

28 January 2021

## **BRIEF19**

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

### **RESEARCH BRIEFING**

#### **New data gives insight on how long patients can spread coronavirus.**

Precisely how long patients infected with SARS-CoV-2 are contagious has been the focus of intense debate and scrutiny, with implications on how long isolation periods should last. One problem has been that people who contract the virus may generate positive tests via PCR nasal swab for weeks on end. At some points, patients test positive via PCR, but are no longer contagious. Many experts have suggested that the lower quantity of viral genetic material a test detects, the less likely a person is to be contagious. Typically, this is determined via a measurement known as “cycle threshold,” which refers to how many cycles a testing machine must run on a sample in order to uncover a positive result. However, many experts feel that the most reliable measurement of whether a person is generating viable and contagious virus is to check whether a sample drawn from a patient is capable of growing new virus in laboratory “viral cultures.”

A [new study](#) out yesterday in the *New England Journal of Medicine* studied this closely in 21 hospitalized patients in China. The patients were frequently tested for SARS-CoV-2 by PCR and also by viral culture. The researchers reported on the cycle threshold results and whether or not samples drawn simultaneously were able to generate positive viral cultures. The results are illuminating. First, the average patient *stopped* being contagious by day 7 after the onset of symptoms. None of the 21 patients generated a positive viral culture more than 12 days after the beginning of symptoms. This indicates that for most patients sick enough to be hospitalized, the contagious window ends by day 12 of symptoms. This is important because many workplaces have had policies requiring two negative PCR tests. The data in this paper suggest that the average patient remained PCR positive for 34 days. This means, as we have begun to suspect, that PCR tests pick up the genetic fingerprints of the virus still in our system long after we can spread it.

While some PCR tests have different ranges of normal, the type used in this study also identified a compelling triaging that can be done using cycle threshold results. All patients with low cycle threshold values (under 20 cycles) *always* had simultaneously positive viral cultures. Those with high values (over 30 cycles) *never* generated simultaneously positive blood cultures. Values between 20 and 30 went in either way.

Also of interest, but buried in the appendix of the report, is that many patients had fever and other highly suggestive covid-19 symptoms relatively late in their illness. One patient was evidently contagious on day 4, developed a fever on days 6-11, but was found *not* to be contagious on days 8 and 11. This means that using time since symptom resolution could be highly misleading in determining when isolation should end. Another patient had a fever on days 5 and 6 but was still contagious on day 9. Two patients out of 21 had positive cultures, followed by negative cultures, only to become positive *again*, suggesting that contagion can come and go. This comports with an that I have often spoken about which I call the “geyser theory” of contagion. Until now, there was almost no direct evidence of that. This work implies the need to do more testing to sort this out. Combining these efforts with [rapid at-home antigen tests](#)—which are designed to test for contagion above all else—could provide powerful information.

—Jeremy Samuel Faust, MD MS

## **POLICY BRIEFING**

### **The US Capitol insurrection was a “superspreader” event.**

As the United States continues to reckon with the political implications of the January 6 siege on the Capitol Building in Washington DC, it is increasingly evident that the demonstration and insurrection was also a covid-19 “superspreader event.” While we do not know how many of the rioters contracted the virus, there have been 15 cases among members of Congress and their spouses since January 4.

As the 117th Congress commenced, two representatives—Kay Granger and Kevin Brady—tested positive shortly after swearing in on January 3. Both of these individuals received the first dose of the covid-19 vaccine in December, providing further anecdotal evidence that one dose does not provide full immunity. Between January 6 and January 10, [four more](#) representatives tested positive, two of whom were confirmed to not have been in the Capitol on January 6.

After rioters entered the Capitol building, many members of Congress were ushered to a lockdown room, where some were exposed to individuals with covid-19 for several hours, according to Congress’ [attending physician](#). A widely circulated [video](#) released by Punchbowl News from inside the room showed maskless Republican members of Congress refusing masks offered by Democratic representative Lisa Blunt Rochester.

The [outbreak](#) in Congress has now swelled to 15 cases since January 4, five of whom were confirmed to have been held in the same lockdown room as shown in the video. Two are spouses of Congressional members (illustrating ripple effects of transmission), while seven of the cases confirmed receipt of at least the first dose of the covid-19 vaccine—with one having received two doses.

Data from the Congressional covid-19 [tracker](#) that I run indicates that the incidence rate in Congress has been consistently higher than national, DC, Maryland and Virginia incidence rates for infection, with over 11 percent of Congress having tested positive since March. Among these, 68 percent of the cases have been among Republicans, despite making up only 49 percent of the total seats in Congress. The higher rate of coronavirus in Congress might be attributable to more accessible testing for members than available to the general public. However, as former Biden spokesperson Kendra Barkoff Lamy and Republican strategist Doug Heye [pointed](#) out in October, there is still no mandatory testing for lawmakers and staff.

—Benjy Renton