on developing novel disinfectants and de-

patient rooms and equipment, such as CT tables, tablets, keyboards and stetho-



**"All of these technologies are intended to prevent a wide range of infections, from common bacterial pathogens such as *C. difficile* and MRSA to fungal infections such as *Candida auris*."**

— CURTIS J. DONSKEY, MD

livery methods, no-touch devices and antimicrobial surfaces.

Bleach and quaternary ammonium disinfectants are the standard cleaning products used in hospitals. However, quaternary ammonium does not inhibit *Clostridioides difficile*, and bleach — while effective — can damage surfaces and irritate some patients, according to Donskey. Peracetic acid-based disinfectants have been developed as a modified solution and have been found to be effective at destroying spores and less harmful to surfaces, he said.

Because wiping down surfaces mechanically is not efficient for disinfecting irregular surfaces or an entire room, new delivery methods have been investigated, Donskey said. For example, electrostatic spraying devices might allow for more rapid and effective decontamination, he said.

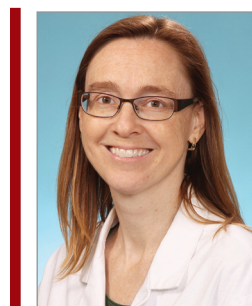
Moreover, no-touch technologies are gaining traction, the most common of which are UV devices, according to Donskey. Many different UV devices have been created to decontaminate

scopes, and have demonstrated efficacy in reducing pathogens. One study published in *The Lancet* showed that adding UV-C light to standard terminal cleaning strategies reduced the likelihood that patients would acquire the same infection as the previous patient by 30%.

Antimicrobial surfaces also have been shown to be useful in helping rid hospital rooms of pathogens, Schmidt said. One study demonstrated that placing copper surfaces on significant touch points in the patient care environment decreased the rate of HAIs by 58%, he noted.

Many more technologies have demonstrated the ability to prevent the spread of pathogens, including novel sink drain covers, electronic hand hygiene monitors — including voice-based monitors that remind clinicians to sanitize their hands — antimicrobial catheters and antimicrobial textiles, such as surgical scrubs, hospital curtains and bed linens.

"All of these technologies are intended to prevent a wide range of infections,



**"These technologies definitely have the potential to transform care for our patients."**

— HILARY M. BABCOCK, MD, MPH

75,000 and 100,000 die from one, **Michael G. Schmidt, PhD**, professor of microbiology and immunology at the Medical University of South Carolina, told *Infectious Disease News*. Broken down, that means almost 300 Americans may die every day from an HAI.

"If one plane, a jumbo jet, crashed each day in the United States, would anybody fly? The answer is no. That is

the Society for Healthcare Epidemiology of America and professor of medicine at Washington University School of Medicine, told *Infectious Disease News*.

"These technologies definitely have the potential to transform care for our patients," she said.

Many of the newer technologies use environmental decontamination to prevent the transmission of pathogens,



**Jeanne M. Marrazzo, MD, MPH, FACP, FIDSA**

*Infectious Disease News* Editorial Board member

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## Hooked on ID

Infectious Disease News asked ID specialists when they chose to pursue a career in infectious diseases and why. Read more responses online at [www.Healio.com/ID](http://www.Healio.com/ID). You can share your story with us in 200 words or less by emailing the editors at [infectiousdisease@healio.com](mailto:infectiousdisease@healio.com), with the subject line "Hooked on ID."

I did my internal medicine residency at Yale New Haven Hospital in the years immediately before the advent of protease inhibitors would change the face of ART. In addition to caring for many young gay men with AIDS, I saw the side of the epidemic that even today remains relatively hidden in the United States, and is operative throughout much of sub-Saharan Africa: young women — often black — who presented late in the disease, having been infected by boyfriends or husbands. I was on call when one of my favorite patients, Shirley B., was admitted to die, and the team paged me to let me know so I could see her. I'll never forget their kindness in doing that and my visit to her room. These experiences solidified not only my interest in ID but in advancing women's reproductive health and autonomy related to ID and HIV prevention. Vaginal health? Female-controlled prevention methods? These were not sexy concepts that attracted big names during my subsequent training and early research career. Luckily, through persistence and commitment and probably some measure of stubborn cluelessness, I connected with some brave visionary mentors who believed there was a future in this arena and who themselves had battled for sexual and reproductive health — women, LGBT people, others not always at the proverbial table when funding or policy priorities are set. The rest is my personal history, and I know that only in ID would I have been able to accomplish any of it.

from common bacterial pathogens, such as *C. difficile* and MRSA, to fungal infections, such as *Candida auris*, that may be associated with contaminated surfaces,” Donskey said.

### Implementation within hospitals

The move to implement new technologies in hospitals has been gradual, but more and more facilities are using them, especially UV room decontamination devices, Donskey said. In fact, a survey of health care facilities in the U.S. and 11 other countries showed that, in 2018, 37% of facilities reported using UV light for environmental cleaning.

## “HAIs kill more people than HIV and breast cancer combined.”

— MICHAEL G. SCHMIDT, PHD

Babcock said most infection preventionists are aware of the new technologies. The companies that manufacture them will often exhibit them at hospitals and conferences. Hospitals will consider the devices and their claims for prevention and purchase them if they are well suited for their specific needs, she said.

“One of the challenges for a lot of these technologies is to show a direct link between the use of that device and an actual decrease in infections in patients. A lot of these kinds of technologies clearly do decrease the amount of bacteria on a surface, but it can be difficult to prove that using this kind of device or technology can actually decrease infections in patients,” Babcock said.

Plus, not every hospital is in need of these types of new technologies.

“If a hospital has already done a lot of work with preventing infections after surgery then maybe they don’t need a special dressing to prevent this problem in their patients,” Babcock said.

Whether the new technologies have a significant benefit compared with emphasizing standard infection control measures is also up for debate, Donskey said. A great deal of effort goes into introducing any new technology into a hospital. Costs go up, and training health care workers to use them can be time consuming, he said. Hospitals may see a comparable reduction in infections by investing the same amount of time in improving standard infection control strategies than they would in implementing a new technology, he noted.

Regardless, the No. 1 thing that physicians and patients can do to prevent HAIs is wash their hands whenever

they go in and out of a hospital room, Schmidt said.

“Simple things like practicing good hand hygiene make all the difference in the world at reducing the rate,” he said.

Infection prevention mostly relies on health care providers doing things correctly while providing care to patients, Babcock said.

“HAIs kill more people than HIV and breast cancer combined,” Schmidt said. “If we had tools like UV light, copper and hand hygiene monitors to alle-

viate breast cancer and HIV, we’d be out there cornering the market to end those diseases.” – by *Alaina Tedesco* ■

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