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## **BRIEF19**

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

### **RESEARCH BRIEFING**

#### **SARS-CoV-2 reinfections in recovered patients rare, one year out.**

We are now one year out from the outbreak that erupted in Northern Italy. Therefore, researchers there followed up with over 1,500 people who had and recovered from covid-19 during the initial outbreak. They wanted to know one thing: how many people who had come down with covid-19 during the initial outbreak had been re-infected a year later.

The news is good. In a [new report](#) in *JAMA Internal Medicine*, researchers found that just 5 out of 1,579 patients had a documented re-infection in the one year after initial infection, or 1 in 316. Of those, just one required hospitalization. Meanwhile, in similar locations, around 4 percent of the population who had not been infected during the first wave went on to come down with an infection, or 1 in 25. This implies that the warranty on natural immunity is, for most people, at least one year, if not more. Time will tell how long protection lasts (and to what extent the double-punch of natural immunity and vaccination strengthens and lengthens protection).

Antibody levels and other markers of immunity were not reported in this study. But health outcomes are more important than blood test results; antibody levels are one thing, and immune protection is another. For example, it is possible that high levels of antibodies might not offer adequate protection against a future infection. Alternatively, it could be possible that even in the midst of undetectable or low levels of antibodies, our bodies “remember” enough about a prior SARS-CoV-2 infection to mount an effective battle against re-infection.

The human immune system is a remarkable biological entity. Once our body beats an infection, it remembers it harboring antibodies and other forms of “memory” for months, years, and, in many cases, a lifetime. Early concerns that SARS-CoV-2, the virus that causes covid-19 somehow evaded this made headlines. But there was never any particular reason to think that our immune systems would not behave in normal ways. Nor did SARS-CoV-2 present a particularly formidable challenge by way of molecular “shape-shifting.” Yes, coronaviruses mutate (and thus change shape) like all viruses. But unlike influenza and HIV, coronaviruses tend to mutate more slowly. These results show that natural infection and recovery provides at least a year’s worth of protection against further illness due to covid-19. However, given how successful the vaccines have proven to be so far, risking an initial infection is both unnecessary and unwise.

—Jeremy Samuel Faust, MD MS

### **POLICY BRIEFING**

#### **WHO changes the alphabet soup on coronavirus variants.**

Trouble keeping your coronavirus variants straight? You’re not alone. Help may be on the way. Over the weekend, the World Health Organization [announced](#) a new system designed to make it easier. Instead of the alphabet soup of variants like B.1.1.7, P.1, and others, the Greek alphabet will now be used.

One of the reasons the WHO sites for the change is to encourage countries around the world to speak up about new variants. If a country is worried about “bad press,” the logic goes, officials may not be forthcoming, especially if the complicated variant naming system just means that people reflexively end up referring to the country of origin (i.e. the “UK variant” or the “South Africa variant.”) The WHO believes that a simpler system will be easier to remember

than strings of numbers and letters, and that using country origin will fall to the wayside, thereby [reducing any stigma](#) associated with reporting any new variants of concern.

Online, experts jumped at the opportunity to adopt the system. The key message, as [this table](#) shows (see below), is that most of the variants of concern that have been reported on and studied have thus far been somewhat to significantly more contagious than the “ancestral variant” (i.e. the original SARS-CoV-2 that caused the covid-19 pandemic), and have been found in laboratory settings to be able to slip out of the clutches of natural and vaccine-driven antibodies, but none of them have rendered the vaccines ineffective.

	New WHO Name	Transmissibility	Immune Evasiveness	Vaccine Effectiveness <sup>^</sup>
	Ancestral	—	—	✓
	D614G	+	—	✓
	B.1.1.7	+++	—	✓
	B.1.351	+	++++	✓
	P.1	++	++	✓
	B.1.429	+	+	✓
	B.1.526	+	+	✓
	B.1.617.2	++++*	++ <sup>#</sup>	✓

\*Relative transmissibility to B.1.1.7 yet to be fully defined

<sup>^</sup>Effectiveness from real world evidence vs. severe illness, not all vaccines are effective vs all variants, and importance of 2-doses, especially for B.1.617.2 for which 1 dose of mRNA or AZ is only ~30% effective <sup>#</sup> May carry more immune escape than P.1, to be determined

Table by Dr. Eric Topol, MD, *used with permission.*

—Jeremy Samuel Faust, MD MS