

## **PETERBOROUGH PUBLIC HEALTH BOARD OF HEALTH – STAFF REPORT**

<b>TITLE:</b>	<b>Wastewater Surveillance</b>
<b>DATE:</b>	<b>June 12, 2024</b>
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### **PROPOSED RECOMMENDATIONS**

That the Board of Health for Peterborough Public Health:

- Write to the Minister of Health and the Minister of the Environment, Conservation and Parks to advocate for continued provincial coordination and support of wastewater surveillance across broad communities including the Peterborough Public Health region, or federal support for Peterborough wastewater surveillance;
- Recommend a future course for wastewater surveillance in Peterborough Public Health region. In the event that our advocacy does not result in continued provincial, or new federal funding for a program, we ask the Board of Health to provide direction on the future of this work:
  - Do not support continued local wastewater surveillance;
  - Support a scaled back seasonal wastewater surveillance program; or
  - Support a continued year-long wastewater surveillance program;

### **FINANCIAL IMPLICATIONS AND IMPACT**

An estimated cost from the cost-shared base budget as a surveillance activity, or from reserves between \$31,250 and \$62,500 is anticipated depending on the wastewater surveillance scenario that is supported.

### **BACKGROUND**

The Board of Health has previously received information on wastewater surveillance on the following dates:

- March 13, 2024 – Summary of Research Activities (2023) provided to the Board of Health, included details regarding a research collaboration between PPH, Trent & McMaster University regarding *Wastewater surveillance for earlier detection of seniors congregate living COVID-19 outbreaks in Peterborough*, published in the Canada Communicable Disease Report ([CCDR, Feb/Mar 2023](#)).
- September 8, 2021 – Staff Presentation to the Board of Health; the Board supported advocacy for funding to support additional and ongoing surveillance activities (letter sent to MPP David Piccini, former Minister of Environment, Conservation and Parks, on September 15, 2021).

- May 12, 2021 – Presentation to the Board of Health by Dr. Christopher Kyle, Professor, Trent University.

On May 30, 2024, PPH learned that the Provincial government will be discontinuing funding for wastewater surveillance throughout the province, including the local partnership with Trent University as of July 31<sup>st</sup> (early end to their current contract).

This was reflected to Medical Officers of Health as due to budget constraints despite continued relevance and importance of this information. This comes as a surprise to the public health field who has come to realize the broad utility of wastewater surveillance, not only for COVID-19 but for other infectious disease threats. In recent months it has proven useful for RSV, Influenza, MPox, and Polio.

COVID-19 continues to kill and have a greater severity than other respiratory viruses. In 2024 there have 12 been confirmed deaths from COVID-19 in PPH (396 in Ontario) to-date and in 2023 there were 35 deaths (2,063 in Ontario). By comparison, there has been one confirmed outbreak-related death from influenza to-date in 2024.

The provincial decision to discontinue funding for wastewater surveillance comes at the same time that the province is also shutting down the Case and Contact Management (CCM) surveillance tool provincially, which will mean that we will lose individual case count data for COVID-19. Therefore, the importance and relevance of wastewater surveillance data is more important.

Locally, wastewater surveillance has been an exemplary collaboration with Trent University and has been led by Professor Christopher Kyle. The Trent University partnership has been nationally and globally innovative, leading important research work that had not only local implications for the COVID-19 pandemic, but has resulted in internationally relevant research output with a [peer reviewed publication in Canada's national journal](#) and additional research outputs anticipated.

For the community of the Peterborough Public Health region since the Omicron wave of COVID-19 in 2021, individual-level testing has not been feasible and accessible. For this reason wastewater has been the primary indicator of community transmission of COVID-19 and other respiratory viruses. In the last 3 months the COVID-19 Risk Index, which primarily relies on wastewater data, has been the most visited page within the Peterborough Public Health webpage (4,952 distinct views) and the mailing listserve with the weekly Risk Index update has 787 subscribers. Beyond individual-level use, we have been informed that many community organizations and institutions rely on the Risk Index to establish guidance for respiratory virus precautions. On June 5<sup>th</sup> 2024, Peterborough Public Health issued a short survey to ask how many people in our region still use the wastewater information from the Risk Index, and how they use it. In 48 hours, 179 individuals indicated they still find the information useful. Key comments included,

- “I used to waste water numbers to assess my risk when I’m attending events... It has allowed me to get back to living life relatively normally.”
- “Unfortunately, in Ontario we have not been left with any other risk mitigation for COVID and so wastewater data is really important.”
- “Just today there was a news story about a summer surge in the newest covid variant and that wastewater monitoring was used as an essential indicator. Several days after an increase in wastewater levels, case numbers go up. It's an early warning system for people so they can take appropriate action.”

The provincial decision to cut funding early to this program, and not further renew funding on an annual basis comes as a surprise to the public health community, who believes that wastewater surveillance would be an established function on a long-term basis. Although there does appear to be some possibility of funding that may continue at a federal level for certain large urban sites (e.g., Toronto, Ottawa), Peterborough and rural sites do not appear to be in the scope of the forthcoming federal program. We additionally understand that no confirmation has yet happened with the federal program, and that there may be service interruption and/or reporting delays associated with a local program.

It would be a great loss to local infrastructure and capacity to support wastewater surveillance, in particular with the introduction of new infectious disease threats for the program to not continue. The tracking of mpox and polio were recent examples of its use in detecting emerging infectious diseases, and with H5N1 transmission readily in the United States, there is an immediate possibility of needing wastewater surveillance on a novel entity. This will continue to be the case on an ongoing basis, and one of, if not the most, important mechanisms of public health surveillance, particularly in a cost-effective community snapshot manner.

Trent University’s Professor Christopher Kyle has expressed willingness to continue this program and service to the community, on a cost-recovery basis if there were to be local funding by Peterborough Public Health to continue to support the continued work.

### **STRATEGIC DIRECTION**

This recommendation aligns with the PPH Strategic Plan:

- *“Ensure a strong, collaborative, and sustainable health system and public health response to the COVID-19 pandemic and future emerging/re-emerging disease threats.”*

### **ATTACHMENTS**

- a. [Trent University Wastewater Surveillance Proposal](#)

## **ATTACHMENT A: Trent University Wastewater Surveillance Proposal**

**Background:** Peterborough Public Health (PPH), in concert with Trent University (Trent), has been providing detailed wastewater surveillance information to Peterborough and surrounding areas since December 2020. Trent's wastewater surveillance has proven a useful tool in assessing and anticipating viral dynamics as illustrated in tracking SARS-CoV-2, influenza and respiratory syncytial virus (RSV), while also establishing local infrastructure relevant to testing other emerging pathogens at the community level. Wastewater surveillance, as presented in online tracking via PPH's Community Risk Index and direct reports to surveyed congregate settings, allowed individuals to make informed choices about their personal health and empowered PPH's data-driven public health messaging.

Trent's program has evolved throughout the past 4 years; initially, SARS-CoV-2 surveillance included Peterborough and Belleville communities via wastewater treatment plants (WWTP) and direct sampling at Trent University/Fleming College residences and 4 cumulative retirement homes. Surveillance expanded to include additional pathogens (RSV and influenza) and facilities (two additional long-term care facilities and WWTPs in: Norwood, Havelock, Lakefield and Millbrook). Resulting data was shared with health care providers through a collaborative Ontario network and via the PPH Community Risk Index webpage. Currently, Trent's surveillance includes: Belleville, Peterborough, and Millbrook WWTP samples and 6 congregate living facilities (4 retirement homes, 2 long-term care) that are sampled 3-5 times per week, providing SARS-CoV-2, RSV and influenza data within 24-36 hours after sampling. Trent has also developed assays for other enteric pathogens including: norovirus GI and GII, rotavirus as well as parainfluenza and other coronaviruses. All funding for this program, provided by the Ministry of the Environment, Conservation and Parks, ends as of July 31, 2024.

**What we can do:** Trent's wastewater surveillance program has adapted to the needs of the community and PPH and has been an asset to the local collaborative network. In-city testing and direct contact with personnel yields quality and timely data reporting, with the capacity to perform and develop broad-spectrum assays tailored to the changing needs of the community. As an example, Trent was able to quickly pivot and screen for MPox (that was locally detected) as the timely need arose in the Peterborough community.

**Proposal:** In order to provide high quality public health information and data, two targeted surveillance scenarios with 2 differing cost models are provided, focussing on the Peterborough wastewater treatment plant alone. **Surveillance would include:** SARS-CoV-2, RSV, influenza, controls, assuming an approximate average cost of \$250/sample.

### **Scenario 1: Full year**

**Coverage:** 50 weeks

**Pricing:** samples collected 3-5 times per week for 50 weeks, starting Aug. 1, 2024, = **\$62,500**

**Scenario 2: Seasonal**

**Coverage:** 25 weeks (mid Sept-mid March)

**Pricing:** samples collected 3-5 times per week for 25 weeks = **\$31,250**

**Supplemental Information:**

Costing Context - historically, other municipalities/facilities have paid \$500/sample (and up to \$1000/sample) for private lab testing. Over the past two years, Trent has created a cost-effective assay that simultaneously tests for the aforementioned pathogens allowing for reduced cost/sample.

Additional pathogens we can currently test for: Parainfluenza 1,2,3,4, human metapneumovirus, other coronaviruses (HCoV OC43, HCoV-229e; HCoV NL63; HCoV HKU1); enterovirus/rhinovirus, norovirus GI and GII and rotavirus.