



SARS-CoV-2 Variants in Chicago (updated July 2021)

Background

Like all viruses, SARS-CoV-2 – the virus that causes COVID-19 – constantly changes through genetic mutation. These genetic mutations can lead to the emergence of new SARS-CoV-2 variants. Though the emergence of these new variants is expected, some variants are concerning to public health authorities because they might be able to spread more easily from person-to-person, cause more severe disease, or reduce the effectiveness of currently available COVID-19 vaccines.

CDC classifies the most concerning variants as “variants of concern” (VOCs) or “variants of high consequence”. [As of July 2021, CDC has classified four VOCs and no variants of high consequence.](#)

Table: SARS-CoV-2 variants that have been designated “Variant of Concern” by the CDC.

Variant Name	First detected	Reasons for concern
Alpha or B.1.1.7	United Kingdom	Spreads more easily from person-to-person, likely causes more severe illness.
Beta or B.1.351	South Africa	Spreads more easily from person-to-person, likely moderately reduces the effectiveness of some COVID-19 vaccines and monoclonal antibody treatments.
Gamma or P.1	Japan/Brazil	Likely moderately reduces the effectiveness of some COVID-19 vaccines and monoclonal antibody treatments.
Delta or B.1.617.2	India	Spreads more easily from person-to-person, potentially reduces the effectiveness of some COVID-19 vaccines and monoclonal antibody treatments.

Identifying SARS-CoV-2 variants in Chicago

Testing for variants is not like the diagnostic testing your healthcare provider might perform to see if you have COVID-19. Variants are identified through specialized laboratory analysis called genomic sequencing, which can only be done in certain advanced laboratories and, can only be performed on some of positive specimens that meet specific technical criteria. Genomic sequencing takes some time (usually weeks) for results to be returned. A small but increasing proportion of all confirmed cases are now being sequenced.

CDPH is involved in surveillance for variants in Chicago in several ways:

- CDPH collaborates with the Illinois Department of Public Health (IDPH) to perform genomic sequencing on specimens from some Chicago residents,
- CDPH submits specimens, through the IDPH laboratory, to the [CDC’s National SARS-CoV-2 Strain Surveillance System](#).

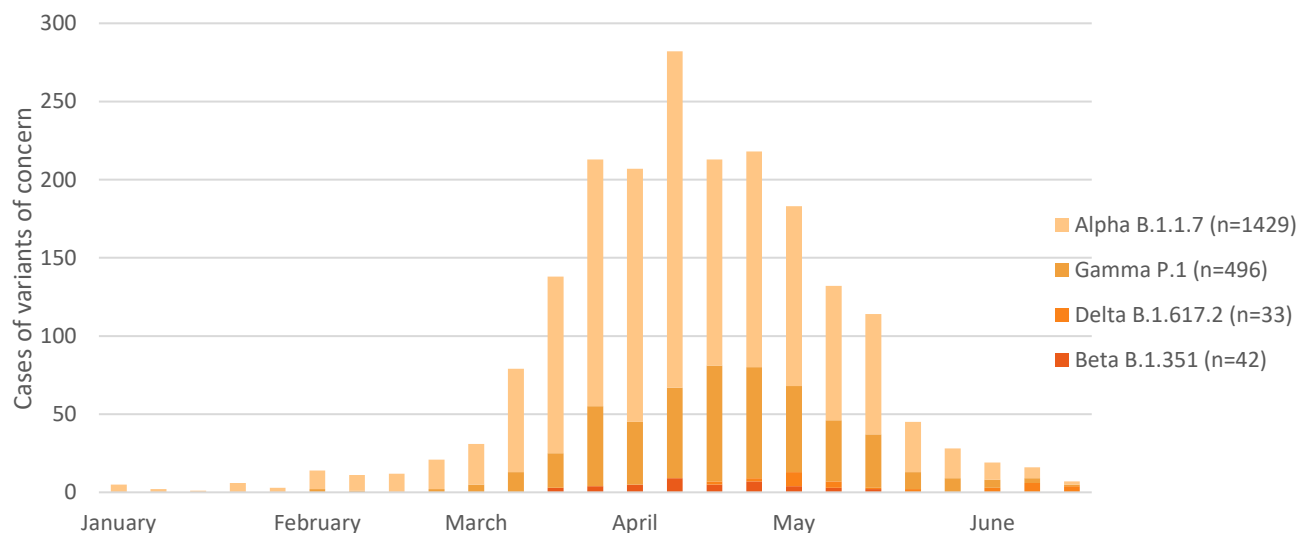
- CDPH has partnered with Rush University Medical Center to establish and operate the Regional Innovative Public Health Laboratory (RIPHL), which receives specimens weekly for genomic sequencing from several Chicago hospitals.
- CDPH collaborates with other laboratories and academic centers performing genomic sequencing on specimens from Chicago residents, to conduct investigations and report data for surveillance purposes.

Variants of concern in Chicago

All four variants of concern have been identified in Chicago.

As of July 12, 2021, 2,000 cases caused by one of the current VOCs has been identified. This is probably a significant underestimate of the number of cases caused by VOCs because, as explained above, only a minority of specimens can undergo genomic sequencing. It is likely that, since April 2021, most cases of COVID-19 in Chicago have been caused by VOCs, and this is projected to continue because VOCs spread more easily from person-to-person and usually ‘outcompete’ other variants that are less easily transmitted between people.

Figure: Number of cases of SARS-CoV-2 variants of concern identified in Chicago residents, January-June 2021



* These data are extracted from the Illinois National Electronic Disease Surveillance System (INEDSS) – not all cases that undergo genomic sequencing are reported to INEDSS and so this graph may not capture all cases. Variants of interest and variants that are not classified are not included in this graph. This graph shows the absolute number of cases of SARS-CoV-2 variants of concern (VOCs) in Chicago residents – the number of cases has declined in recent months, so the number of cases of VOCs has also declined. To see the latest estimates of the proportion of new cases that are caused by VOCs, visit <https://covid.cdc.gov/covid-data-tracker/#variant-proportions>.

As of July 4, 2021, Alpha (B.1.1.7) has been the most commonly-detected VOC in Chicago. Alpha was first detected in the UK in September 2020, and was first detected in Chicago in January 2021. Because Alpha was more transmissible than the other SARS-CoV-2 viruses circulating at the time, it ‘outcompeted’ the existing circulating viruses to become the most common variant in Chicago by April 2021. However, although the proportion of cases that were due to VOCs increased as Alpha became

the most common variant, the total number of COVID-19 cases in Chicago still declined to the lowest levels since the pandemic began, largely thanks to widespread COVID-19 vaccination and other public health measures.

The Delta variant (B.1.617.2), which was first detected in India in December 2020 and in Chicago in April 2021, is yet more transmissible than Alpha. Similar to the way Alpha gradually replaced the viruses that circulated before it because it spread more easily, Delta is likely to replace Alpha. Because of this it is likely to become the most common variant in Chicago – the CDC already estimates that Delta is the most common variant across the US. However, as with Alpha, a combination of COVID-19 vaccination and other public health measures can still ensure control of COVID-19 transmission in Chicago.

How worried should we be about variants of concern?

Variants may be designated as concerning because they might be able to spread more easily from person-to-person, cause more severe disease, or reduce the effectiveness of currently available COVID-19 treatments or vaccines. Scientists and public health officials monitor this closely. However, just because the proportion of variants of concern is increasing does not mean cases, hospitalizations and deaths due to COVID-19 will increase – with the Alpha variant, we were able to bring case numbers down even as the variant increased in proportion, because of COVID-19 vaccines.

All COVID-19 vaccines available in the US provide good protection against all known variants of concern. If you are worried about variants of concern, the best thing you can do to protect yourself and others is to get vaccinated, and to complete your full vaccination course.

What is CDPH doing?

Because the most important thing you can do to protect yourself from COVID-19 – including variants of concern – is to get vaccinated, CDPH works hard to ensure all Chicagoans have access to the safe and effective vaccines that have received authorization from the FDA. Visit www.chi.gov/covidvax to learn more about COVID-19 vaccinations and where to get yours.

In addition to the genomic surveillance outlined above, CDPH conducts targeted surveillance; CDPH identifies and investigates cases of COVID-19 in people who are fully vaccinated, or cases of reinfection, to investigate if these are more likely to be caused by variants of concern. It is still too early to know if VOCs are more likely to cause vaccine breakthrough cases or reinfection cases.

What can the public do?

Variants of concern can be prevented in exactly the same ways as every other SARS-CoV-2 virus. Get vaccinated as soon as you are eligible, and get both doses if you are offered a vaccine that requires two doses. If you have not received a COVID-19 vaccine, wear a mask and avoid crowds and poorly ventilated indoor spaces until you are fully vaccinated. Avoid gatherings with large numbers of unvaccinated people. Wash your hands frequently.

Getting your COVID-19 vaccine protects you and those around you, and also reduces the spread of SARS-CoV-2, which creates fewer opportunities for new variants to develop.