

who have had 1 vaccine dose are 75% less likely to be hospitalized by the delta VOC compared with unvaccinated individuals. In addition, recent studies conducted in Europe showed that both the Oxford–AstraZeneca and Pfizer–BioNTech COVID-19 vaccines were effective in reducing the risk of SARS-CoV-2 infection and COVID-19 hospitalization in people infected with the delta VOC.<sup>4</sup> Although the vaccines protect well against severe disease and death, they may not effectively prevent spreading COVID-19 to others. The association between vaccination and the spread of the delta VOC has caught our attention.

First, the delta VOC has moderate resistance to the vaccine. Compared with the alpha variant, the effectiveness of the COVID-19 vaccine against the delta VOC decreased. According to Israel Ministry of Health, the effectiveness of the COVID-19 vaccine in preventing infection and symptomatic illness has decreased to 64% since June 6 with the spread of the delta variant in Israel.<sup>5</sup> Because variants may cause breakthrough cases, vaccinated patients may not present with severe symptom or may even be asymptomatic, leading to transmission in the community,<sup>6</sup> whereas certain populations may have less lasting immunity through vaccination, including elderly patients and patients with certain underlying medical conditions, such as multiple myeloma.<sup>7,8</sup> Moreover, there is also a concern that protective immunity of vaccination may decline after 6 months.<sup>9</sup> All of these could increase the risk of transmission of the delta VOC, especially for people who are not vaccinated, who may be at greater risk under such circumstances. All of these factors contribute to the continuing uncertainty related to the pandemic.

Second, epidemiological analyses indicate that the delta VOC is more infectious. Recent studies suggest that its interactivity is likely to be at least 60% higher than the alpha VOC, with higher risk of transmission to close contacts.<sup>4</sup> Clusters of infection cases may arise among unvaccinated people, which may add to the risk of transmission of the delta VOC.

Third, the imbalance in vaccination rates may increase the risk of delta VOC transmission. Africa, where <2% of the population is vaccinated against SARS-CoV-2, is suffering the worst surge in COVID-19 cases since the pandemic began due to the delta VOC. Not only have hospitalizations increased >40% in recent weeks but also delta VOC has been detected at least 10 countries.<sup>4,10</sup> People in areas with low vaccination rates and insufficient access to vaccines are likely to be most affected by

the delta VOC. The more massive and rapid the transmission, the more variants may emerge.<sup>1</sup>

In summary, with the emergence of the delta VOC and other new variants, people who are not vaccinated will face greater risk; thus, every effort should be implemented to encourage vaccination and provide access to the vaccines. In addition, wearing a face mask and maintaining social distance in public should still be considered despite vaccination status due to the imminent possible surge of cases secondary to the new variants.

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## “It’s worth a shot . . . or is it?” Notes from the grassroots on vaccine hesitancy and bridging gaps

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*To the Editor*—One morning in March 2021, during my clinical rounds on the coronavirus disease 2019 (COVID-19) unit, I met a young Black woman with COVID-19. As the hospital epidemiologist and infection preventionist focusing on increasing vaccine uptake in our hospital and community, I asked her if she had received the COVID-19 vaccine. Struggling to breathe, she said

without any hesitancy, “No! I don’t want to become a guinea pig. My Nana told me all about the Tuskegee study and so I decided not to get the shot.”

The Tuskegee study, conducted from 1932 to 1972, aimed to study the natural course of untreated syphilis. However, informed consent was not obtained from the participants, and neither were they offered treatment despite the widespread availability of penicillin. The study terminated prematurely in 1972 following associated press releases about the study. A Presidential Apology by then-President Clinton was issued and led to the establishment of The National Center for Bioethics in Research and Health Care at Tuskegee University. Although this formed the basis of the highest ethical standards practiced in medical research today, the effects of the Tuskegee study have continued to persist, especially in the African American community.

Now more than a year into the pandemic, the COVID-19 vaccines mark a promising turning point in the global journey toward containing this contagion, bringing about a global and unparalleled sense of hope and optimism. The rapid yet thorough development of such effective vaccines (as much as 95% in the case of Pfizer/BioNTech<sup>1</sup>) has been both unprecedented and unexpected. As millions of people are vaccinated every day in the United States, historic healthcare barriers<sup>2</sup> such as socioeconomic status, lack of access to transportation, and lack of education, continue to hinder progress. Vaccine misinformation has permeated media and social platforms.<sup>3</sup> However, even more prominent amplifiers for vaccine hesitancy lie not in the information itself but the approach<sup>4</sup> in which data are presented, stemming from sensationalized media coverage combined with the effects of an information barrier<sup>5</sup> as information “trickles down” from the scientific community to the public.

The US government’s recent “pause” on Johnson & Johnson’s (J&J’s) COVID-19 vaccine is a prime example.<sup>6,7</sup> In response to understandable questions surrounding the efficacy of the J&J vaccine,<sup>8</sup> the infection prevention community diligently spearheaded widespread messaging campaigns stipulating its marked advantages.<sup>9</sup> However, the pause, though brief, triggered not only a cascade of public concern but also a sentiment of mistrust of information disseminated by the scientific community. The emergence of data linking rare yet severe cases of cerebral venous sinus thrombosis to the J&J vaccine followed weeks of reassurance to the public that people should receive the vaccine with an emphasis on its “safety” and “efficacy.” Understandably, this discrepancy was alarming for many people. Even more recently, the campaign to vaccinate children<sup>10</sup> aged 12 years and older has been met with legitimate concerns<sup>11</sup> from parents, including the possible link to myocarditis<sup>12</sup> being investigated by the CDC. Infection preventionists are left grappling with the question of how to promote vaccine acceptance in a world of ever-evolving scientific data.

Importantly, the public response and the response from the infection prevention community can look very different. As physicians and scientists, we have been trained to critically appraise available information and consider all possible explanations before arriving at a conclusion. In contrast, a layperson tends to be swayed by multiple factors,<sup>13</sup> including personal, cultural, or religious beliefs, a more immediate or “knee-jerk” response. This disparity causes barriers in information between the scientific community and the public as new data are uncovered.

We have witnessed COVID-19 ravaging our communities and staff members. We have dealt with many outbreaks in unvaccinated communities. Infection preventionists can play an important role in increasing vaccine uptake by debunking myths and

improving scientific communication to the public. First, we need to help clinicians alter their approach when recommending vaccination. Clinicians present recommendations as a list of instructions; they are holding themselves accountable by the public for information they disseminate. As demonstrated by the spike in vaccine hesitancy following the pause in administration of the J&J vaccine, this approach can feed vaccine skepticism if and when new data emerge undermining these claims, eroding trust of clinicians and the scientific community. Most grassroots vaccination efforts, however, have not been designed with these inconsistencies in mind. In fact, a study found that the widespread emotional appeal of antivaccination messaging is largely due to its accessibility and consumer-oriented, user-friendly content.<sup>5,14</sup> We can recommend that our clinicians be mindful of these factors when discussing vaccinations with their patients. As both vaccine ambassadors and facilitators, the infection prevention community, in addition to using generalized terms such as “safe” and “effective,” can help people understand scientific results. We can recognize the politicized media coverage that people are exposed to daily. We need to be mindful of our approach and use accurate, precise language in our messaging to the frontline physicians and our patients. As crucially noted by the American Academy of Family Physicians, “Government officials might have engendered greater trust in the vaccine development and dissemination process by labeling it ‘Operation Due Diligence,’ instead of ‘Operation Warp Speed.’”<sup>15</sup>

Secondly, we can avoid categorizing people based on their level of vaccine interest (ie, vaccine indifferent, vaccine hesitant, vaccine skeptical, vaccine declining, etc). Instead of sorting people into “buckets,” we can consider everyone as an individual who wants to do their best to protect themselves and their loved ones but who may have questions or concerns. Rather than targeting public concerns about the COVID-19 vaccines with a “one size fits all” strategy, it may be more prudent to tailor our approach to the varying needs of different communities.

Another effective strategy by the infection prevention community can be to focus our education on data showing the numbers of outbreaks by vaccination rates. For example, current data indicate that COVID-19 has become the disease of the unvaccinated.<sup>16</sup> These critical data should be shared with the community as a public health message. Infection preventionists play a key role in generating, monitoring, and tracking data on vaccination rates and the incidence of disease. We should stratify these data to the level of departments (eg, surgery, medicine, psychiatry, and others) and practitioners (physicians, nurses, physician assistants, students, and others) and target our interventions to groups with low vaccine uptake. The use of historical examples can be more convincing, such as highlighting successful containment of H1N1, Spanish flu, and polio. These examples are testaments to science and can be powerful in empowering the community. Now, with the possibility of COVID-19 vaccine being a requirement for healthcare workers,<sup>17</sup> the role of infection preventionists is even more apparent in convincing colleagues we see every day, such as physicians, nurses, technicians, and assistants, to get the vaccine.

As infection preventionists, we are uniquely positioned to implement the vaccination efforts discussed above because we understand the science behind immunization, we are trained in outbreak response, and most importantly, we have close contact with public health department, clinicians, pharmacists, antimicrobial stewardship team and healthcare administrators, which allows us to coordinate vaccine efforts and inform policies.

Lastly, at the community level, the pandemic has highlighted the pressing need for vaccine ambassadors to bridge information disparities. To further raise vaccine optimism (not just for the COVID-19 vaccines but for other vaccines that have historically been controversial, such as the measles vaccine), our societies should urge senators and states to invest in vaccination intervention programs that target all age groups through a variety of platforms such as social media, schools, and community resource pages. We should introduce vaccine ambassadors to our communities, as our important allies. Vaccine ambassadors, who can be physicians, nurses, medical students and other healthcare workers, can be part of a task force led by infection preventionists, that can be instrumental in this effort to raise the collective community awareness and the level of confidence. We need to merge science and activism by facilitating greater collaboration between infection preventionists and community activists. Activists are often grassroots individuals who feel connected to underprivileged communities. They are rooted in their communities and have regular interactions with the working class. These community ambassadors can demystify research principles and methodology. Research methodology and scientific principles are appreciated by only a small proportion of the population. The goal is to encourage the dissemination of fact-based information and participate in meaningful discussions with those who view science skeptically, consume conspiracy theories, accept scientifically inaccurate information, or simply do not feel invested in science. By combining the expertise of infection preventionists and the outreach of activists, we can encourage scientific literacy through compassionate conversations, cultivating a greater public trust in the scientific process.

As infection preventionists, we are continuously strategizing to tackle the challenges presented by COVID-19, the variants, and vaccine hesitancy. We hope that we can create a bridge between science and the community and between researcher and lay people to construct a more effective data delivery framework. This strategy could be instrumental in mobilizing public opinion and boosting vaccine acceptance.

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