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Candida auris Hides in Reservoir Sites, Moves Across Healthcare Continuum

Emerging pathogen reportable in all states in 2019

By Gary Evans, Medical Writer

Multidrug-resistant *Candida auris* continues to threaten national emergence from endemic areas, finding safe harbor in step-down facilities and moving across the continuum to infect other patients.

These reservoir facilities include skilled nursing facilities for ventilated patients — so called “vSNFs” — and long-term acute care hospitals (LTACHs).

Hospitals are discharging high-acuity patients to these other facilities, which do not have a comparable level of infection prevention education and staffing, says **Tom**

Chiller, MD, MPHTM, chief of the mycotic diseases branch at the Centers for Disease Control and Prevention. Intensifying the problem, the acuity of

discharged hospital patients has been “ratcheted up” in recent years, he adds.

“It is really a dual-edged issue,” he says. “We have focused a lot of our infection control efforts in hospitals, as we should. But the step-down facilities, for lack of a better word, have been sort of forgotten about in

the continuum.”

These reservoir sites are the latest problem in controlling a pathogen

“WE HAVE FOCUSED A LOT OF OUR INFECTION CONTROL EFFORTS IN HOSPITALS, AS WE SHOULD. BUT THE STEP-DOWN FACILITIES ... HAVE BEEN SORT OF FORGOTTEN ABOUT IN THE CONTINUUM.”

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that presents many formidable challenges. For example, *C. auris* can evade lab detection without specialized equipment, as standard clinical testing may misidentify the pathogen with more benign *Candida* strains like *C. haemulonii*, the CDC reports.¹

That contributes to ineffective antibiotic treatment, as *C. auris* can be highly resistant to first-line therapy with fluconazole and other antifungals. In addition, *C. auris* can become endemic in the environment, requiring strong sporicidal disinfectants to eradicate from surfaces. Throw in high mortality rates in frail patients and the ability to exploit weak spots along the healthcare continuum, and you have a storm that is near perfect.

“These vSNFs and LTACHs do not have the same staffing that a hospital has, and yet, these patients are still very sick. And — based on prevalence data in Chicago — they have a lot *C. auris* colonization,” Chiller says.

Indeed, a study² presented recently in San Francisco at IDWeek 2018 revealed that Chicago healthcare facilities are struggling to contain *C. auris*, primarily because it has established reservoirs in step-down sites.

“*C. auris* has rapidly emerged in the Chicago area,” said **Sarah Kemble**, MD, medical director of the communicable diseases program at the Chicago Department of Public Health. “Repeat point prevalence surveys indicate transmission and amplification within vSNFs.”

Endemic Areas

That does not bode well for containment of *C. auris*, which is still primarily found in three states:

Illinois, New York, and New Jersey. In similar findings, investigators in New York City recently reported the pathogen was moving across the continuum and posing challenges in a number of different settings.

“Epidemiologic links indicated a large, interconnected web of affected healthcare facilities throughout New York City,” they reported.³

“Of the 51 clinical case-patients, 23 (45%) died within 90 days, and isolates were resistant to fluconazole for 50 (98%),” they found. Overall, screening of 572 patients revealed that 61 were *C. auris* positive. In 12 of 20 facilities that were screened, at least one patient was positive for *C. auris*. Facilities with a positive culture included five vSNFs. In addition, 8% of all environmental samples taken in the facilities were positive for *C. auris*.

“Contamination of surfaces and objects in case-patients’ rooms and mobile equipment outside the rooms was common,” they found. “High-yield items included bedrails, IV poles, beds, privacy and window curtains, windows, and floors.”

In addition, patient colonization was found in sites with environmental contamination, suggesting a link to transmission. It is becoming increasingly clear that colonization can have consequences, Chiller says.

“We know based on this study in New York that at least 4% of colonized patients go on to develop invasive infections,” he says. “We know that colonization can be a risk for invasive disease, and that’s ultimately what we are trying to avoid. We also know that colonization is a risk for transferring *C. auris* to other patients. I think the environment is playing a major role in transmission.”

Various means of decolonization

are under study, but there is no clear path forward, he adds.

“Chlorhexidine [bathing] is being embraced by some and not others. The jury is still out,” Chiller says. “Is it contact time? Is it using chlorhexidine more frequently? We don’t know. Maybe just bathing with soap and water more frequently could even be a decolonization method. We are actively searching other ways to think about this.”

The goal is reducing the pathogen bioburden enough to diminish transmission risk. If such bioburden is reduced, “we may be able to cut down a lot on transmission and really control these organisms, but this is a very large issue with very limited data,” he says.

C. auris was first detected in Japan in 2009. The first cases appeared in the United States in 2016. As of Oct. 31, 2019 — the most recent U.S. data available — there have been 457 confirmed cases of *C. auris* and 30 probable, the CDC reports.⁴ The vast majority are in the aforementioned three states, with a smattering of cases in nine other states. Overall, New York had 249 confirmed cases of *C. auris* and four probable; New Jersey had 96 and 22; and Illinois 91 and 4.

Report All Cases

C. auris becomes a nationally reportable infection this year, a boost to surveillance that should be further aided by wider availability of rapid PCR testing for the bug. The decision by the Council of State and Territorial Epidemiologists to add *C. auris* to national reporting (see sidebar on the right) should bring its prevalence into better focus, but Chiller doubts it will result in a large spike in cases.

Candida auris Reportable Nationally in 2019

C*andida auris* is reportable nationwide this year, a move that should boost surveillance of an emerging pathogen that has been primarily confined in three states: New York, New Jersey, and Illinois.

The decision by the Council of State and Territorial Epidemiologists (CSTE) should put *C. auris* prevalence in better focus, allowing better tracking and benchmarking to measure prevention efforts. Below are some highlights and provisions from the CSTE report, which is available at: <https://bit.ly/2FUtEoy>.

- “Laboratories should report suspected or confirmed cases of *C. auris* to State and Local Territorial [STLT] public health agencies and submit suspect *C. auris* isolates to regional Antibiotic Resistance Laboratory Network (AR Lab Network) laboratories or CDC via state public health laboratories for further characterization. Clinicians and healthcare facilities that become aware of a confirmed or potential case of *C. auris* should report the case to STLT public health authorities.”

- “Clinical manifestation of *C. auris* infection depends upon the site of infection. Patients with *C. auris* bloodstream infection typically have sepsis and severe illness. Other invasive infections, such as intra-abdominal candidiasis, can also occur. *C. auris* has also been found to cause wound infections and otitis. *C. auris* has been found in urine and respiratory specimens, though its contribution to clinical disease in these sites is unclear. *C. auris* also can colonize the skin, nose, ears, and other body sites of asymptomatic people.”

The following factors referenced in the CSTE report are aimed at helping to identify “epidemiologic linkage” in patients:

- “Person resided within the same household with another person with confirmatory or presumptive laboratory evidence of *C. auris* infection or colonization.

- OR person received care within the same healthcare facility as another person with confirmatory or presumptive laboratory evidence of *C. auris* infection or colonization.

- OR person received care in a healthcare facility that commonly shares patients with another facility that had a patient with confirmatory or presumptive laboratory evidence of *C. auris* infection or colonization.

- OR person had an overnight stay in a healthcare facility in the previous one year in a foreign country with documented *C. auris* transmission.”

The CSTE report also details the different classifications for clinical *C. auris* cases:

(Continued on page 4)

“People are looking pretty hard for cases, and I think if they had one they would report it to us because they want help containing it,” he says. “I think what this is going to do is set up a more sustainable way of tracking. It gives states an opportunity to tell their facilities that they need to report. It puts a system in place that is going to help us track the spread or our success in containing it over time.”

Another key development is increased use of PCR testing and analysis through the CDC Antibiotic Resistance Lab Network (ARLN), a nationwide group of labs that can rapidly identify pathogens and perform whole genome sequencing to shed light on transmission.

The wider use of rapid tests could allow active surveillance of incoming patients considered at risk. Standard culture testing for *C. auris* can take up to two weeks to yield results, meaning it will rarely inform patient isolation decisions. That is one reason the CDC has not emphasized active surveillance, but the agency does recommend isolating patients with known *C. auris* risk factors.

“Certainly, for known patients coming in, you do isolate,” he says. “With this PCR test, we may be able to screen much more rapidly and do a better job in determining if someone is positive — so you can put them in isolation or take them out.”

In addition to a heavy emphasis on hand hygiene and environmental cleaning, the CDC recommends⁵ that patients with confirmed or suspected *C. auris* infection should be cared for as follows in all settings:

- In a single-patient room under standard and contact precautions.
- If single rooms are limited, prioritize them for patients who

(Continued from page 3)

“Confirmed: Person with confirmatory laboratory evidence from a clinical specimen collected for the purpose of diagnosing or treating disease in the normal course of care. This includes specimens from sites reflecting invasive infection (e.g., blood, cerebrospinal fluid) and specimens from noninvasive sites such as wounds, urine, and the respiratory tract, where presence of *C. auris* may simply represent colonization and not true infection.

Probable: Person with presumptive laboratory evidence and evidence of epidemiologic linkage.

Suspect: Person with presumptive laboratory evidence and no evidence of epidemiologic linkage. Public health jurisdiction may consider stratifying clinical cases as invasive vs. noninvasive.” ■

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are at risk of transmitting *C. auris*, including those bed-bound.

- Regarding cohorting, patients with *C. auris* can be placed in rooms with other patients with the pathogen — but not with other multidrug-resistant organisms.

- Minimize the number of staff who care for *C. auris* patients. If there are multiple patients, consider designating staff members to care for only *C. auris* patients.

Chicago Story

Two Illinois patients were among the first U.S. cases of *C. auris*, and state health officials and clinicians strove to contain it. They thought they had done so after the first seven cases, but ongoing prevalence studies show otherwise, Kemble said.

Running through a timeline of the studies, she said in the Chicago area, facilities reported 24 clinical *C. auris* cases from May 2016 to January 2018. Ten involved bloodstream infection, the most severe manifestation of the pathogen. A

surge began in 2018, as investigators continued prevalence studies in facilities that included seven vSNFs, five hospital ICUs, and three skilled nursing facilities. As of Sept. 17, 2018, Kemble and colleagues had performed some 50 additional prevalence studies, raising the total of *C. auris* to 76 clinical cases and 289 colonized cases.

“Thirteen colonized patients went on to develop clinical infections,” she said, a concerning finding since the proportion of colonized cases continues to grow.

In the first year of conducting surveys, only 2% of cases were colonized, but that number increased to 19% by September 2018 for all facilities. “Prevalence has only increased in vSNFs since January,” Kemble said. “On our most recent survey, colonization prevalence was at 71%. The majority of patients were found to be previously colonized with *C. auris*. Adding to the challenge in these facilities is a number of other MRDOs [multidrug-resistant organisms].”

In response, the Illinois state health department has sent out a series of alerts to raise awareness about *C. auris*, recommending contact precautions and emphasizing hand hygiene.

“Facilities must ensure interfacility communication regarding the status of any patient known to be infected or colonized with *C. auris* or other multidrug-resistant organisms at the time of transfer to another facility,” a health department alert states.⁶ “Communication should include any patient screened for a multidrug-resistant organism but for whom laboratory results are not available at the time of transfer.”

Citing risk factors and the presence of invasive devices, the health department reported that of “47 infected patients with available data, 83% had an IV device, 79% had wounds, 70% had a feeding tube, 66% had a urinary catheter, 62% had a tracheostomy, and 62% were mechanically ventilated.”

The alerts have been followed by direct calls to healthcare facilities that shared large numbers of patients with high *C. auris* prevalence, Kemble said.

The vSNFs in particular face challenges in implementing infection control measures due to understaffing and high staff turnover, she reiterated. Moreover, practices and regulations in long-term care facilities may run counter to traditional infection control approaches.

“One of the facilities was cited by a state regulatory agency for having too many patients on contact precautions because it wasn’t consistent with a ‘home-like’ environment,” Kemble said. “The patient dignity piece is a very strong theme in regulation,

especially in Illinois. It often is at odds with what needs to happen with infection control.”

Shared Items

As in other investigations, environmental testing also is showing widespread contamination of the environment in some facilities, she said.

“Initially, with the first cases, we did not find *C. auris* except in a patient room that still had the patient in it,” Kemble said. “But subsequently, in screening environmental surfaces in vSNFs, we have found a lot of positives. Temperature probes as well as glucometers are items we are frequently finding positive — items that are shared up and down the hall.”

A recently published study in the United Kingdom reported a similar problem, with *C. auris* spreading to ICU patients via “reusable axillary temperature probes — indicating that this emerging pathogen can persist in the environment and be transmitted in healthcare settings.”⁷ In total, 70 patients were colonized or infected with *C. auris*, the authors reported.

Given the continuing spread of *C. auris*, Kemble and colleagues are teaching staff in the vSNFs and other nonhospital settings how to monitor hand hygiene compliance and use glow markers to show cleaning staff areas that remain contaminated.

“These kind of concepts were completely novel in many of these settings,” she said.

The findings were similar in New York, where investigators found infection control lapses in nonhospital settings, many of

which had insufficient availability of alcohol-based hand sanitizers.

“A common problem with implementation of contact precautions was ineffective signage,” the investigators found. “One facility had no signs or other effective systems to identify persons around whom contact precautions should be taken.”

PPE problems included lack of knowledge about equipment needed, improper donning and doffing of gear, and insufficient stocks of appropriate supplies. Disinfection lapses included use of disinfectants without sporicidal label claims, inadequate disinfection of shared patient items, and lack of knowledge of necessary chemical contact times. The CDC is assisting infection control efforts, but the challenge ultimately falls to state and local health departments, Chiller says.

“These organisms are challenging to control. And certainly, if there are large reservoirs of these organisms existing in environments with suboptimal infection control and environmental disinfection, that is going to create an easy way for this to be transmitted and spread as patients go in and out of different facilities.”

And this raises the inevitable question: Can the CDC keep this bug at bay, contained in the endemic areas?

“I’m cautiously optimistic that we have been maintaining it at least in these three major areas for now,” Chiller says. “We have had one-off cases in other places when they have reacted very strongly. It did not appear to set up shop. But if it did so in LTACHs where we are not looking, we might not see it for a long period of time — until it

bubbled over into acute care. That concerns me.” ■

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Internet Trolls Fuel Vaccine Misinformation

Russian ‘troll farm’ allegedly sent out divisive tweets

The anti-vaccine movement in the United States threatens to undermine herd immunity to preventable infectious diseases through circulation of false fears. Pockets of susceptible populations — who have refused vaccination for childhood disease like measles or seasonal infections like flu — can set off outbreaks that threaten vulnerable individuals.

In the wake of these outbreaks and the ensuing controversy about vaccination, social media has become a battlefield of divisive rhetoric, some of it posted just to create the illusion of a “debate” and keep people divided. To establish this false equivalency, some tweets from the same sources have posted both negative and positive messages about vaccines, a recent study¹ found.

Researchers looked at vaccine-related messages posted online from July 2014 through September 2017. The analysis included “#VaccinateUS” tweets, which were “uniquely identified with Russian troll accounts linked to the Internet Research Agency — a company backed by the Russian government specializing in online influence operations,” they reported.

“Whereas bots that spread malware

and unsolicited content disseminated antivaccine messages, Russian trolls promoted discord,” they concluded. “Accounts masquerading as legitimate users create false equivalency, eroding public consensus on vaccination.”

New Normal?

Hospital Infection Control & Prevention sought further information in an interview with the lead author of the study, **David A. Broniatowski**, PhD, a professor of engineering and applied science at George Washington University in Washington, DC.

HIC: While the antivaccine movement has been going on for years in the U.S., some of the tweets you analyzed were from the same sources in Russia charged with sending divisive posts during the buildup to the 2016 U.S. presidential election.

Broniatowski: We can’t really say anything explicitly about intent, but we can look at patterns of behavior. What we know is that these particular accounts had been involved in transmitting messages that were divisive along a range of different topics. They were identified by NBC News as

traced to the Internet Research Agency, [according to] the Justice Department. We found there were several tweets and retweets about vaccines coming from these accounts.

They were about vaccines but generally linked to known issues within American society, such as racial, religious, and gender issues. You don’t usually see this type of discourse about vaccines, so it really did seem to be trying to establish a kind of linkage.

HIC: You also report links between the vaccine tweets and conspiracy theories, criticism of the U.S. government, criticism of science, etc.

Broniatowski: A lot of the messages seem to reflect a lack of trust in government. Although, you also have messages that say something like “vaccines work” or “science works.” There were also a fair number of messages about “elites vs. normal people.” The focus seemed to be on stirring up dissent and discord.

HIC: Did you see any specific posts about widely refuted allegations, such as the MMR vaccine causes autism?

Broniatowski: We certainly saw that messages such as those were retweeted by these accounts, but most of messages that were generated by these [Russian]

accounts were very general. It takes more in-depth knowledge to know that is happening in the U.S. On the other hand, the general idea that vaccines are bad doesn't take much background cultural knowledge. We didn't see as many [claims against specific vaccines] in the novel tweets that were generated by these accounts.

HIC: Was it possible to assess the effect of this social messaging on vaccinations?

Broniatowski: Our study was primarily observational, but that would be a valuable direction for future work. We do know that exposure to this so-called vaccine "debate" does reduce confidence in vaccination. Even if people believe vaccines are safe and effective, it creates hesitance. Although we didn't explicitly measure whether these tweets had that effect, it is a known outcome of exposure to a "debate" that makes it seem to appear that there are two valid sides.

HIC: You conclude with colleagues that "beyond attempting to prevent bots from spreading messages over social media, public health practitioners should focus on combating the messages themselves while not feeding the trolls." That seems like a very fine line to draw in dealing with this.

Broniatowski: It is a fine line. The specific details of how to do that is another important area for future

research. These messages at a very high level suggest that there is a debate to be had [on vaccines].

On the other hand, by engaging in that you create the impression that there is a debate. If you find yourself confronted with a troll who is giving you either pro- or anti-vaccine messages, simply acknowledging that debate may be counterproductive.

Pro, Con, and Chaos

The tweets that follow were cited in the study. They were linked to Russian troll operations. The study notes that themes include, among others, "Can't trust government on vaccines," "Natural immunity is better," and "Vaccines cause autism." Pro-vaccination tweets also were disseminated, "consistent with a strategy of promoting political discord."

Some of the anti-vaccine tweets:

- "... Mandatory #vaccines infringe on constitutionally protected religious freedoms."
- "Did you know there was a secret government database of #vaccine-damaged children?"
- "Pharmacy companies want to develop #vaccines [for] cash, not to prevent deaths."
- "Natural infection almost always causes better immunity than #vaccines."

• "Don't get #vaccines. Illuminati are behind it."

• "Did you know #vaccines caused autism?"

• "#Vaccines contain mercury! Deadly poison!"

• "Most diseases that #vaccines target are relatively harmless in many cases, thus making #vaccines unnecessary."

Some of the pro-vaccine tweets:

• "Vaccines save 2.5 million children from preventable diseases every year."

• "Your kids are not your property! You have to #vaccinate them to protect them and all the others!"

• "You can't fix stupidity. Let them die from measles, and I'm for #vaccination!"

• "My freedom ends where another person's begins. Then children should be #vaccinated if disease is dangerous for OTHER children."

• "#Vaccines cause autism — Bye, you are not my friend anymore. And try to think with your brain next."

• "Do you still treat your kids with leaves? No? And why don't you #vaccinate them? It's medicine!" ■

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CDC Debunks Flu Shot/Pregnancy Misinformation

Shot protects mother and fetus

Fighting off another flu vaccine falsehood, the Centers for Disease Control and Prevention says it is not recommending that pregnant women get their doctors' approval before they "get vaccinated at a worksite clinic, pharmacy, or other location outside of their physician's office."¹

Erring on the side of caution, the primary caveat is that pregnant women should receive a regular flu shot (i.e., inactivated influenza vaccine [IIV]). They are advised not get the live attenuated influenza (LAIV) nasal spray vaccine.

Vaccine information on the

internet can be rife with controversy and misinformation. At the annual flu press conference this year at the National Foundation for Infectious Diseases (NFID), the CDC and its clinical partners made immunization of pregnant women a high priority.

Indeed, pregnant women are

recommended for vaccination because they are at high risk of serious complications of flu infections, said **Laura Riley**, MD, of Weill Cornell Medicine in New York.

“Pregnant women who get the flu do very poorly,” she said at the NFID press conference. “They do way worse than any other non-pregnant individual. So, it is absolutely critical that we prevent pregnant women from getting the flu.”

Immunization can be given at any stage of pregnancy. If flu infection does occur, the later the pregnancy, the greater the danger of severe respiratory illness in the mother, said Riley, a member of the American College of Obstetricians and Gynecologists.

“In every flu epidemic, we know

that as you get into the second and third trimester of pregnancy, you’re more likely to die and more likely to be hospitalized,” Riley said.

While the CDC is looking into outlier data that has been interpreted by some as linking repeated flu vaccination with increased miscarriage risk, the current recommendation is based on the consensus that vaccination protects the mother and fetus and confers immunity into the early months of life.

“When pregnant women get really high fever for extended periods of time, we know that fever actually causes birth defects,” she said.

In addition, women who get the flu may deliver early, raising a host of issues associated with premature birth.

“Not only has ACOG and CDC been recommending it to pregnant women, we’ve also been trying very hard to convince providers — nurse practitioners and midwives and obstetricians, family practitioners, anyone who takes care of pregnant women — they have to be on board,” Riley said.

“They have to remember to strongly recommend it to pregnant women.”

Only about half of pregnant women were vaccinated in the 2017-18 flu season. The CDC and partners are pushing to achieve an “80-plus” percentage of vaccination in pregnant women this season. ■

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Will Paralytic Syndrome Fade With Fall?

As the fall 2018 viral season ended, there was hope that the national outbreak of acute flaccid myelitis (AFM) in children would follow historic patterns and fade out as well.

“Most patients [have] had onset of AFM between August and October, with increases in AFM cases every two years since 2014,” the Centers for Disease Control and Prevention reports.¹ “At this same time of year, many viruses commonly circulate, including enteroviruses, and will be temporally associated with AFM.”

As of Dec. 3, 2018, there were 134 confirmed cases of AFM in 33 states. Another 165 possible cases were under investigation.

In a recent report² on 80 of the

confirmed cases, the CDC detected some viruses previously linked to the condition (i.e., enterovirus) but not in sufficient numbers to explain the outbreak.

Most AFM cases were children between two and eight years old, with an upper limb afflicted in roughly half of the cases.

“CDC has tested 125 spinal cord fluid respiratory and stool specimens from 71 of the 80 confirmed AFM cases,” the agency reported. “Of the respiratory and stool specimens tested, about half were positive for enterovirus or rhinovirus, including EVA-71 and EVD-68. The spinal cord fluid was positive in two cases. One had evidence of EVA-71, and one had evidence of EVD-68.”

AFM emerged in 2014 during a large national outbreak of EVD-68 and has peaked and ebbed in alternative years every fall since then.

“Most of these patients have a fever and/or a respiratory infection three to 10 days before the onset of limb weakness,” said **Nancy Messonnier**, MD, director of the CDC National Center for Immunization and Respiratory Diseases, said at a recent press conference.

“And fever and respiratory infections are certainly classic symptoms of respiratory viral disease.”

It is entirely possible at this point that AFM may fade back again without the CDC finding

the “unifying diagnosis” that has proved elusive.

“It may be one of the viruses that we’ve already detected,” she said.

“It may be a virus that we haven’t yet detected. Or it could be that the virus is actually triggering an autoimmune process. Those are all hypotheses we’re looking closely at.”

It is not as simple as concluding AFM is caused by different respiratory viruses, though that could end up being part of the answer.

“Certainly, finding a pathogen in the spinal fluid points to that pathogen as causing the disease,” Messonnier said.

“But other fluids — for example, nasal pharyngeal swabs — can harbor lots of pathogens even in children that are mostly healthy. We would find other things that they’re carrying that aren’t making them sick.”

On the other hand, despite extensive testing, no pathogens have been found in the spinal fluid of many AFM cases. “This may be because the pathogen has been

cleared by the body or it is hiding in tissues that make it difficult to detect,” she said.

“Another possibility is that the pathogen triggers an immune response in the body that causes damage to the spinal cord.” ■

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2. McKay SL, Lee AD, Lopez AS, et al. Increase in Acute Flaccid Myelitis — United States, 2018. *MMWR* 2018;67:1273–1275.

APIC, CDC Develop Infection Cards

Can be used by non-IPs for quick assessment

The Association for Professionals in Infection Control and Epidemiology has teamed up with the CDC to create “quick assessment” cards with infection prevention tips on various patient populations or care environments.

“These assessments are easily downloaded and take the form of 3-8 questions for each observation or patient in order to facilitate a quick check at the local level,” APIC explains.¹ “Deficiencies can be identified, investigated, and remediated in a timely manner.”

The idea is that the cards are used by frontline caregivers — not IPs who already have this knowledge. The premise is that there are already standard education and policy approaches, but the cards serve as a somewhat whimsical but potentially effective reminder to frontline workers, explains **Nancy Donegan**, RN, an APIC infection prevention consultant.

“You need all those other parts — the policy and the education. But the people who prevent infections are the ones closest to the patient,” she says. “They get education and reminders in a sort of central fashion, but this is really much more organic. It is meant to be quick and quite intuitive.”

Somewhat similar to board game “chance” cards, the assessment cards are printed on pieces of paper that can be easily disposed and reprinted.

“People can modify them quite easily,” she says, “If their PPE supplies are not readily available, they can ‘overload’ those cards. So if there are 40 cards, maybe 20 of them will be a card telling them to check supply availability. If you have a problem you want to address, you can kind of stack the deck in that direction.”

The cards could be used by a manager or staff in a particular hospital unit or for a patient population being assessed.

“Each observation is based on specific guideline recommendations or general consensus as published in the literature,” APIC noted.

For example, a card on instrument processing includes the following questions:

- Are disinfected instruments stored in a manner to protect them from damage and contamination?
- Is each piece of equipment labeled with the day of most recent disinfection?
- Are scopes, if present, stored in a dedicated area and hung vertically to facilitate drying?

“We hope these are used by the workers who see the patients on the units,” Donegan says. “Say every week they draw a card and [follow instructions] — it takes about 10 minutes.” ■

REFERENCE

1. APIC. Observation Tools Library. Available at: <https://bit.ly/2Drr33F>.

Devil in the Details in CDC Infection Control Draft

Commenters offer suggestions, revisions, critiques

While receiving generally favorable reviews, there were plenty of devils in the details in public comments submitted to the CDC on its draft guidance on preventing occupational infections.

The CDC has issued draft guidelines¹ for preventing infections in healthcare workers, urging collaboration between infection preventionists and employee health professionals.

(See Hospital Infection Control & Prevention, December 2018.)

The comment period was slated to close Dec. 14, 2018, as this issue went to press. The update comes 20 years after the last CDC guideline on this issue.

“These updates are long overdue, and the care and effort that went into updating the guidance is a notable undertaking,” said **Amber Hogan Mitchell**, DrPH, MPH, CPH, executive director of the International Safety Center for healthcare workers.

A former Occupational Safety and Health Administration (OSHA) official, Mitchell oversees the center’s EPINet surveillance, which has been gathering data on potentially infectious exposures to healthcare workers for many years.

Safer healthcare workers have a direct impact on their ability to provide and maintain safer patient care, she told the CDC in the comments. “While the document is quite comprehensive, there are elements that are missing and others that need clarification and additional points of accuracy,” Mitchell stated in the comments.

For clarity, she recommended, the CDC should include the term

“occupational infection and illness’ where appropriate and as frequently as possible together throughout the entire document.”

She added that “infection’ is often associated more with healthcare-associated infection, and ‘illness’ is consistent with OSHA terminology.”

Mitchell also suggested that a greater distinction be drawn between occupational duties such as safety and respirator fit testing, compared to employee health functions like post-exposure prophylaxis and vaccinations.

The CDC should drop the use of the term “safety engineered sharps devices” in favor of the more widely used term “sharps with injury protection (SIP),” she advised.

Developed by expert stakeholders, SIP “defines devices with integral features to prevent percutaneous injuries that may cause exposure to blood, body fluids, or other potentially infectious materials,” Mitchell commented.

MRSA Carriage?

In other comments, **Kevin T. Kavanagh**, MD, MS, of Health Watch USA, said the document does not sufficiently address the risk of healthcare workers becoming carriers of methicillin-resistant *Staphylococcus aureus* (MRSA) and other drug-resistant pathogens.

“Some of the resistant organisms such as MRSA have become endemic, and different methodologies for prevention of

spread need to be instituted, such as routine periodic screening for carriers,” Kavanagh noted in the comments.

To clarify, the CDC has not yet published the guideline section on specific pathogens with important implications for occupational health.

That portion was expected to follow the recently published infrastructure section, and thus a draft likely will be issued in 2019.

The pathogen section of the update should better speak to MRSA concerns, as Healthcare Infection Control Practices Advisory Committee discussions included colonization and screening issues for healthcare personnel and patients.

Other multidrug-resistant bacteria will be addressed in that section, as well as bloodborne pathogens, tuberculosis, and a broad array of respiratory viruses.

Another commenter raised the issue that some physicians are not “employees” of a hospital, creating confusion about whether they are expected to comply with the recommendations.

“It is important and pertinent to explicitly state that providers and physicians must be involved in all healthcare personnel occupational health and infection prevention activities,” said **Julie Babyar**, RN, MPH.

“Providers and physicians must be required to submit and follow all vaccination, immunization, TB, and exposure documentation,” she said.

In a point relevant to expanding occupational infection prevention beyond hospitals, she said safe injections must be treated like clinical practices.

“The practice of providing injections continues to be performed in many sites as part of an office day, often with HCP walk-ins at random, [and without] clinic rooms.”

The massive shift in the delivery of care over the last two decades requires an emphasis at the onset that employee health programs are critical across the continuum, says **David Kuhar**, MD, a medical epidemiologist in the CDC’s Division of Healthcare Quality Promotion who is spearheading the process.

In addition, two new elements

in the CDC infrastructure guidelines are “leadership and management,” and “assessment of reductions of risk for infection” among healthcare workers, he explains.

“We have recommendations that are aimed at senior leaders and management that [emphasize] providing administrative support as well as resource allocation,” Kuhar says.

“These services can’t be provided unless they are appropriately funded.”

The CDC draft guidelines recommend that healthcare

organization leaders create a culture that prioritizes prevention of infections.

They should also regularly review infectious risks with occupational health services and provide adequate staffing and program funding. ■

REFERENCE

1. CDC. Healthcare Infection Control Practices Advisory Committee. Infection Control in Healthcare Personnel: Infrastructure and Routine Practices for Occupational Infection Prevention Services. Oct. 15, 2018. Available at: <https://bit.ly/2JsbUPF>.

New Drugs Needed for Bad Bugs

FDA creating incentives to develop new antibiotics

To stem the tide of antibiotic-resistant pathogens, the FDA will provide more incentives and market opportunities in 2019 as part of a five-year plan to get the pharmaceutical industry involved in restoring the dwindling drug pipeline.

This is necessary in addition to antibiotic stewardship because of the historic disincentives in drug development to treat infectious diseases.

“Large pharmaceutical companies have, for the most part, exited from antibiotic research,” FDA Commissioner **Scott Gottlieb**, MD, said in a recent speech outlining the problem.

“As large companies pare their efforts back, the funding pool available for commercializing innovative projects is shrinking,” he said.

“We’ve recently seen news that

some big companies are getting out of this space.”

As infection preventionists are aware, the old adage “use it and lose it” remains in play for antibiotics, which select out resistant organisms and become less and less effective over years of use.

That has prompted some to suggest developing antibiotics, but holding them back in a sort of “break glass in emergency” mode.

“The problem is that the ideal drug is one that will be seldom used,” Gottlieb said.

“In other words, the reimbursement scheme is in direct conflict to our public health goals.”

Indeed, holding a new antibiotic in reserve diminishes revenues early in the drug patent life, when that compensation is at greatest value to manufacturers, he noted.

“It is important to pursue new policies and reimbursement

approaches now to shift the investment landscape right away,” Gottlieb said.

“The long-run human and economic cost of antimicrobial resistance is enormous, including death and disability from sepsis, extended and expensive hospital stays, and the need for dialysis or organ transplant in the wake of systemic infections,” he said.

With the tremendous burden of deaths, infections, and costs of antibiotic resistance, this pay-it-forward approach could pay for itself over time.

“Reimbursement reforms could include a mix of milestone payments and subscription fees for developers of FDA-approved products with high economic and clinical value, targeted at multidrug-resistant organisms and linked to proven clinical outcomes,” he said. ■



HOSPITAL INFECTION CONTROL & PREVENTION

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CME/CE QUESTIONS

- 1. Multidrug-resistant *Candida auris* has established reservoirs in non-hospital care settings, particularly which of the following?**
 - a. Skilled nursing facilities for ventilated patients
 - b. Dementia and cognitive impairment facilities
 - c. Nursing homes
 - d. Stroke recovery and rehab sites
- 2. Tom Chiller, MD, MPHTM, said *Candida auris* is still found primarily in three states. Which of these is one of the three?**
 - a. California
 - b. New Jersey
 - c. Connecticut
 - d. Florida
- 3. Researchers looking at social media tweets on vaccines found the messages were exclusively negative in an attempt to undermine immunizations.**
 - a. True
 - b. False
- 4. Acute flaccid myelitis has a strange seasonal pattern that is marked by which of the following?**
 - a. Emergence in April every year
 - b. Cases occur in spring and late summer alternately every year
 - c. AFM prevalence peaks and ebbs in alternate years
 - d. None of the above

CME/CE OBJECTIVES

Upon completion of this educational activity, participants should be able to:

1. Identify the clinical, legal, or educational issues encountered by infection preventionists and epidemiologists;
2. Describe the effect of infection control and prevention issues on nurses, hospitals, or the healthcare industry in general;
3. Cite solutions to the problems encountered by infection preventionists based on guidelines from the relevant regulatory authorities, and/or independent recommendations from clinicians at individual institutions.