

The new of this new variant spread like wildfire on the ship! So, I sat down this AM (7 AM my time) and tried to summarize what we know so far. I included some graphs and tables which may help in presentations. In addition, if Omicron was not bad enough in term of news, the updated data from Merck on Molnupiravir was disappointing.

### **What We Know About the Omicron Variant**

Scientists are still unclear on how effective vaccines will be against the new variant flagged by a team in South Africa, which displays mutations that might resist neutralization. Only several dozen cases have been fully identified so far in South Africa, Botswana, Hong Kong, Belgium, and Israel.

The new variant, designated by the World Health Organization as a “variant of concern” known as Omicron, has a “very unusual constellation of mutations,” with more than 30 in the spike protein alone. With this many mutations it raised concerns that Omicron’s spike might be able to evade antibodies produced by either a previous infection or a vaccine.

The variant shares similarities with the Lambda and Beta variants, which are associated with an innate evasion of immunity, but these variants did not outcompete delta. All these things are what give scientists some concern that this variant might have not just enhanced transmissibility, but might also be able to evade natural and vaccine immunity.

The new variant has largely been detected among young people, the cohort that also has the lowest vaccination rate in South Africa. Just over a quarter of people ages 18 to 34 in South Africa are vaccinated.

Independent scientists agreed that Omicron warranted urgent attention, but also pointed out that it would take more research to determine the extent of the threat. Although some variants of concern, like Delta, have lived up to initial worries, others have had a limited impact.

William Hanage at the Harvard T.H. Chan School of Public Health and other researchers said that vaccines will most likely protect against Omicron, but further studies are needed to determine how much of the shots’ effectiveness may be reduced.

We are particularly interested in mutations that could do any of the following:

1. Increase transmissibility.
2. Escape our vaccines or infection-induced immunity; and/or
3. Increase severity (hospitalization or death).

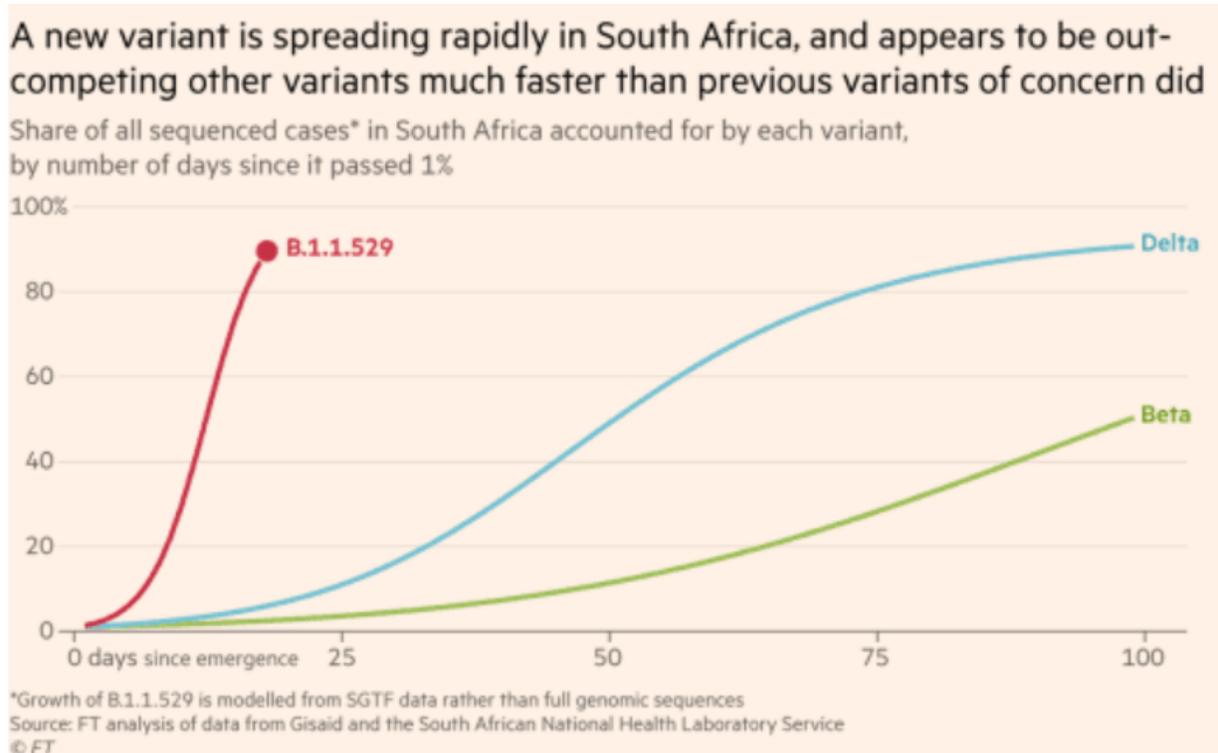
The first case in Hong Kong is particularly interesting. This was a 36-year-old, fully vaccinated (two Pfizer doses in May/June 2021) male. He was traveling through South Africa from October 22 to November 11. Before returning to Hong Kong, he tested negative on a PCR. As per usual, once he landed in Hong Kong he was required to quarantine. On day 4 of quarantine (November 13), he tested positive on a PCR. Another guest across the hallway was also infected with B.1.1.529. He was Pfizer vaccinated in May/June 2021 too. In both of these rooms, 25 out of 87 swabs were positive for the virus.

These Hong Kong cases tell us two things:

- Confirms that COVID19 is airborne (not a surprise)
- During their PCR tests, the viral loads were very high considering they were negative on previous PCR tests. They had Ct values of 18 and 19. So, this tell us that B.1.1.529 is likely highly transmissible.

#### Final questions

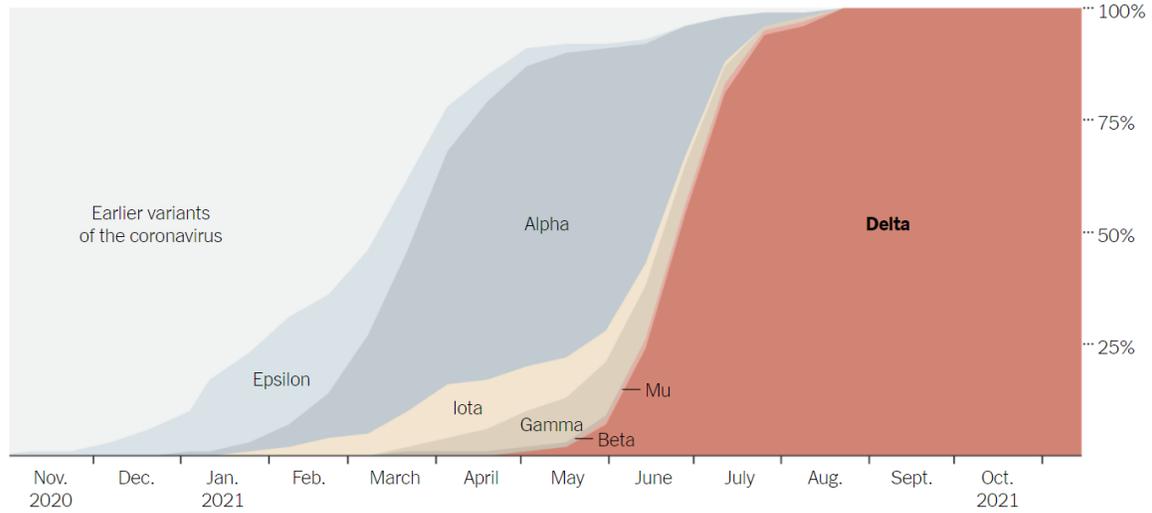
- Does B.1.1.529 escape vaccines and natural immunity?
- Will B.1.1.529 outcompete Delta worldwide like we're seeing in South Africa? See below.



**Comment:** I've never seen this much anxiety over the announcement of a new variant. We have much to learn about this new variant. For now, we should be concerned but don't panic yet. We will have results if current vaccines can neutralize this new variant soon. Will this new strain outcompete with delta? In the meantime, stay vigilant and follow public health guidance. Gnomic sequencing is critical to pick up these new VOC as we have seen in South Africa.

## Waves of Variants in the United States

This summer the Delta variant pushed aside other circulating variants in the United States. (For other countries, see [CoVariants](#).)



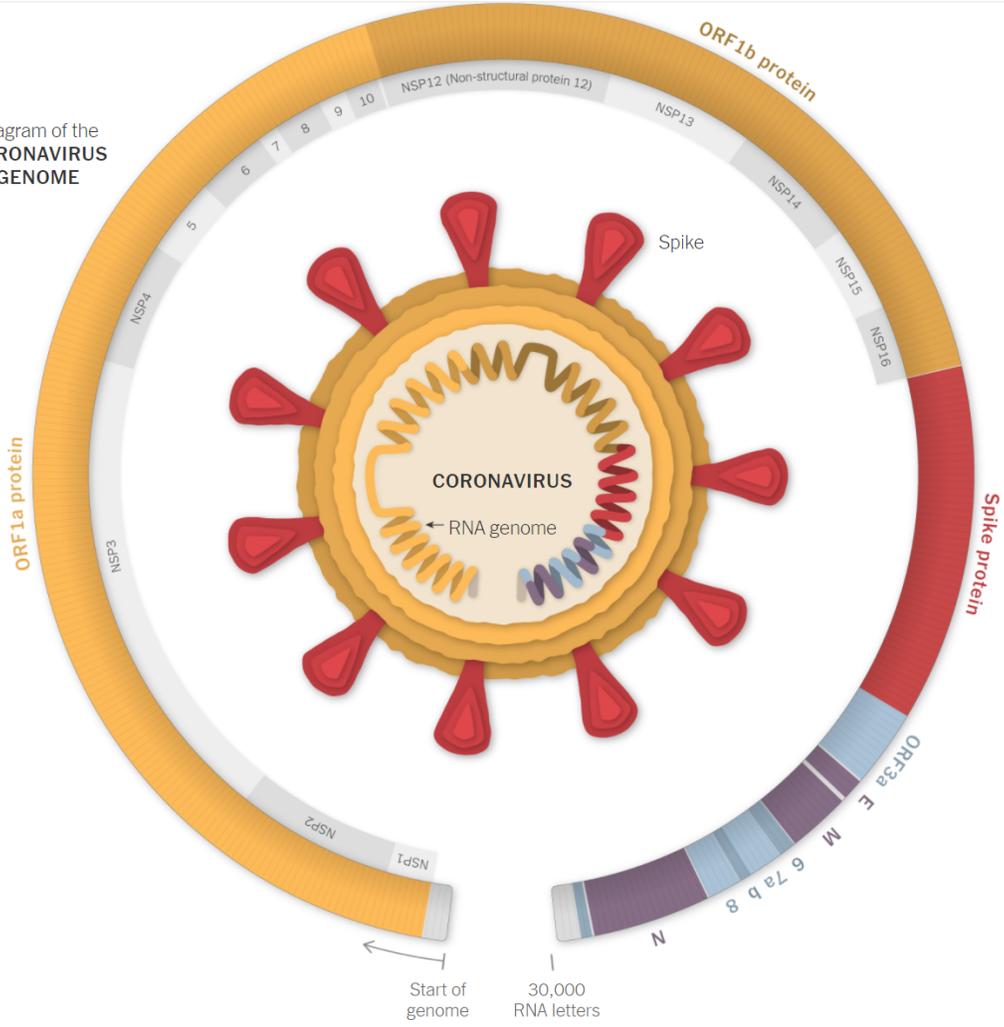
## Current variants of concern

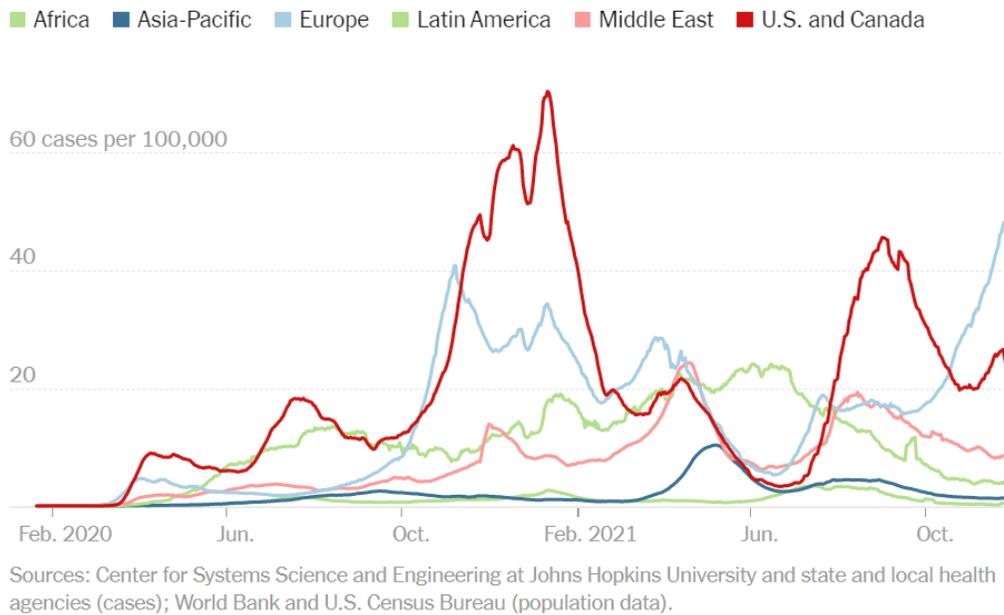
| Name    | Lineage   | Status   |
|---------|-----------|--|
| Omicron | B.1.1.529 | Identified in southern Africa in Nov. 2021.  |
| Delta   | B.1.617.2 | Emerged in India in late 2020 and spread around the world. Delta carries the L452R spike mutation, among others. |
| Gamma   | P.1       | Emerged in Brazil in late 2020.  |
| Beta    | B.1.351   | Emerged in South Africa in early 2020.   |
| Alpha   | B.1.1.7   | Emerged in Britain in late 2020.   |

## Current variants of interest

| Name | Lineage | Status                             |
|------|---------|------------------------------------|
| Mu   | B.1.621 | Emerged in Colombia in early 2021. |

Diagram of the  
CORONAVIRUS  
GENOME





### Molnupiravir

Updated analysis by Merck found that hospitalization and death among high-risk Covid patients was reduced by 30 percent, down from an earlier estimate of 50 percent.

**Comment:** Monoclonal antibody drugs, which are typically administered intravenously in the United States, have been found to reduce hospitalizations and deaths by at least 70 percent. Pfizer’s antiviral pill, Paxlovid, which was found in a clinical trial to cut the risk of hospitalization and death by 89 percent, could become available within weeks. Fluvoxamine, a common and inexpensive antidepressant, appears to be as effective and perhaps more effective than molnupiravir.