Metro Wastewater COVID-19 Monitoring

Metropolitan Council

June 3, 2022

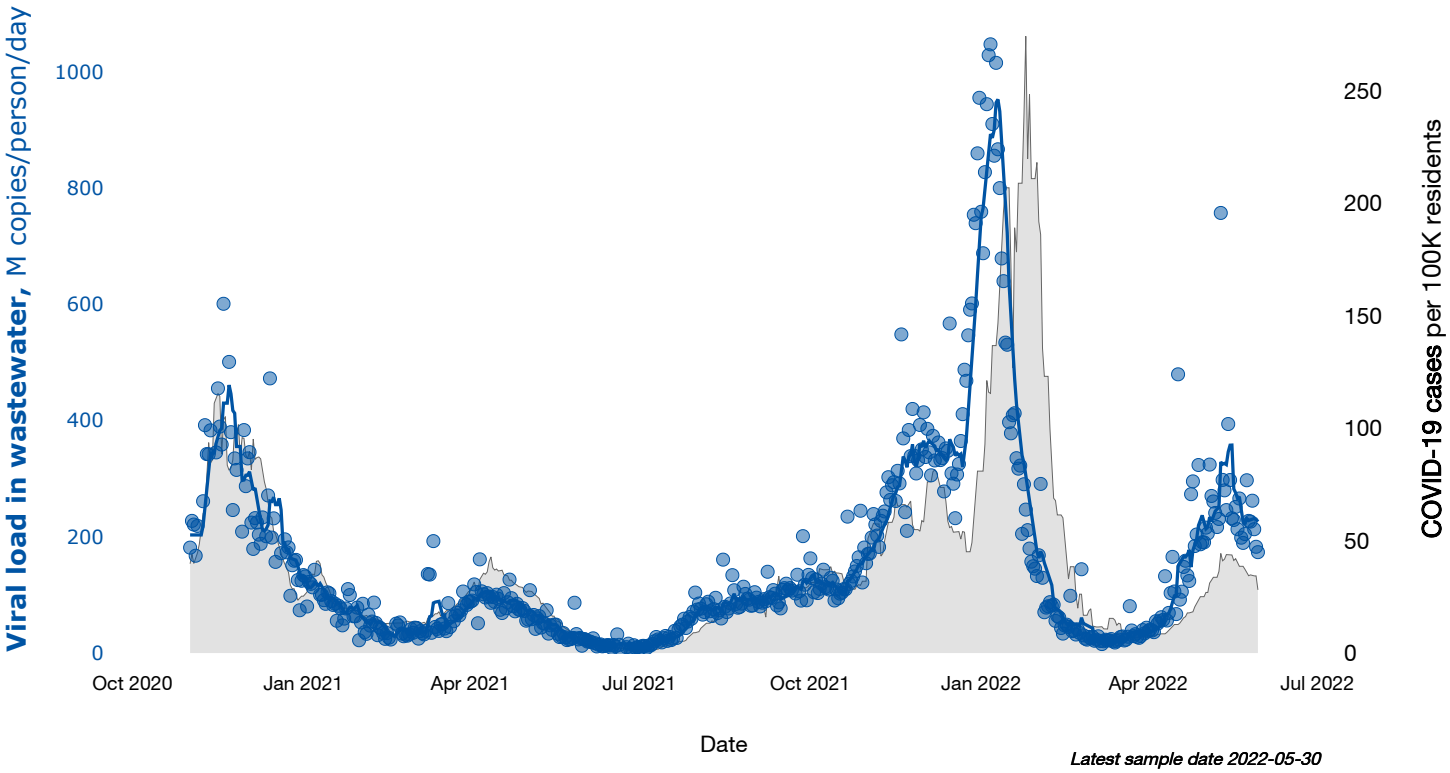
COVID-19 Load

Tracking COVID-19 Prevalence with Metro Plant Wastewater

The daily amount of SARS-CoV-2 viral RNA flowing into the Metro Plant correlates closely with the number of new daily cases reported by the Minnesota Department of Health. The plant serves nearly 2 million people in Minneapolis, Saint Paul, and 64 other metro area communities.

How to read this graph:

The blue line and points show the total amount of SARS-CoV-2 viral RNA in wastewater flowing into the Metro Plant, in millions copies of the SARS-CoV-2 genome per person served by the wastewater plant, per day. Blue points are daily values; the blue line is a running average of the previous 7 days. The gray line shows the average of the previous 7 days of new reported COVID-19 infections in the seven-county Metro area per 100,000 residents. Case data are provided by the Minnesota Department of Health and downloaded from [USA Facts] (www.usafacts.org).

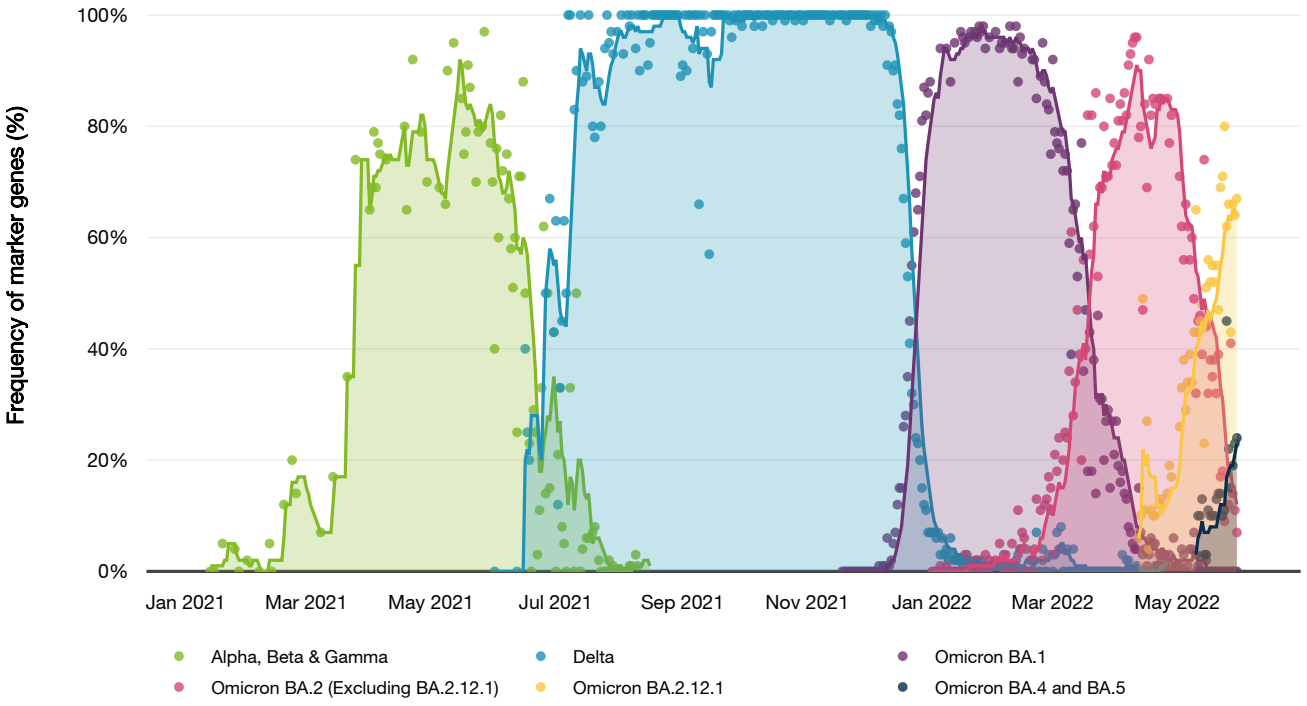


COVID-19 Variants

In December 2021, Omicron rapidly replaced Delta as the dominant SARS-CoV-2 variant of concern in influent wastewater at the Metro treatment plant in Saint Paul. Since early February, we have observed the appearance and increase of the Omicron sub-lineage BA.2. Now beginning in April, we are observing the increase in Omicron BA.2.12.1.

How to read this graph:

This graph shows the frequency of SARS-CoV-2 variants in Metro Plant wastewater. This frequency is the percentage of the total viral RNA that was identified as being from each particular variant. Points are daily data; lines and shaded areas are averages of the previous 7 days.



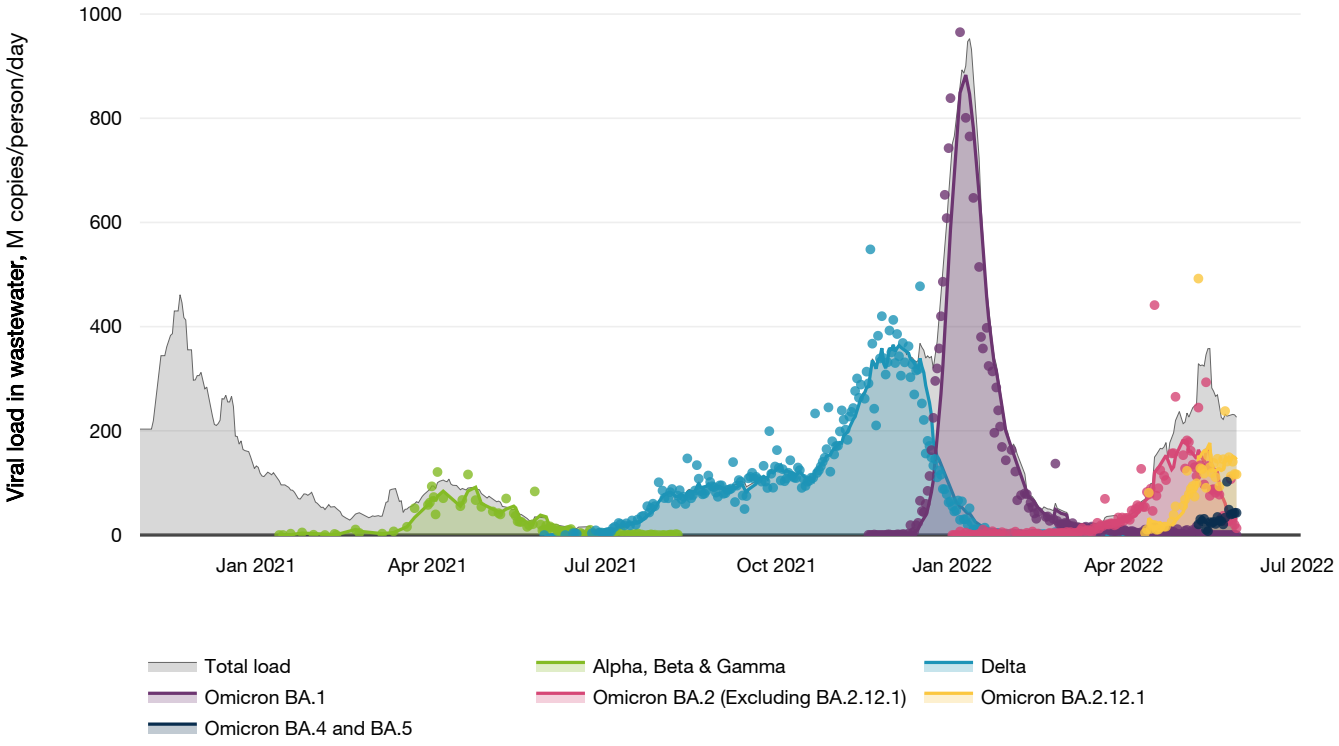
COVID-19 Load by Variant

Another way of looking at the variant data

The dominance of various SARS-CoV-2 variants has ebbed and flowed over time. The current dominant variant, Omicron, became dominant in late December. The total amount of SARS-CoV-2 virus in wastewater was higher during the Omicron BA.1 wave compared to earlier periods of the COVID-19 pandemic, consistent with higher case counts in the region. The wastewater load dropped by more than 98% after the peak of the Omicron BA.1 subvariant in early January, but it has now started to increase again, driven by the increasing prevalence of Omicron BA.2.

How to read this graph:

This graph shows the measured number of copies per person per day of each variant in wastewater. Points are daily data; lines and shaded areas are averages of the previous 7 days. The gray area in the background is the 7-day average total viral load. Variant proportions do not always add to 100%, so slight discrepancies between the total viral load and that of the individual variants are expected.



More information about variant detection

Variant frequencies are inferred from the presence of key mutations in the SARS-CoV-2 genome. Alpha, Beta and Gamma frequencies are inferred from the presence of the N501Y mutation; Delta from the L452R mutation; and Omicron from the K417N mutation. Some variants share mutations: presence of K417N mutation before November 18 were inferred to be the Beta variant. The two sub-lineages of Omicron (BA.1 and BA.2) are distinguished by the HV 69/70 deletion: Omicron BA.1 contains both the K417N mutation and the HV 69/70 deletion. Omicron BA.2 has the K417N mutation but not the HV 69/70 deletion. Omicron BA.2.12.1 has the L452Q mutation.