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INSIDE

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Vaccines Threatened, Still Effective Against COVID-19 Variants

'We cannot fall behind this virus'

By Gary Evans, Medical Writer

Current vaccines are holding against an emerging array of highly transmissible SARS-COV-2 variant strains, but researchers are warning that a somewhat literal "arms race" has begun between immunization science and relentless evolution.

For now, the remarkable 94%-95% efficacy of the two available COVID-19 vaccines creates a buffer, meaning some degradation of effectiveness would still keep people out of the hospital and the morgue — a truism often applied to flu shots. The rise of these variant strains gives healthcare workers another important reason to get immunized, although some still are hesitant or outright refusing vaccination. *(See related story in this issue.)*

> RESEARCHERS ARE WARNING THAT A SOMEWHAT LITERAL "ARMS RACE" HAS BEGUN BETWEEN IMMUNIZATION SCIENCE AND RELENTLESS EVOLUTION.

The Food and Drug Administration (FDA) has granted emergency use authorizations (EUA) to two messenger RNA vaccines for COVID-19 in the United States: one from Pfizer-BioNTech and one from Moderna.

A flurry of pre-publication, non-peer-reviewed research on the efficacy of immunization against the variant strains has been released, including a study that revealed some diminished efficacy of the Moderna vaccine against the variant B.1.351 strain that has emerged in South Africa. The same

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study revealed the Moderna vaccine was fully effective against another major strain of concern, United Kingdom (UK) B.1.1.7.[1]

"For the South African strain, we still see a very high level of antibody, but it is lower than the traditional strain and B.1.1.7," Moderna CEO **Stéphane Bancel** said in a recent interview. "We believe our vaccine will be protective in the short term. What is unknowable right now is what will happen in six months, in 12 months, especially to the elderly because they have a weakened immune system, and the immunity might go down over time."[2]

Out of an "abundance of caution," the company will test a single-dose booster shot targeting the South African strain. The vaccine will use the same mRNA platform of the approved vaccines, but will genetically target the B.1.351 strain. Working with the FDA, the booster could be deployed this spring if there are signs of waning immunity in the elderly. "We cannot fall behind this virus," Bancel said. "We just wanted to be cautious, not for now, but for the future."

As this issue went to press, the Centers for Disease Control and Prevention (CDC) announced the first documented U.S. case of the South African B.1.351 variant had been detected in South Carolina.

"At this time, we have no evidence that infections by this variant cause more severe disease," the CDC stated. "Like the U.K. and Brazilian variants, preliminary data suggests this variant may spread more easily and quickly than other variants."[3]

Few other details were released, but more variants are expected to be detected because the CDC has expanded National SARS-CoV-2 Strain Surveillance.

"We continue working with national reference laboratories, state health departments, and researchers from around the country to gather sequence data and increase use of genomic sequencing data in response to this pandemic," the CDC said.

"Part of the challenge of recognizing these variants is a lack of public health laboratory infrastructure in order to do the surveillance," **Rochelle Walensky**, MD, MPH, the new director of the CDC, said in a recent interview. "Part of the president's budget is to bolster that dramatically. The work is already being done to create those connections with industry, academic, and public health labs to make sure we can [identify] these variants across the country."[4]

Formerly an infectious diseases physician at Harvard Medical School and Massachusetts General Hospital, Walensky took the helm of the beleaguered agency at the height of the pandemic as an appointee of the Biden administration.

"Even if vaccines in the labs don't appear as robust [against variants] as the initial strain, we will probably still end up with quite a good vaccine," she noted. "Almost no vaccine we have is 95% [effective], so before we panic [and say] 'Should I get the vaccine if it is not going to work against the variants?' It's going to work against the variants. Will it be 95%? Maybe. Will it be 70%? Maybe. Our flu vaccines are not that effective every year and we still get them. I'm optimistic about how these variants are going to go. I could be wrong, and we find variants for which the vaccine is less potent."

U.K. Strain Becoming Predominant

Fortunately, both vaccines have shown efficacy against the U.K.

B.1.1.7 variant, which the CDC has projected will be the predominant strain in the United States by March.[5] Researchers in England are warning in addition to be being highly transmissible, there is "a realistic possibility" the variant may cause infections with higher rates of mortality.[6]

Initially, the U.K. variant was thought to be no more virulent than the original, wild strain on a "one-to-one" basis, but the fact it is more transmissible was expected to lead to overall deaths in any case, said **Anthony Fauci**, MD, director of the National Institute of Allergy and Infectious Diseases.

"The one in the U.K. appears to have a greater degree of transmissibility — about twice as much as the wild type original virus," he said at a recent press conference.[7] "If you have a virus that is more transmissible, you get more hospitalizations. When you get more hospitalizations, you ultimately are going to get more deaths."

As of Jan. 25 (based on limited genetic sequencing), there were 293 cases of COVID-19 in 24 states caused by the U.K. B.1.1.7 variant, according to the CDC.[8]

"We need to be much better at sequencing this virus," **Paul Offit**, MD, director of the Vaccine Education Center at the Children's Hospital of Philadelphia, said in a recent interview. "When [these variants] come up, what we need to identify initially is to see whether or not the sera that are obtained from people who are immunized with these mRNA vaccines neutralize the virus. That is what you need to know."[9]

A recent pre-print study revealed both vaccines sufficiently protected against the U.K. and South African strains, but researchers warned that encoded genetic mutations can diminish efficacy to some degree.

"Taken together, the results suggest that the monoclonal antibodies in clinical use should be tested against newly arising variants, and that mRNA vaccines may need to be updated periodically to avoid potential loss of clinical efficacy," the authors concluded.[10]

The authors of another study examined whether unvaccinated patients who were convalescing or completely recovered from COVID-19 infection were immune to the South African variant.[11]

> "EVEN IF VACCINES IN THE LABS DON'T APPEAR AS ROBUST [AGAINST VARIANTS] AS THE INITIAL STRAIN, WE WILL PROBABLY STILL END UP WITH QUITE A GOOD VACCINE."

"Of the 44 that they tested, 22 didn't neutralize the virus," Offit said. "There were a handful of sera that did neutralize the virus completely. Those were obtained from people who had more severe disease and had higher titers and neutralizing antibodies. The vaccine may induce higher, longer-lasting titers than from people who are convalescent, which could have broader range of neutralizing titers just because they had different levels of disease."

In addition to vaccines, emerging variants threaten to undermine monoclonal antibody treatments for COVID-19. "Since monoclonal antibodies bind to a very specific part of the virus, when there is a mutation there it has a much greater chance of obliterating the efficacy of a monoclonal antibody," Fauci said. "We are seeing in the much more concerning mutations that are in South Africa and in some respect Brazil — which is similar, it is having an effect on the monoclonal antibodies."

First Case of Brazil Strain in United States

The first U.S. case of the Brazil P.1 variant, which has spread rapidly in areas of that country, was detected in a traveler returning from Brazil to the Twin Cities metro area in Minnesota on Jan. 25, state health officials announced.[12]

"With the new lab information showing the case to be the Brazil P.1 variant, epidemiologists are re-interviewing the person to obtain more details about the illness, travel, and contacts," the health department said.

The Brazil variant contains 17 unique mutations, including three in the receptor binding domain of the spike protein. "There is evidence to suggest that some of the mutations in the P.1 variant may affect its transmissibility and antigenic profile, which may affect the ability of antibodies generated through a previous natural infection or through vaccination to recognize and neutralize the virus," the CDC reports.[13]

Over time, as SARS-COV-2 persists and globally circulates, treatments and vaccines might require augmenting to meet the threat of variant mutations.

"If we ever have to modify the vaccine, it is not something that is a

very onerous thing," Fauci said. "We can do that given the platforms we have. What we are likely to see is a diminution of the vaccine-induced antibodies. That does not mean that the vaccines will not be effective."

A key message is the variants make vaccination even more important, as mutations will continue to arise if SARS-CoV-2 runs unchecked through large populations.

"It is all the more reason why we should be vaccinating as many people as we possibly can," Fauci said. "Viruses don't mutate unless they replicate. If you can suppress that by a very good vaccine campaign, then we can avoid this deleterious effect of mutations." ■

REFERENCES

1. Wu K, Werner AP, Moliva JI, et al. mRNA-1273 vaccine induces neutralizing antibodies against spike mutants from global SARS-CoV-2 variants. *bioRxiv* 2021;2021.01.25.427948. [Preprint].
2. CNBC. Transcript: Moderna CEO Stéphane Bancel Speaks with CNBC's "Squawk Box." Jan. 25, 2021. https://cnb.cx/3pxkyAn
3. Centers for Disease Control and Prevention. South Carolina detects first US cases associated with variant first detected in South Africa. Jan. 28, 2021. https://bit.ly/2MAQZzo
4. JAMA Network. Coronavirus update with CDC Director Rochelle Walensky. *Conversations with Dr. Bauchner*. Jan. 19, 2021. https://bit.ly/3t9an7h
5. Galloway SE, Paul P, MacCannell DR, et al. Emergence of SARS-CoV-2 B.1.1.7 Lineage — United States, December 29, 2020-January 12, 2021. *MMWR Morb Mortal Wkly Rep* 2021;70:95-99.
6. Horby P, Huntley C, Davies N, et al. NERVTAG note on B.1.1.7 severity. Jan. 21, 2021. https://bit.ly/3puNNnH
7. The White House. Press briefing by Press Secretary Jen Psaki, Jan. 21, 2021. https://bit.ly/3oz3Cbw
8. Centers for Disease Control and Prevention. US COVID-19 Cases Caused by Variants. Updated Jan. 31, 2021. https://bit.ly/3tbaqQm
9. JAMA Network. Coronavirus vaccine update with Paul Offit and Robert Wachter. *Conversations with Dr. Bauchner*. Jan 19, 2021. https://bit.ly/3osFyXF
10. Wang Z, Schmidt F, Weisblum Y, et al. mRNA vaccine-elicited antibodies to SARS-CoV-2 and circulating variants. *bioRxiv* 2021;2021.01.15.426911. [Preprint].
11. Wibmer CK, Ayres F, Hermanus T, et al. SARS-CoV-2 501Y.V2 escapes neutralization by South African COVID-19 donor plasma. *bioRxiv* 2021;2021.01.18.427166. doi: 10.1101/2021.01.18.427166. [Preprint].
12. Minnesota Department of Health. MDH lab testing confirms nation's first known COVID-19 case associated with Brazil P.1 variant. Jan. 25, 2021. https://bit.ly/2YqJCxc
13. Centers for Disease Control and Prevention. Emerging SARS-CoV-2 variants. Updated Jan. 28, 2021. https://bit.ly/39ugnzR

New CDC Director Takes Helm Amid Raging Pandemic

Agency scientists have been 'muzzled'

The Centers for Disease Control and Prevention (CDC) has seen its pandemic response politicized and undermined over the past year, but a new director appointed by the Biden administration aims to restore the battered agency to its world-class standing.

"They have been muzzled," **Rochelle Walensky**, MD, MPH, said in a recent interview. "Science hasn't been heard. This top-tier, world-renowned agency hasn't really been appreciated over the last four years, and really over the last year. I have to fix that."[1]

Before taking the critical post during the high tide of an epidemic, Walensky was an infectious diseases physician at Harvard Medical School and Massachusetts General Hospital.

"The good news in my mind is there has not been a mass exodus of talent," she said. "The talent is still there. I need to make sure that those voices get heard again, and that I am leading with the trust that the science is actually conveyed. It is not just the good news that you are going to hear."

In addition to improving collaboration and communication within, Walensky wants to raise the profile of the agency and communicate directly with the public.

"I have to make sure that we are communicating to the American people," she said. "I have done numerous media appearances where

I hear people say 'This is the first time we have heard from the CDC director.' I want to be able to explain in layman's terms what the science shows when guidelines change — not just me, but [CDC] subject matter experts who can convey that."

Although there have been warning signs like the Ebola outbreak and the H1N1 flu pandemic, the public health system remained vulnerable to the emergence of COVID-19. "Part of the challenge with COVID is that we had a frail public health infrastructure at the start," she said. "We need to fix our public health infrastructure, and we need resources to do it. One of my challenges is make sure that Congress knows and understands that we are in this because we have had many public health scares in the last few years, and we didn't fix our public health infrastructure."

Many aspects of the CDC's normal mission have been sidetracked and deferred by the pandemic in 2020. "The CDC does a lot of work in public health in times when there are not pandemics," Walensky said. "We are going to see a lot of collateral damage from last year in terms of hard-won gains that have been lost — child vaccination, hypertension, HIV, mental health challenges, climate change impact on health."

Leading the CDC during the worst pandemic in a century is not something to undertake lightly. Walensky told her family she viewed it as responding to a medical emergency in a clinical setting.

"I got called during a code," she said. "When you are called during a code, you have to be there to help. I think my kids are really proud. They know that they may not see as much of me, but this is something that I have to do." ■

REFERENCE

1. JAMA Network. Coronavirus update with CDC Director Rochelle Walensky. *Conversations with Dr. Bauchner*. Jan. 19, 2021. https://bit.ly/3t9an7h

Overcoming COVID-19 Vaccine Hesitancy in Healthcare Workers

A striking 20% of nurses in the United States are refusing offers to be immunized with COVID-19 vaccine, according to the results of a national survey.[1]

"We found that only 5% of doctors refused, but 20% of nurses did," says **Hannah Kemp**, MPA, director of programs at Surgo Ventures in Washington, DC. "We also saw much higher refusal rates among African Americans."

The company conducted the survey from Dec. 17-30, 2020, netting 2,504 respondents comprising three groups: healthcare professionals (i.e., physicians, nurses, dentists); allied health professionals (i.e., health technicians, EMS personnel, home health workers); and health management and support personnel (i.e., administrative staff, operations staff).

The overall refusal rate for all healthcare groups was 15%, Kemp says. The most common reasons given for turning down COVID-19 vaccine were a lack of evidence of the vaccines' effectiveness and safety (31%), personal safety concerns (24%), and worrying the vaccine approval process was rushed (16%).

High Refusal Rates in Long-Term Care Workers

Of the 2,504 respondents, 53% had been offered at least one of the approved COVID-19 vaccines at the time they took the survey. Among that group, the aforementioned 15% refused vaccine. However, 20% already had taken their first dose of the vaccine and were planning to received the second shot. In addition, 18% had not yet taken their first dose of the vaccine but planned to do so. Overall, the survey results show 49% of respondents reported they are planning to take the vaccine.

When breaking down vaccination declination by occupational groups, the highest refusal rate (22%) was among allied health professionals, followed by healthcare professionals (13%), and health management and support (10%).

"A number of allied health professionals work directly with patients," Kemp says. "They often have patient interactions, but they may not have as much medical training."

Even though they were classified as healthcare workers and given top priority to be vaccinated, the survey results revealed many long-term care staff were reluctant.

"The long-term care workers were one of the most hesitant groups, and that actually goes across categories of doctors, nurses, other support staff," Kemp says. "When you compare

them to hospital workers, long-term care workers felt less confident that their colleagues were going to be getting the vaccine."

Indeed, healthcare workers at long-term care facilities rated themselves as less likely to receive the vaccine (with an average intention score of 7.5 out of 10) than workers in hospitals (8.1 out of 10). While 41% of long-term care facility workers believed only "some" or "a few" of their colleagues would take the vaccine, only 25% of hospital workers did.

"These numbers are worrying, given that these [long-term care] healthcare workers are serving the population at highest risk of severe complications from COVID-19 and are disproportionately low-wage workers," the report authors noted. "Additionally, when asked whether they would recommend the COVID-19 vaccine to patients expressing reluctance, 14% of doctors in long-term care facilities said they would recommend against taking the vaccine, compared to 4% in hospitals and 3% in non-hospital facilities."

Black HCWs Cite Inequities

When breaking down respondents by race, Black healthcare workers represented the largest refusal rate of 35%, followed by white (14%), Latino (13%), and other minority healthcare workers (12%).

"Black healthcare workers also showed a higher level of mistrust in the vaccine rollout process and were more likely to hold the belief that the healthcare system doesn't treat them fairly," the report authors noted. "The refusal rates are unsurprising given the significantly higher hesitancy measured in Black healthcare workers, who scored themselves 20% lower in vaccine likelihood than white healthcare workers. This pattern is consistent throughout the sample, even in populations with advanced medical training — including nurses and doctors."

Nearly 55% of Black respondents disagreed with the statement "People of my race are treated fairly in a healthcare setting," compared to 7% of respondents of other races and 5% of whites. Also, 12% of Black respondents disagreed with the statement that pharmaceutical companies test vaccines carefully, compared to 4% of other respondents. Both findings suggest that overcoming COVID-19 vaccine hesitancy with Black healthcare workers will require efforts to address long standing trust and equity issues in healthcare. These findings underscore the need to target information to the concerns of specific groups, using "trusted messengers."

"Some of the historical factors could be contributing to this," Kemp says. "Behavioral science tells us people feel more confident about their decision if they talk about it with trusted messengers through trusted channels. One of the recommendations is for Black doctors and nurses who have gotten the vaccine to talk about it with their co-workers, friends, and family."

Overall, 69% of respondents said they believed they have a duty to receive the vaccine to protect patients. "There were a number of healthcare workers who were very likely and very excited to get the vaccine but had not been offered it," Kemp says. "There is a clear need to accelerate vaccination among people who want to get it. We found that doctors, nurses, and healthcare workers who work at smaller clinics in places that have less than 50 employees were being offered the vaccine at less than half the rate of people who work at large facilities."

Behavioral Science, Education

If vaccine supply is adequate, lessons from behavioral science indicate building momentum by giving employees appointments and sending messages and reminders as the date nears.

"Try to use messages to create a sense of urgency, building that intention to go to an appointment,"

Kemp says. "These are things that have worked in flu vaccine campaigns."

The survey also indicated people who generally understand how vaccines work are more likely to be immunized. "Our recommendation is to explain how the COVID vaccines were developed," she says. "How do we know that they are safe and effective? What is the process of going through clinical trials? That type of knowledge was not uniform across all healthcare workers, so it is something important to reinforce."

Real-world vaccination efforts underscore the importance of educational campaigns in encouraging uptake. Vanderbilt University realized there was a problem when it surveyed healthcare workers in anticipation of receiving the vaccine, finding a surprising level of reluctance and hesitancy, says **William Schaffner**, MD, professor of preventive medicine in the department of health policy and professor of medicine in the division of infectious disease.

"One of the reasons these [public health] jurisdictions are now opening up is that people in 1a are not completely accepting the vaccine," he says. "There is a fair amount of skepticism among healthcare providers."

Finding hesitancy among their own staff, Vanderbilt ramped up educational activities and question-and-answer sessions to assure healthcare workers the two available vaccines are safe and effective.

"It has helped move the needle," Schaffner says. "More and more of our colleagues, employees, and staff are receiving the vaccine. We are not exactly where we want to be yet, but we keep working on that and going back to groups that are lagging. We're making progress, but the lesson there is if it took that much work for healthcare workers, we have a have a lot of persuasion to do [in the community]."

There has been much confusion and chaos about prioritizing the groups, with some states and localities ignoring CDC guidelines and vaccinating those perceived at highest risk in their area.

"As I talk to colleagues around the country and my state health department, they all say the same thing: There is extraordinary heterogeneity out there," Schaffner says. "Within states, sometimes from institution to institution within the same county, between counties, and certainly between states."

Pregnancy and COVID-19 Vaccine

Although this issue was not assessed in the survey, other reports indicate young, female healthcare providers are holding off on vaccination due to concerns about pregnancy or conception. The CDC is equivocal on the issue, saying healthcare workers "may choose to be vaccinated." However, COVID-19 infection during pregnancy can cause serious sequela.

"Observational data demonstrate that while the chances for these severe health effects are low, pregnant people with COVID-19 have an increased risk of severe illness, including illness that results in ICU admission, mechanical ventilation, and death compared with non-pregnant women of reproductive age," the CDC stated. "Additionally, pregnant people with COVID-19 might be at increased risk of adverse pregnancy outcomes, such as preterm birth, compared with pregnant women without COVID-19."[2]

On the other hand, there are limited data about COVID-19 vaccination during pregnancy, although animal studies have revealed no safety concerns. The Food and Drug Administration (FDA) approved two mRNA vaccines from Pfizer-BioNTech and Moderna for COVID-19, each with an efficacy of about 94-95%.

"Limited data are currently available from animal developmental and reproductive toxicity studies," the CDC said. "No safety concerns were demonstrated in rats that received Moderna COVID-19 vaccine before or during pregnancy. Studies of the Pfizer-BioNTech vaccine are ongoing." Both vaccine manufacturers also are following participants in the clinical trials who became pregnant.

Arnold Monto, MD, acting chair of the FDA's Vaccines and Related Biological Products Advisory Committee, recently weighed in on this topic in an interview.

"I think a pregnant woman should look at her risk group and get vaccinated as she would if she were not pregnant," he said. "By that, I mean that if somebody has underlying conditions, I would have no doubt that she should be vaccinated. There is always theoretical risk, especially during the first trimester. Looking at the flu story, we have come from most pregnant women not being vaccinated to pregnant women being the highest priority by the WHO [World Health Organization] to be vaccinated."[3]

Busting Myths

Beyond the issue of pregnancy, there is some hesitation among healthcare workers in general. CDC officials are emphasizing

that healthcare workers should not decline the vaccine due to some of the circulating myths and misconceptions.

"I am definitely concerned that healthcare workers are electing to wait to get vaccinated," **Nancy Messonnier**, MD, director of CDC's National Center for Immunization and Respiratory Diseases, said at a recent press conference. "It really makes it exceedingly important that we get correct information to healthcare workers and that we quickly dispense with myths and misinformation."[4]

For example, the CDC noted that "None of the authorized and recommended COVID-19 vaccines or COVID-19 vaccines currently in development in the United States contain the live virus that causes COVID-19. This means that a COVID-19 vaccine cannot make you sick with COVID-19."[5]

Addressing another myth, the CDC stated that "COVID-19 mRNA vaccines do not change or interact with your DNA in any way."

"We want [healthcare workers] not only to protect themselves, but we also want them to be educating their patients," Messonnier said. "We are working in any way that we can to try to reach healthcare workers with this correct information. I think that if healthcare workers could really hear the data and see the information, it would help them make the decision to go ahead and get vaccinated." ■

REFERENCES

1. Surgo Ventures. *U.S. Healthcare Workers: COVID-19 Vaccine Uptake and Attitudes*. Jan. 15, 2021. https://bit.ly/36ogPgW
2. Centers for Disease Control and Prevention. Vaccination considerations for people who are pregnant or breastfeeding. Updated Jan. 7, 2021. https://bit.ly/3pv2Mhq
3. JAMA Network. Coronavirus vaccine update with Arnold S. Monto, MD. *Conversations with Dr. Bauchner.* Jan. 11, 2021. https://bit.ly/3ctF2Xn
4. Centers for Disease Control and Prevention. Transcript: CDC update on COVID-19. Jan. 6, 2021. https://bit.ly/3ownXOT
5. Centers for Disease Control and Prevention. Facts about COVID-19 vaccines. Updated Jan. 28, 2021. https://bit.ly/36oklYJ

CDC: Moderna COVID-19 Vaccine Causes Rare Anaphylactic Shock

From Dec. 21, 2020, to Jan. 10, 2021, the Vaccine Adverse Event Reporting System (VAERS) detected 10 cases of severe anaphylaxis after immunization with the Moderna COVID-19 vaccine, the Centers for Disease Control and Prevention (CDC) reported.

Ten cases coming out 4,041,396 first doses of the vaccine translates to 2.5 cases per million shots administered. "In nine cases, onset occurred within 15 minutes of vaccination," the CDC stated. "No anaphylaxis-related deaths were reported."[1]

In all 10 cases, patients received epinephrine as part of initial emergency treatment. Six patients were hospitalized, including five in intensive care. Four of the ICU patients required endotracheal intubation.

"Nine of the 10 anaphylaxis case reports included a patient history of allergies or allergic reactions, including to drugs (six), contrast media (two), and foods (one)," the CDC reported. "Five patients had experienced an episode of anaphylaxis in the past, none of which was associated with receipt of a vaccine. No geographic clustering of anaphylaxis cases was observed, and the cases occurred after receipt of doses from multiple vaccine lots."

The CDC previously reported that from Dec. 14 to Dec. 23, 2020, vaccine surveillance systems picked up 21 cases of anaphylaxis after administration of a reported 1.8 million first doses of the Pfizer-BioNTech COVID-19 vaccine. No deaths were reported, but four patients were hospitalized, including three in intensive care. Another 17 were treated in an emergency department. The Pfizer cases come to a rate of 11.1 cases per million doses. Overall, the rate of anaphylactic shock for established vaccines is approximately one case per million immunized.[2]

"Locations administering COVID-19 vaccines should adhere to CDC guidance, including screening recipients for contraindications and precautions, having necessary supplies and staff members available to manage anaphylaxis, implementing recommended postvaccination observation periods, and immediately treating suspected anaphylaxis with intramuscular epinephrine injection," the CDC recommended.

The CDC will continue enhanced monitoring for anaphylaxis among recipients of COVID-19 vaccines and will review case reports to VAERS.

"For both vaccines, symptom onset after vaccination occurred quickly, usually within minutes," the CDC concluded. "A strong female predominance of anaphylaxis case reports exists for both vaccines. Finally, many persons experiencing anaphylaxis after receiving either vaccine had a history of allergies or allergic reactions, with several having experienced an anaphylaxis episode in the past."

All patients should be advised to immediately seek medical care if they develop signs or symptoms of an allergic reaction after their vaccination observation period ends and they have left the location. ■

REFERENCES

1. CDC COVID-19 Response Team; Food and Drug Administration. Allergic reactions including anaphylaxis after receipt of the first dose of Moderna COVID-19 vaccine — United States, December 21, 2020-January 10, 2021. *MMWR Morb Mortal Wkly Rep* 2021;70:125-129.
2. CDC COVID-19 Response Team; Food and Drug Administration. Allergic reactions including anaphylaxis after receipt of the first dose of Pfizer-BioNTech COVID-19 vaccine — United States, December 14-23, 2020. *MMWR Morb Mortal Wkly Rep* 2021;70:46-51.

Healthcare Personnel Use of PPE for COVID-19 Spurs Fungal Outbreak

Healthcare personnel's (HCP) practice of wearing multiple layers of gowns and gloves to treat COVID-19 patients contributed to an outbreak of *Candida auris* bloodstream infections at a Florida hospital, the Centers for Disease Control and Prevention (CDC) reported.[1]

In July 2020, three *C. auris* bloodstream infections and one urinary tract infection were reported in four patients who received care in the same dedicated COVID-19 unit of acute care "Hospital A." The HCP in the unit wore double gloves and gowns, likely contaminating themselves, patients, and the environment as they donned and removed layers.

"A second, disposable isolation gown and pair of gloves were donned before entering individual patient rooms, then doffed and discarded upon exit," the CDC noted. "Alcohol-based hand sanitizer was used on gloved hands after doffing outer gloves. HCP removed all PPE and performed hand hygiene before exiting the unit."

A multidrug-resistant yeast that can cause invasive infections, *C. auris* has been described as spreading more like bacteria and is notoriously difficult to remove from the environment. Accordingly, before the pandemic, the hospital screened on admission for *C. auris*, admitting colonized patients to a dedicated ward.

"Hospital A's COVID-19 unit spanned five wings on four floors, with 12 to 20 private, intensive care-capable rooms per wing," the CDC stated. "Only patients with positive test results for SARS-CoV-2 … at the time of admission were admitted to this unit. After patient discharge, room turnover procedures included thorough cleaning of all surfaces and floor and ultraviolet disinfection."

Several Infection Points

Among 67 patients admitted to the COVID-19 unit and screened during point prevalence surveys, 35 were positive for *C. auris*. Of those, six produced clinical cultures that grew the fungus. In addition, computers and medical equipment were not always disinfected between uses, and medical supplies like oxygen tubing and gauze were stored in open bins in hallways.

"A combination of factors that included HCP using multiple gown and glove layers in the COVID-19 unit, extended use of the underlayer of PPE, lapses in cleaning and disinfection of shared medical equipment, and lapses in adherence to hand hygiene likely contributed to widespread *C. auris* transmission," the CDC concluded. "After Hospital A removed supplies from hallways, enhanced cleaning and disinfection practices, and ceased base PPE layer practices, no further *C. auris* transmission was detected." ■

REFERENCE

1. Prestel C, Anderson E, Forsberg K, et al. *Candida auris* outbreak in a COVID-19 specialty care unit — Florida, July-August 2020. *MMWR Morb Mortal Wkly Rep* 2021;70:56-57.

CDC Revises COVID-19 Quarantine Guidance

Can test out after seven days

By Dorothy Brooks

In a move that affects healthcare workers and their patients, the CDC has refined its guidance regarding the length of quarantine for individuals exposed to COVID-19.

Previously, CDC recommendations stated those exposed to someone with the virus should quarantine for 14 days to prevent the potential spread of the disease to others. However, experts have concluded a shorter quarantine period should be safe in most cases.

"After reviewing and analyzing new research and modeling data, CDC has identified two acceptable alternative quarantine periods," explained **Henry Walke**, MD, the incident manager for the CDC's COVID-19 response, during a media briefing about the new guidance on Dec. 2. "Under these options, quarantine can end after 10 days without a COVID-19 test if the person has reported no symptoms, or after seven days with a negative test if the person has reported no symptoms."

Although this guidance has been shared with public health agencies across the country, Walke stressed providers and patients should follow the specific guidance regarding quarantine length issued from their local public health authorities. "People should still watch for symptoms ... for a full 14 days after exposure, especially if quarantine is discontinued early," he said.

Shorter Quarantine Reduces Hardships

Walke expressed hope that reducing the length of quarantine would make it somewhat easier for people to abide by public recommendations. Namely, a shorter quarantine window reduces the economic hardship associated with staying out of work. "In addition, a shorter quarantine period can lessen stress on the public health system and communities, especially when new infections are rapidly rising," Walke said.

The new recommendations are based on extensive modeling performed by CDC and other agencies, including academic centers and some public health departments, noted **John Brooks**, MD, the chief medical officer for the CDC's COVID-19 response, who also spoke during briefing.

"All of this points in the same direction, which is that we can safely reduce the length of quarantine, but accepting there is a small residual risk that a person who is leaving quarantine early can transmit to someone if they become infectious," he said.

'Acceptable Risk'

Specifically, Brooks noted that in cases where quarantine is cut to 10 days, researchers calculated the residual risk is about 1%, and the upper limit of that risk is about 12%. "That's an acceptable risk I think for many people," Brooks said, noting that it aligns with the CDC's recommendations around isolation for someone diagnosed with COVID-19, which the agency is not currently changing. "Isolation can end in 10 days if a person has had more than 24 hours of recovery after their illness."

In the case of a seven-day quarantine, the residual risk with a negative test is about 5%. The upper limit of that risk is about 10%. However, Brooks stressed the timing of the test is important.

"Our modeling was based on collecting the specimen within 48 hours prior to the time of anticipated discharge," he said. "It could be a test that is done that day [of discharge], if it is an antigen test, but we provide the possibility of collecting the specimen up to 48 hours beforehand if [people] have a PCR test, which may take a day or two to get the results back."

Relief for Healthcare Authorities

The adjustments to the quarantine guidance should provide some relief to healthcare authorities at a time when case counts are surging along with the number of people who need to quarantine.

"That is a lot of burden, not just on the people who have to quarantine but on public health. Many times, the public health authorities are responsible for monitoring people during quarantine, and they have to follow them to the end," Brooks observed. "We believe that if we can reduce the burden a little bit, accepting that it comes at a small cost, we may get a greater compliance overall with people completing a full quarantine ... and if we get more people on board to complete that overall, that will result in fewer infections."

With better adherence to quarantine, the CDC is hopeful contact tracing will prove more effective, too.

"If a person is willing to be more compliant with a shorter quarantine, [he or she] may also be willing to share the names of contacts," Brooks said. "We know that people sometimes don't do that because they don't want to potentially give out the name of a friend or neighbor and force them into quarantine. As well, we hope this will increase the willingness of people to pick up the phone and answer public health calls because they've been one of the people who have been named." ■

Pandemic Fatigue Is Real, but Is Public Masking Improving?

As SARS-CoV-2 variant strains emerge and vaccine supplies remain uncertain, the need to mask, social distance, and use other non-pharmaceutical interventions (NPIs) is critical.

"Reports describe an increasing attitude of apathy or resistance toward adherence to NPIs, termed pandemic fatigue," the authors of a recent research letter noted. "To better describe this phenomenon in the U.S., we used national surveillance data to analyze reporting of adherence to protective behaviors identified as NPIs."[1]

More People Are Masking

The researchers analyzed U.S. household survey responses to the University of Southern California's Understanding America Study. In the USC study, 8,000 participants were asked twice monthly if they were practicing NPIs, including physical distancing, frequent handwashing, and wearing a mask. The data were collected and analyzed from April 1 to Nov. 24, 2020.[2]

The biggest increase was in mask-wearing, which rose from 39% to 89% over the period. However, some of that could be surveillance artifact, as the survey asked the respondents whether they had worn a mask in the last week. That means a person may have worn a mask as required to enter a business but was noncompliant in voluntary situations.

Combat Pandemic Fatigue

"This study found a decrease in reported adherence to NPIs overall and to most individual NPIs during the pandemic, irrespective of geography," the authors concluded. "The increase in reported mask-wearing aligns with other national surveys of self-reported mask use, and may reflect improved public health messaging. Strategic approaches to combating pandemic fatigue have been proposed, such as precision in government mandates and consistent communication from authorities." ■

REFERENCES

1. Crane MA, Shermock KM, Omer SB, et al. Research letter: Change in reported adherence to nonpharmaceutical interventions during the COVID-19 pandemic, April-November 2020. *JAMA* 2021. doi:10.1001/jama.2021.0286. [Online ahead of print].
2. University of Southern California. Understanding America Study. https://bit.ly/2NQ758R

HOSPITAL EMPLOYEE HEALTH

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CE QUESTIONS

1. **Moderna is developing a booster shot for its COVID-19 vaccine specifically to address which variant?**

   a. United Kingdom B.1.1.7
   b. South African B.1.351
   c. Brazil P.1
   d. Denmark Cluster 5

2. **Researchers are warning that in addition to be being highly transmissible, there is "a realistic possibility" that which variant may cause infections with higher mortality?**

   a. Denmark Cluster 5
   b. Brazil P.1
   c. South African B.1.351
   d. United Kingdom B.1.1.7

3. **In a national survey of healthcare workers, the overall refusal rate for COVID-19 vaccination was:**

   a. 15%.
   b. 24%.
   c. 35%.
   d. 41%.

4. **Of the 10 cases of anaphylaxis after receiving one dose of Moderna vaccine for COVID-19, how many patients required endotracheal intubation?**

   a. Two
   b. Three
   c. Four
   d. Five

CE OBJECTIVES

After reading each issue of *Hospital Employee Health*, the nurse will be able to do the following:

1. Identify particular clinical, administrative, or regulatory issues related to the care of hospital employees;
2. Describe how the clinical, administrative, and regulatory issues particular to the care of hospital employees affect health care workers, hospitals, or the healthcare industry at large;
3. Cite solutions to the problems faced in the care of hospital employees based on expert guidelines from relevant regulatory bodies, or the independent recommendations of other employee health professionals.