

BRIEF19

A daily review of covid-19 research and policy.

RESEARCH BRIEFING

When will the pandemic be over? Thinking towards a post-pandemic world.

As vaccinations continue to ramp up across the country, many people are starting to seriously think about [when the pandemic may be over](#). The most acute phase of the emergency won't be over until most of the elderly and those with chronic medical conditions—who are at the highest risk for severe disease, hospitalization, and death—have been vaccinated. As the elderly population skews White, it is essential that we also get people with chronic medical conditions vaccinated, too, as this will capture most of the high-risk persons of color, who've been hit so hard by this pandemic. We should have enough vaccine supply for every American who wants to get vaccinated to do so by the end of July, if not sooner. While we are unsure of the exact threshold needed for herd immunity, our best guess right now is around 75-85 percent of the population needs some degree of protection—preferably from vaccination, though antibodies from natural infection will also contribute to this.

First, let's take stock of where we stand in the United States. While things have improved as of late, we are still seeing about 2,000 deaths per day, down from about 4,000 deaths per day following the winter holidays. This is on par with March and April of last year. Hospitals and healthcare workers are still stretched too thin in some places and don't have enough personal protective equipment.

As a result, we should also be vaccinating people in high-risk workplaces (e.g. meatpacking, food processing, jails/prisons) and improving administrative infection controls (e.g. screening/testing), environmental infection controls (e.g. ventilation) and providing appropriate personal protective equipment. Outbreaks in these settings still pose substantial threats and would be devastating.

That said, it's not too soon to think about the post-pandemic world. Once the emergency is over, we need to focus on preventing the next one. One way to achieve this is by scaling up our ability to test for new coronavirus variants, and other possible emerging threats. One important way to do this is by having scientists collect and study the sequences of various viruses, which is called [genomic surveillance](#). The US Centers for Disease Control and Prevention has ramped this up since President Biden took office, but we need to invest more and enlarge the efforts. We need to know what new variants are emerging, what might be driving their emergence, and to characterize those new variants. We also need to use this information to start thinking about developing what are known as “multivalent vaccines.” These vaccines would protect against the original strains of SARS-CoV-2 as well as any emerging variants. This will be difficult at first. Because of how much virus is circulating at the present time, mutations are more likely. That means more diverse mutations are likely (“viral heterogeneity”) now than they will be in the future.

When will life return to normal? That depends on what "normal" is." We may have a "new normal" in which we don't shake hands anymore (or at least without hand sanitizer at the ready) and wear masks in the winter months, as many do in East Asia.

We also need to acknowledge that new infections are emerging with greater frequency—driven by climate change, environmental degradation, deforestation, and overpopulation—in other words, anything that brings people in closer contact with wildlife habitats. And that means that we really do need to adopt a new normal to better insulate ourselves against the next SARS-CoV-2.

Once the vast majority of people have been vaccinated, coronavirus vaccination will likely become one of the essential childhood vaccinations (assuming we don't need frequent boosters for variant strains). At some point, newborns will constitute the majority of persons entering the

population who are susceptible. Realistically, SARS-CoV-2 will likely become “endemic” in much of the world, meaning the virus is permanently among us, though at lower levels. [26 February 2021](#).

—Céline Gounder MD, ScM
Brief19 [Thread-of-the-Week](#)

SIREN study includes data suggesting Pfizer/BioNtech vaccine prevents many infections.

Just over two months removed from the US Food and Drug Administration’s Emergency Use Authorization approvals of both the Pfizer/BioNtech and Moderna vaccines, promising new data on vaccine effectiveness has been made public. Published Monday as a preprint in [The Lancet](#), researchers involved in the SIREN study evaluated the efficacy of the Pfizer vaccine among healthcare workers (HCW) receiving frequent asymptomatic testing. SIREN is a multicenter prospective cohort study that took place in publicly funded hospitals in the United Kingdom.

Over 20,000 HCW and staff from 104 hospitals were followed between December 8th and February 5th. Thirty-five percent of the vaccine recipients had a previously documented SARS-CoV-2 infection by PCR or antibody testing. Notably, an overwhelming majority of the participants were female and white (84 and 89 percent, respectively). A documented 5,874 had prior medical conditions, most commonly asthma, obesity, or diabetes. By the end of the study period, 89 percent of the participants had received at least one vaccine dose, while just eight percent had received both.

Promisingly, the data showed that after 21 days, just a single dose of the Pfizer/BioNtech vaccine was 72 percent effective at preventing not just covid-19 but SARS-CoV-2 infection itself; the vaccine was 86 percent effective in decreasing infection seven days after the second dose. These data are specific to the individuals who had *not* gotten sick before. At the time of the preprint, no data was available for those with previously documented infections. More good news: this cohort of patients was vaccinated when the B.1.1.7 variant of SARS-CoV-2 was dominant throughout the UK; it seems that the vaccine is highly effective against that more infectious strain as well.

One discouraging piece of data did come out of this study too, however, with respect to those who were less likely to receive a vaccine. Individuals less likely to get a shot were noted to be female, under 35 years old, self-identified as Black or Asian and living in socio-economically depressed areas. This is a reflection of systemic disparities, which reflect some of the same inequalities seen among those that have been more affected by covid-19 around the globe.

Nevertheless, these data add to the mounting evidence that the vaccines not just prevent symptomatic disease, but also infection, and therefore contagion. What remains unknown is whether the 86 decrease is the ceiling for decreasing infection, or whether further out, the number may rise. Also unknown is whether the vaccines decrease the degree to which those who become infected are contagious. If the vaccines also limit contagion, the end of this crisis could be within our grasp, were enough vaccines to be available, and enough people were willing to take them. [24 February 2021](#).

—Joshua Niforatos, MD, MTS

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Brief19 is a daily executive summary of covid-19-related medical research, news, and public policy. It was founded and created by frontline emergency medicine physicians with expertise in medical research critique, health policy, and public policy.