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## **BRIEF19**

*A daily review of covid-19 research and policy*

### **RESEARCH BRIEFING**

#### **Shorter quarantines can eliminate most contagion. Is most enough? New data.**

Medicine only works if you take it. Public health guidance only works if people follow it. With that in mind, the US Centers for Disease Control and Prevention has floated shorter quarantine periods in the hopes that more people would adhere to the notion of staying home for 10 days following exposure to a known covid-19 patient than they would a 14-day period, the initial standard.

[New research](#) published in the CDC's in-house medical journal *Morbidity and Mortality Weekly Report (MMWR)* finds that most in-home transmission of SARS-CoV-2 does in fact occur within the 10 day window that some state guidelines suggest. The study was carried out in Tennessee and Wisconsin from April to September of 2020.

Tests and symptoms logs were done daily by 185 household contacts of a newly infected patient (known as "index cases"). While SARS-CoV-2 is highly contagious, only 59 percent of household contacts were found to become infected during the 14-day period (excluding those who tested positive within the first two days of the study to tease out the possibility that two people came down with the virus from an outside source at the same time).

The main analysis focused on how meaningful negative tests and a lack of symptoms were throughout the quarantine process. In household contacts who were asymptomatic on day 5 with a negative test on day 5, 71 percent remained both negative and symptom-free for 14 days. By day 7, 91 percent of negative patients remained negative and asymptomatic by day 14 and by day 10 the number climbed to 93 percent.

This is good news in one way. The implication is that most of the risk of contagion fades by 5 to 7 days of quarantine. But with 19 percent of asymptomatic household contacts with negative tests going on to convert to a positive coronavirus test within a week, that's hardly an airtight approach. Even the 7 percent of patients who convert to positive after 10 days could represent a major flaw in the system of shorter quarantine. While this study did not assess the question, it is theoretically possible that the very people who converted to a positive result later in the study are "superspreaders." The idea that a small number of covid-19 patients drive an outsized amount of contagion has some appeal. It would explain why some people infect dozens of fellow churchgoers or fellow chorus members, while others do not infect members of their own house, or even their cabinmate on cruise ships where outbreaks have run rampant.

—Jeremy Samuel Faust MD MS

## **POLICY BRIEFING**

### **The new coronavirus strain and vaccine effectiveness.**

After first being [detected](#) in the United Kingdom in September, the B.1.1.7 mutation of the SARS-CoV-2 virus has been capturing headlines, especially given [concerns](#) that it might evade defenses that children are thought to have.

The variant has been spreading more rapidly, though possibly less symptomatically, than its counterparts, and the mutations it encompasses are focused on changes to the virus's surface spike protein—which is also the target for all of the major vaccines for which phase III trial data is currently available.

This week, the first confirmed case in the United States was [announced](#) in a national guardsman in Colorado. Amidst the resulting media furor, the Centers for Disease Control and Prevention (CDC) [released](#) a statement that, in part given the patient's lack of travel, this new strain has likely been spreading undetected in the United States for an extended period of time.

Given the importance of the spike proteins in developing immunity, a logical question on many peoples' minds has been what effect this variant will have on the existing vaccines. Dr. Anthony Fauci, head of the National Institute of Allergies and Infectious Diseases (NIAID) has [said](#) that all of the data coming from the UK shows the vaccines in use here remain effective, but that the United States will conduct its own confirmatory studies.

To keep the public informed, the CDC has [updated](#) its page on all known coronavirus mutations and ongoing efforts to sequence and understand their implications.

As covered in *Brief19*, mutations are a natural part of a virus's development over time. While SARS-CoV-2 is statistically expected to mutate every couple of weeks, most of the resulting changes to the viral structure (and therefore its "behavior") are minimal. Some other viruses, like HIV, are far more likely to have meaningful mutations on a regular basis, which is the main reason a vaccine against that virus has been so elusive.

*Various.*

—*Brief19 Policy Team*

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