6.5. Wastewater-based Epidemiology of COVID-19: The Ottawa experience.

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The coronavirus disease 2019 (COVID-19) pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has claimed millions of lives to date. Antigenic drift has resulted in viral variants with putatively greater transmissibility, virulence, or both. As was seen with the Omicron variant, high incidence can quickly overwhelm traditional clinical surveillance methods (i.e., test and trace). A scalable, passive surveillance system allowing both early and near real-time detection of these variants of concern (VOC), and the ability to accurately follow the incidence and prevalence of disease in communities is wanting.

This presentation will provide the argument that wastewater-based epidemiology (WBE), which currently relies on nucleic acid amplification tests to detect and quantify fragments of SARS-CoV-2 RNA, fulfills these requirements, acting as a reliable proxy of COVID-19 incidence and prevalence in communities. Using Ottawa and the Ontario Wastewater Initiative as examples, it will be demonstrated how a WBE platform can provide public health units with an additional and much needed tool to help in understanding real-time and retrospective disease states in communities.

Educational Objectives

By the end of the presentation, participants will be able to:

1. Explain how COVID-19 wastewater-based epidemiology (WBE) is used in Canada and around the world to triangulate COVID-19 disease burden in communities.
2. Contrast clinical and wastewater-based methods of SARS-CoV-2 surveillance.
3. Outline the minimal organizational structure needed to implement a successful WBE programme within a public health unit.