CDPH
Chicago Department of Public Health

Omicron in Chicago (updated January 7, 2022)

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 SARS-CoV-2 variants. In late 2021, the Omicron variant of concern emerged. The first confirmed case of Omicron in the US was reported on December 1, 2021. Chicago's Regional Innovative Public Health Laboratory (RIPHL) detected the first known case of Omicron in Illinois, and Omicron cases in the US have increased rapidly since. The best way to protect yourself against Omicron and all other variants is to get vaccinated and boosted.

Omicron prevalence in Chicago

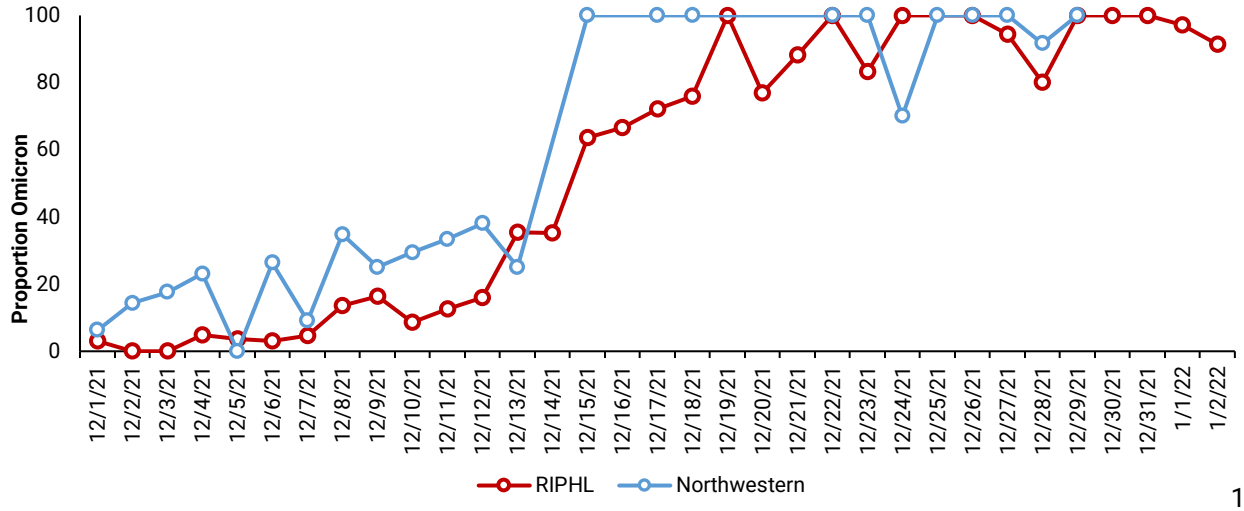
CDPH is part of national efforts to understand variants of SARS-CoV-2 that are circulating in the US. The best place to find information about the circulation of SARS-CoV-2 variants is here: https://covid.cdc.gov/covid-data-tracker/#variant-proportions. CDC projections are based on a large, broadly representative national surveillance system and updated regularly with modelled projections.

CDPH partners with Rush University Medical Center to form RIPHL to conduct genomic surveillance in Chicago. RIPHL accepts clinical remnant specimens from all large hospitals in Chicago, and conducts laboratory analyses to understand the locally circulating variants. To rapidly understand how quickly Omicron was replacing Delta in Chicago, in December 2021 RIPHL implemented a new, specialized polymerase chain reaction (PCR) screening step – these PCR screens are faster than traditional genomic sequencing, so can provide results more quickly, but does not definitively determine the specific variant. RIPHL's PCR screens pick up one mutation that is present on Omicron but not present on Delta (K417N) and one mutation that is present on Delta that is not on Omicron (L452R) – specimens are called "likely Omicron" if they DO have the K417N mutation but do NOT have the L452R mutation.

Another key source of data in Chicago comes from the Center for Pathogen Genomics and Microbial Evolution at Northwestern University. This group collaborates with Lurie Children's Hospital and is supported by the Walder Foundation to conduct genomic sequencing on COVID-19 clinical specimens, and was the first group in Illinois to detect several earlier SARS-CoV-2 variants.

The combined data from RIPHL and Northwestern from December 2021 to January 2022 are shown in Figure 1. The proportion of samples that were likely Omicron increased significantly through December – in the most recent week of available data, more than 90% of cases were likely Omicron.

Figure 1: Proportion of specimens received that were likely Omicron, based on PCR screening at RIPHL in red (n=889) and genomic sequencing at Northwestern University's Center for Pathogen Genomics and Microbial Evolution in blue (n=299) – December 2021 to January 2022. The horizontal axis shows the specimen collection date.

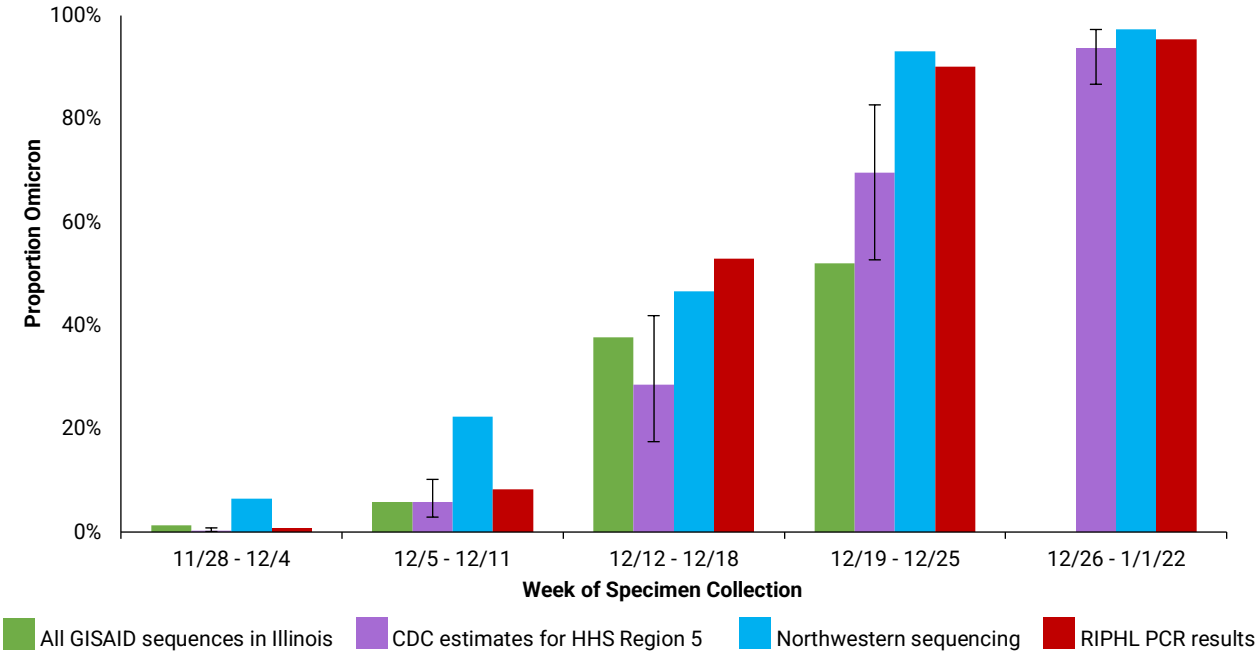


Comparing local data to other data sources

CDPH routinely compares local Chicago data from RIPHL and Northwestern to other sources of data about Omicron and other variants of concern, particularly the CDC's variant proportion tracker (https://covid.cdc.gov/covid-data-tracker/#variant-proportions) and GISAID, a public repository where all laboratories conducting genomic sequencing for SARS-CoV-2 generally share data.

Broadly, data from the various data sources (covering different but overlapping geographies) show a similar trajectory, with the proportion of cases due to Omicron increasing from a low level at the start of December to the majority by the end of 2021 (Figure 2). Note, these data are not all independent of each other – for example, some of the GISAID specimens from Illinois are likely also reflected in CDC data.

Figure 2: Proportion of likely Omicron specimens, by week and data source. RIPHL data are shown in red, Northwestern data in blue, data from CDC's National SARS-CoV-2 Strain Surveillance program (for HHS Region 5, the Midwest) in purple, and data from GISAID (for Illinois) in green.



Conclusion

The proportion of COVID-19 cases in Chicago that are due to Omicron has increased from very few at the start of December, 2021, to nearly all cases by the beginning of 2022. At the same time, Chicago has experienced a large increase in COVID-19 incidence. Getting vaccinated is the best way to protect yourself and others from all variants of COVID-19, including Omicron.

What can you do?

We know what it takes to prevent the spread of COVID-19. You should continue to follow established public health guidance – get vaccinated and boosted when you are eligible, wear a mask in public indoor settings, avoid poorly ventilated indoor spaces, wash your hands frequently, keep physically distancing from others, and following CDC and CDPH recommendations for international and domestic travel.

Visit www.chi.gov/covidvax to learn more and to schedule a vaccine.