Wastewater Modelling Report: Forecasting the State of the Pandemic using Wastewater Data

![Public Health Agency of Canada / Agence de la santé publique du Canada] ![Statistics Canada / Statistique Canada]

Wastewater based forecasting using data up to: 2022-04-11

Public Health Agency of Canada has developed a mathematical model ([Nourbakhsh et al., 2022](#)) for conducting wastewater based forecasting that describes infections of COVID-19 in the community and also considers how infected people shed the COVID-19 virus into the sewer systems and how that shed virus signal is detected and reported. The clinical case and wastewater surveillance data are used to generate forecasts and help understand what is happening in the community.

The next figure show clinical case and wastewater surveillance data for the City of Winnipeg during the Omicron wave. The top panel shows the traditional reported human clinical case data (solid black line), model forecasts using only clinical data (pink shaded area), and model forecasts using only wastewater data (blue shaded area). The bottom panel shows the SARS-CoV-2 signal in wastewater (brown line).

The model uses clinical surveillance data up to 2022-04-13, and wastewater data up to 2022-04-11.

Winnipeg

After the significant under-reporting during the peak of the Omicron wave in January 2022 (top panel, blue curve above the black curve), there is a relatively good agreement between the clinical and wastewater data in Winnipeg (top panel, blue and pink curves have similar trajectories). The modelling forecast based on both clinical and wastewater data suggests an increasing trend in the number of cases for the next few weeks.