



THE DELTA SURGE: A SNAPSHOT

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THE RISE OF THE DELTA IN THE DMV REGION

THE BUILDING OF A REGIONAL PHYLOGENETIC TREE



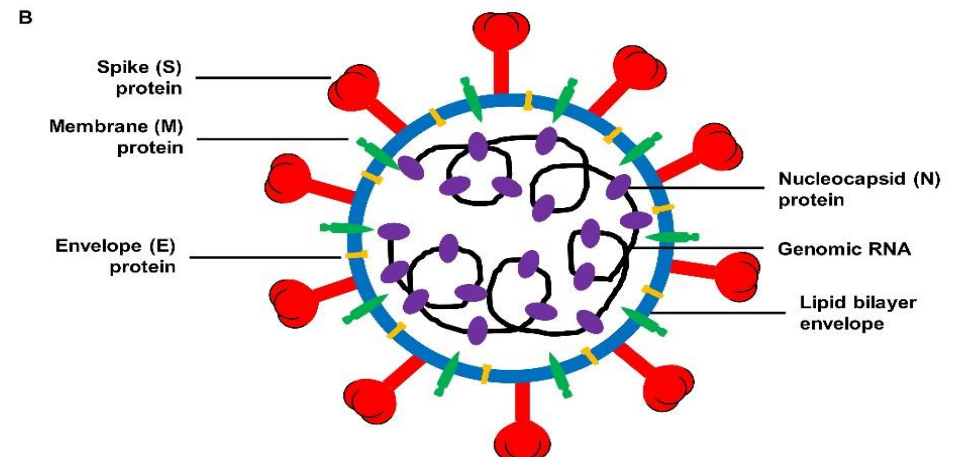
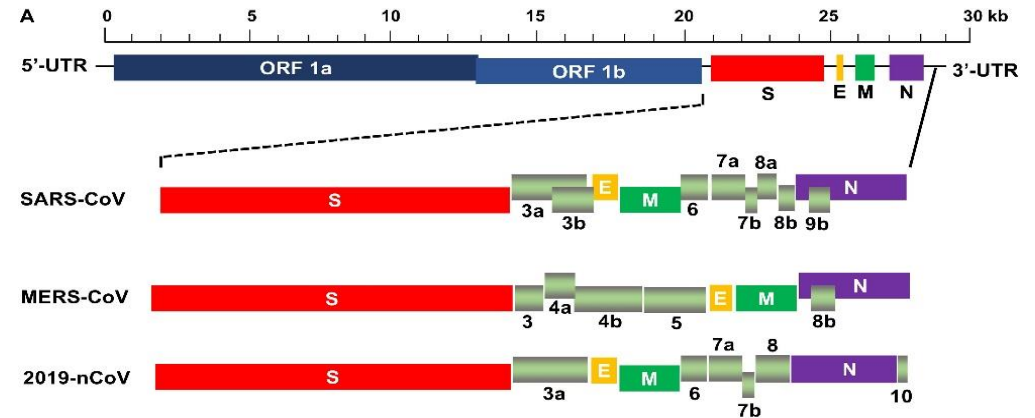


WHY IS COVID-19 VIRUS CHANGING?

- SARS-CoV-2 is RNA virus, like most RNA viruses it tends to make errors when copying its genetic material upon invading a host cell
- Well-known RNA viruses are HIV and the seasonal Influenza virus like SARS-CoV-2 are known to develop mutations(errors) when replicating
- The rate of mutation for SARS-CoV-2 virus has been estimated to be about 2 single letter mutation per month, which is about 50% lower than that of the influenza virus and about 75% lower than HIV
- One reason for this genetic instability is that enzymes that copy RNA are more prone to errors, another is the faster rate of replication in the host cell.

WHAT IS A VIRUS VARIANT AND WHY DOES IT MATTER?

- A virus variant is a sample virus isolated from a patient whose genomic sequence differs from a reference virus.
- For example, the B.117 or Alpha genome differs from the reference virus aka SARS-CoV-2: BetaCoV/Wuhan/WIV04/2019
- Throughout the COVID-19 pandemic, SARS-CoV-2 has been shown to evolve continuously during this phase of human-to-human transmission and the emergence of COVID variant is the result of that evolutionary process through mutations resulting in substitutions of amino-acid



SARS-CoV-2 Genome

Source:Unknown

WHY IS COVID-19 VARIANT SURVEILLANCE IMPORTANT DURING THE PANDEMIC?

- Mainly to provide public health officials and policymakers with the intel on which strain of the virus is currently circulating in the community, how virulent it is, how and where it is spreading.
- The emergence of new variants that have been classified by the WHO and CDC as Variant of Concern(VOC) and Variant of Interest(VOI) based on their ability of increased transmission capability, virulence, clinical disease characteristics such as disease severity as well as the ability to negatively impact vaccine effectiveness, diagnostics, current available therapeutics and public health measures.
- The US Government SARS-CoV-2 Interagency Group(SIG) has defined and classified 3 types of SARS-CoV-2 variants:
 1. Variant of Interest
 2. Variant of Concern
 3. Variant of High Consequence



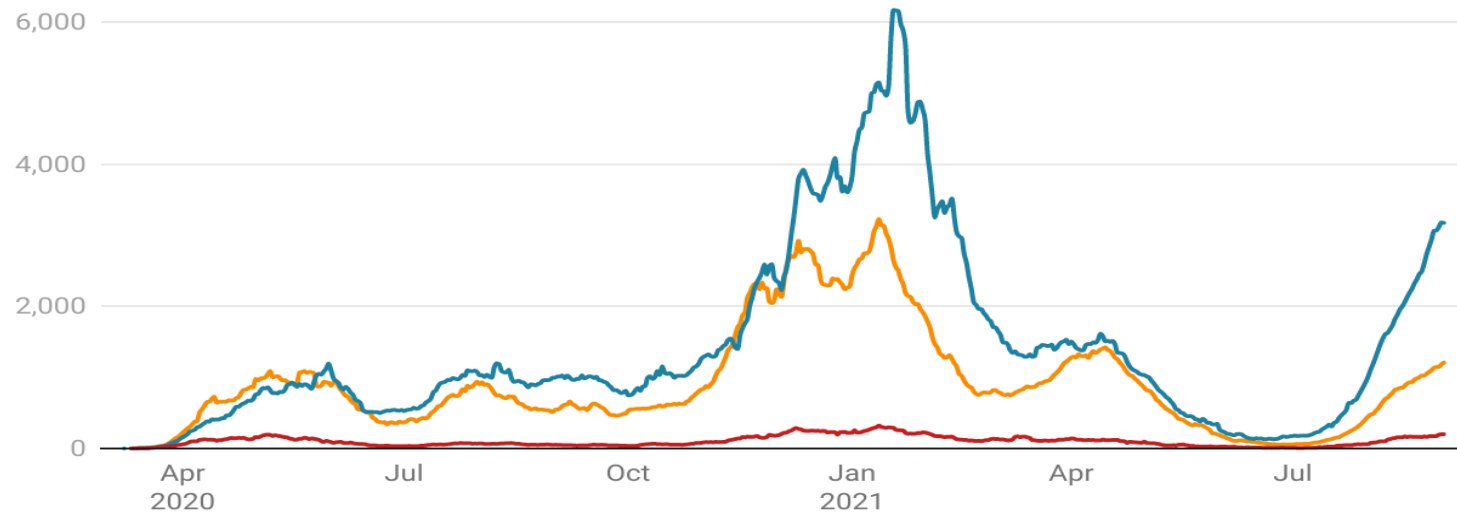
THE DMV NUMBERS: WHERE WE WERE AND WHERE WE ARE TODAY

NEW CASES IN THE DMV: A SNAPSHOT

New reported cases in DC, MD and VA

This chart shows the **7-day average** of new cases reported daily in the D.C. region. Use the buttons below to toggle between individual views for each state.

All DC MD VA



Gaps represent missing data. Since most jurisdictions count cases by date of report, not symptom onset, this chart is best used in conjunction with current hospitalizations and testing trends for a clearer picture of a state's overall infection rate.

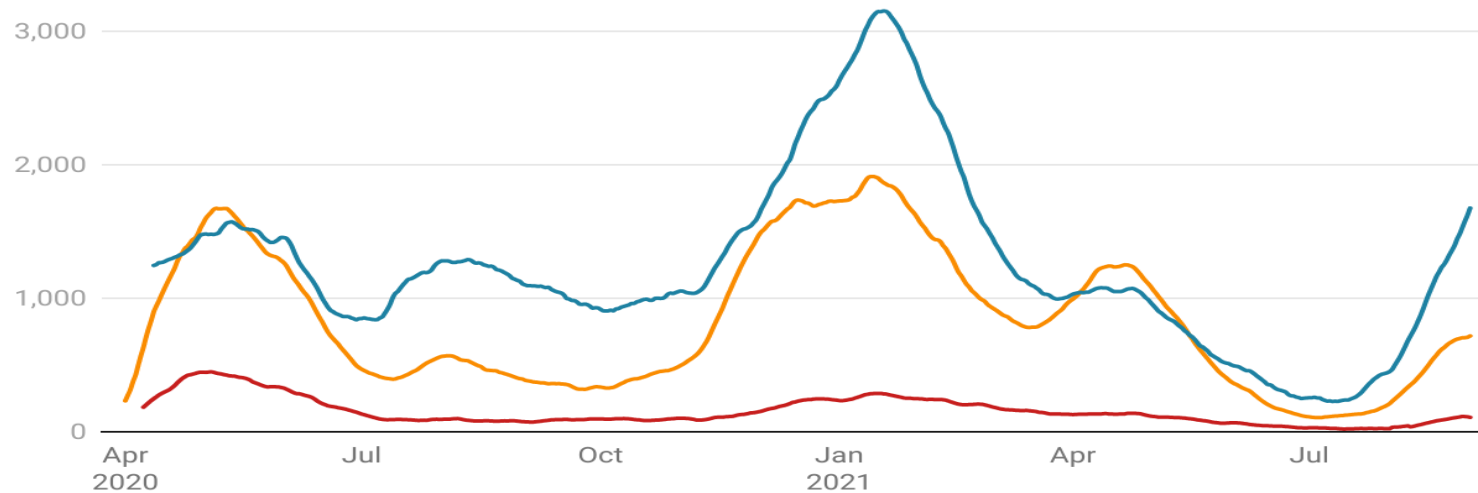
Chart: Alejandro Alvarez, WTOP • Source: DCH, MDH, VDH • Created with Datawrapper

COVID HOSPITALIZATIONS IN THE DMV: A SNAPSHOT

Hospitalizations in DC, MD and VA

This chart shows the **7-day average** of the number of confirmed and probable COVID-19 patients in each state's hospital system on any given day. Use the buttons below to toggle between states.

All DC MD VA



Gaps represent missing data. As of late May 2021, D.C. is not publishing data on weekends. Va. hospitalization statistics include suspected COVID-19 patients awaiting test results.

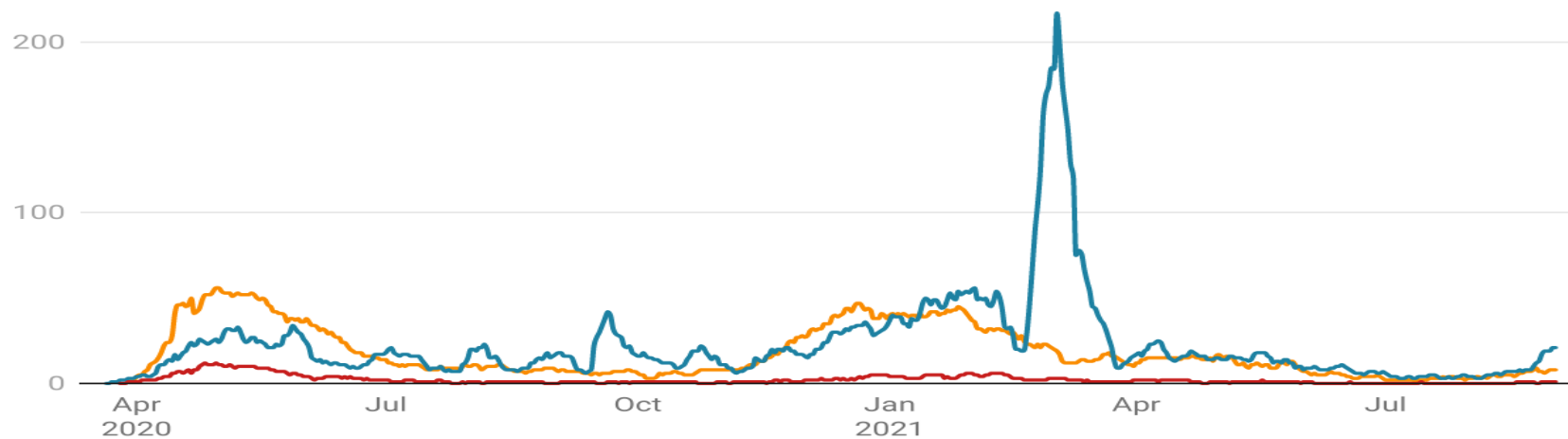
Chart: Alejandro Alvarez, WTOP • Source: DCH, MDH, VDH • Created with Datawrapper

COVID-RELATED DEATHS IN THE DMV: A SNAPSHOT

Deaths in DC, MD and VA

This chart shows the **7-day average** of the number of confirmed and probable COVID-19 deaths by date reported to each state's health agency. Use the buttons below to toggle between states.

All DC MD VA

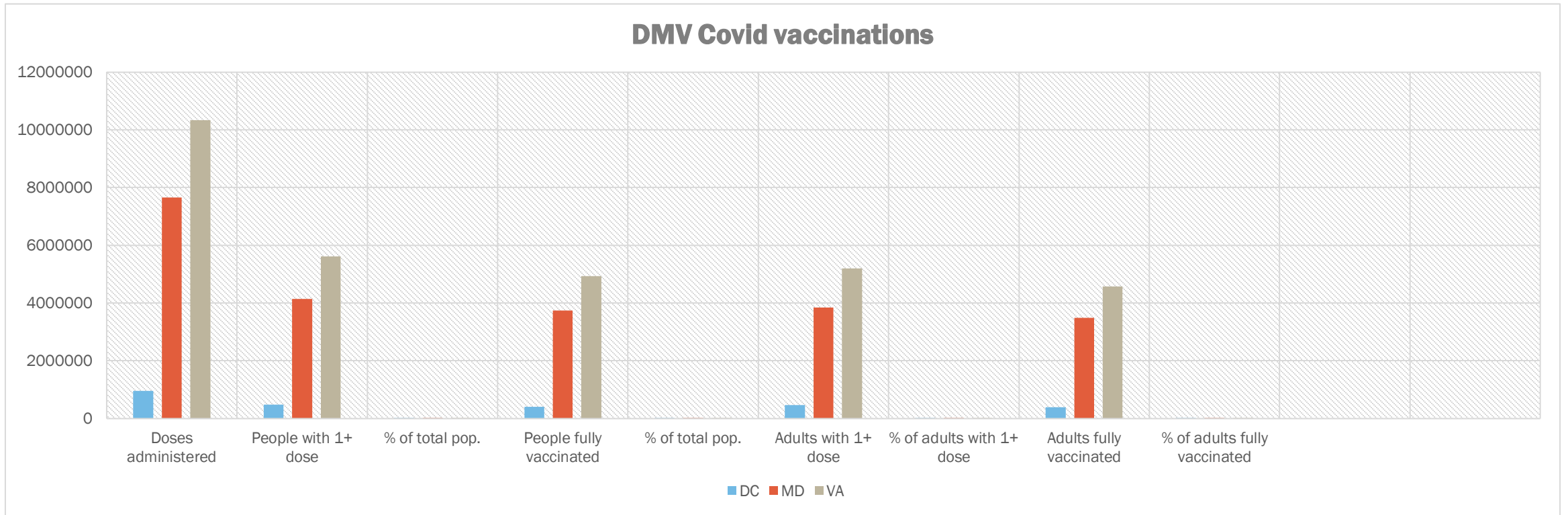


Daily totals are the date a death was added to a state's reporting system, and does not necessarily reflect the true number of deaths in a 24-hour period. From February to March 2021, Va. added a large number of previously uncounted deaths.

Chart: Alejandro Alvarez, WTOP • Source: DCH, MDH, VDH • Created with Datawrapper

COVID-19 VACCINE IN THE DMV: A SNAPSHOT

DMV Covid vaccinations



Source: CDC Covid Data tracker, DC Health, MDH, VDH

DMV PHYLOGENETIC PROJECT



- Made possible by:



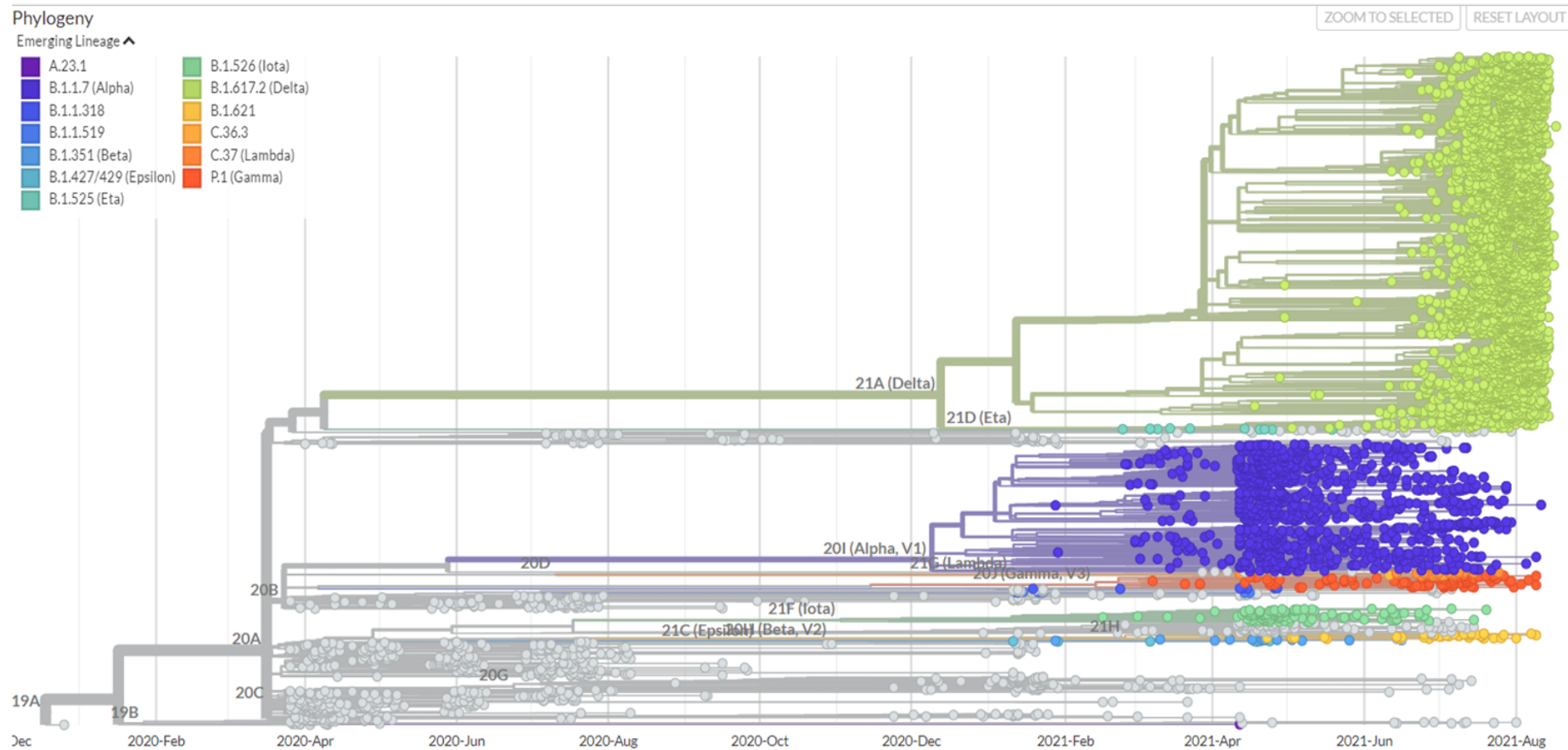
**THE MORRIS & GWENDOLYN
CAFRTZ FOUNDATION**

DMV COVID PHYLOGENETIC TREE

Genomic epidemiology of novel coronavirus - Dmv-focused subsampling

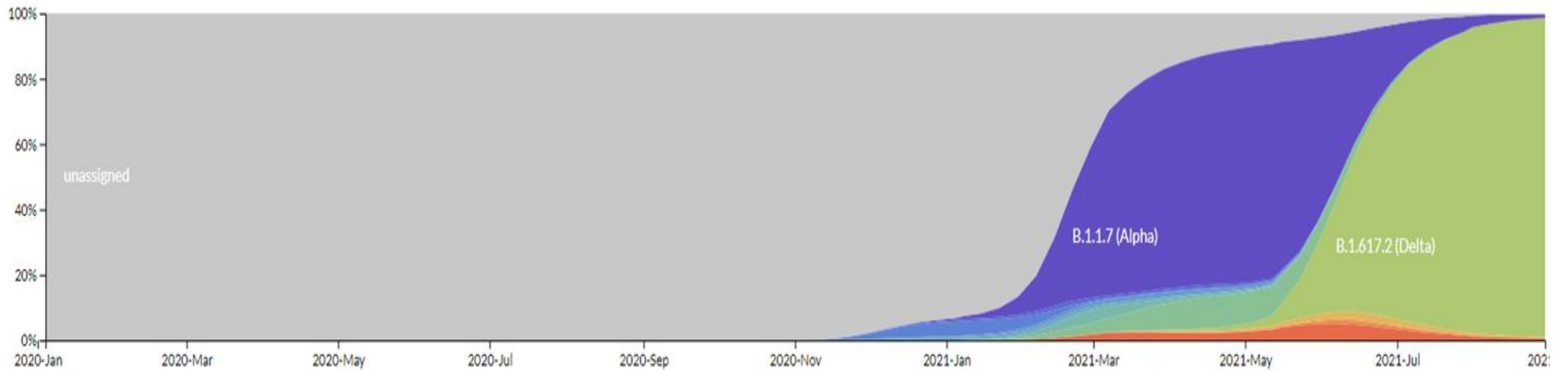
Built with nextstrain/ncov. Maintained by the Metropolitan Washington Council of Governments.

Showing 5222 of 5222 genomes sampled between Dec 2019 and Aug 2021.



THE RISE OF THE DELTA VARIANT : EMERGING LINEAGE

Frequencies (colored by Emerging Lineage)





REFERENCES AND ACKNOWLEDGEMENTS

- CDC Covid data tracker
- WHO- Tracking SARS-CoV-2 Variants
- WTOP Local News DMV COVID Tracker
- DC Health Coronavirus website
- MDH COVID Dashboard
- VDH COVID Dashboard