Metro Wastewater COVID-19 Monitoring

Metropolitan Council

January 31, 2022

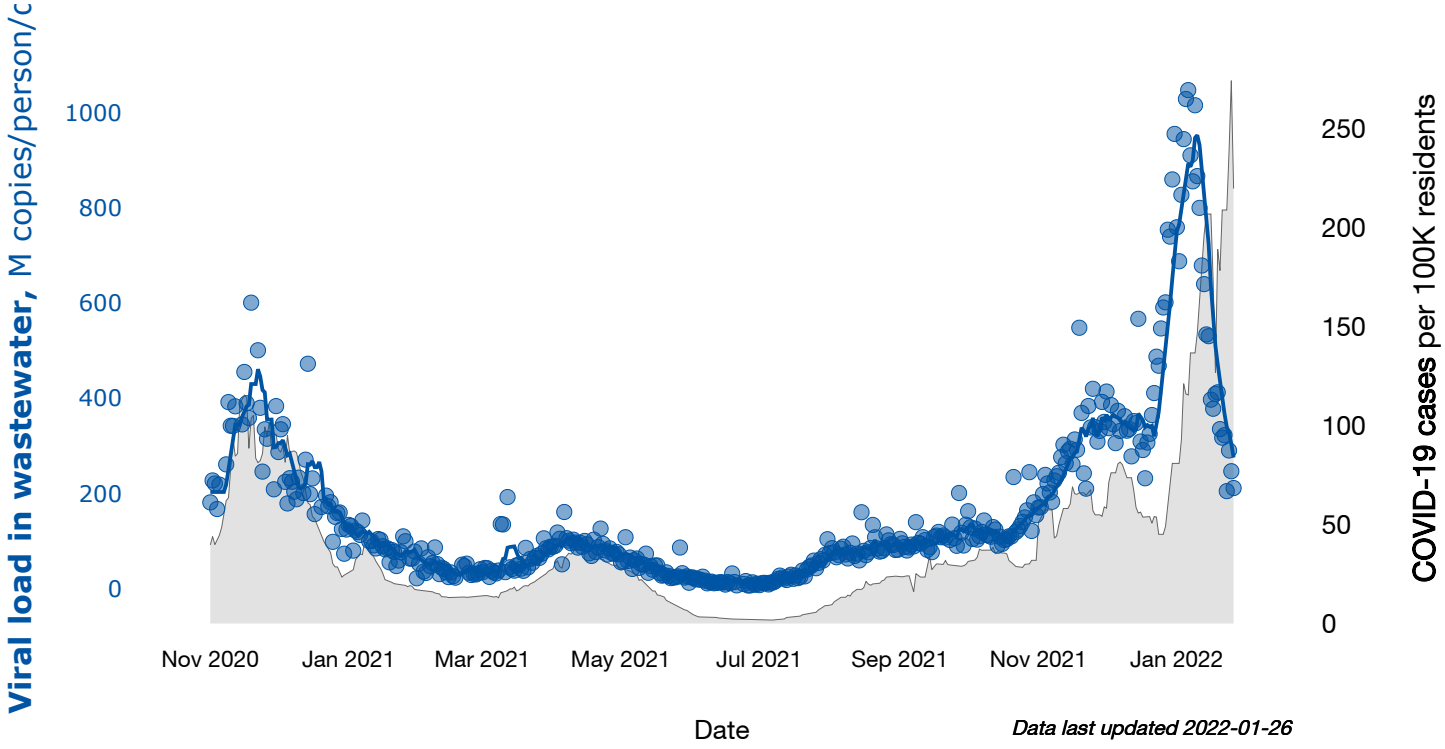
COVID-19 Load

Tracking COVID-19 Prevalence with Metro Plant Wastewater

The number of reported cases of COVID-19 infections in the seven-county metro area corresponds to the prevalence of the virus in wastewater samples at the Metro treatment plant in Saint Paul. The plant serves a large portion of the seven-county metro area.

How to read this graph:

The blue line and points show the total amount of SAR S-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 area, 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 (https://usafacts.org (https://usafacts.org)). New cases tend to lag wastewater detection trends by about 6-8 days.



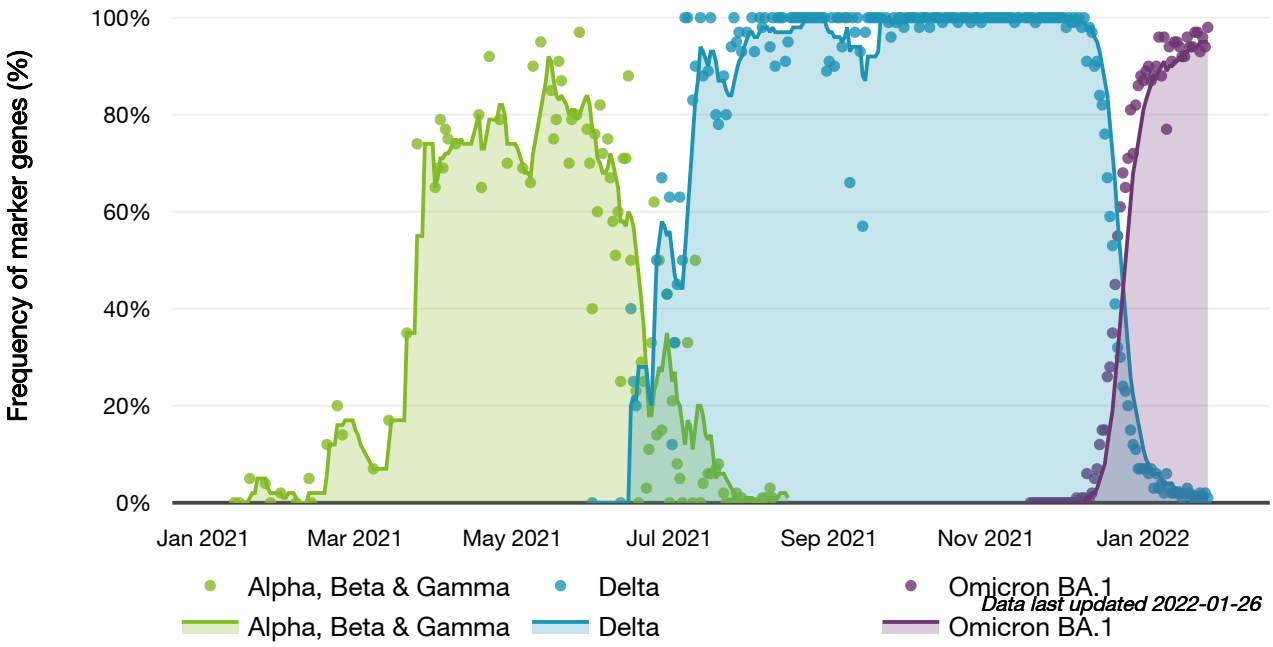
COVID-19 Variants

COVID-19 variant tracker

As the Delta variant of the SARS-CoV-2 virus declined, the Omicron variant quickly took its place as the dominant variant in wastewater samples at the Metro treatment plant in Saint Paul. The plant serves a large portion of the seven-county metro area.

How to read this graph:

This graph shows the frequency of SARS-CoV-2 variants. Points are daily data; lines and shaded areas are averages of the previous 7 days.

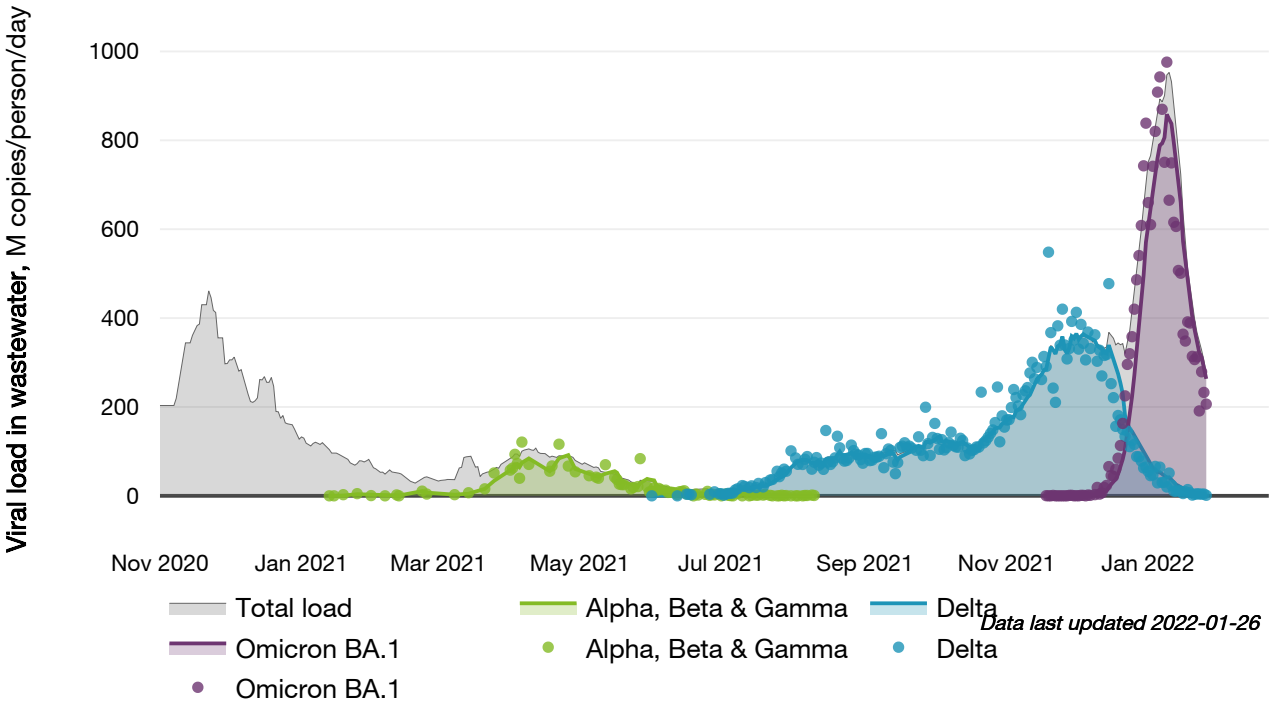


COVID-19 Load by Variant

Another way of looking at the variant data

How to read this graph:

In this graph, variant frequencies (in %) are multiplied by the total load to create an estimate of the number of copies 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.

Monitoring Omicron BA.1 and BA.2 sub-lineages

Metropolitan Council and the University of Minnesota continue to monitor for the BA.1 and BA.2 sub-lineages of Omicron. These two sub-lineages (or “sub-variants”) can be distinguished by tracking the HV69-70 deletion: Omicron BA.2 has the K417N mutation but not the HV69-70 deletion, while Omicron BA.1 has both. Because other variants may be missing the HV69-70 deletion, Omicron BA.2 will be inferred to be absent until the ratio of HV69-70 to K417N decreases below 95%. This simple rule of thumb is subject to change.