

INFORMATION REPORT

TO:	Mayor and Members General Issues Committee
COMMITTEE DATE:	March 22, 2023
SUBJECT/REPORT NO:	Assessment of Illness Linked to the Chedoke Creek Sewage Spill (BOH23009) (City Wide) (Outstanding Business List Item)
WARD(S) AFFECTED:	City Wide
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SIGNATURE:	

COUNCIL DIRECTION

Report 19-024 of the November 20, 2019 meeting of the General Issues Committee, and its subsequent amendment Report 19-021 of the November 27, 2019 and November 28, 2019 Council meetings, contained the following direction:

Item 8.0 Potential Litigation Update (Confidential Item 14.3)

- (f) That Public Health be directed to immediately identify, assess and report back on:
 - (i) any health-related incidents associated with exposure to contaminated waterways in the Chedoke Creek and Cootes Paradise; and,
 - (ii) hospital and clinic data and public health notifications for any unusual illnesses reported since January 2014 that may be the result of bacterial contamination related to the discharge storm water runoff and sanitary sewage into Chedoke Creek and Cootes Paradise;

This information report details the response to the above direction and General Issues Committee Outstanding Business List Item G.

INFORMATION

Background

In July 2018, the City of Hamilton discovered that the Main-King combined sewer overflow (CSO) tank was discharging untreated wastewater into Chedoke Creek. An investigation determined that a bypass gate in the CSO tank that should have been in the closed position appears to have been manually opened to approximately five percent on January 28, 2014 and remained open until the source was discovered on July 18, 2018. The City estimates approximately 24 billion litres of storm water runoff and sanitary sewage was discharged into Chedoke Creek during the time that the gate was open. Initial clean up at Chedoke Creek was completed in August and tests showed a substantial improvement in water quality including a decrease in E.coli bacterial levels.

As per Council's direction, Hamilton Public Health Services has completed an assessment to determine whether any changes in gastrointestinal and waterborne illness in the City of Hamilton population were associated with the Chedoke Creek spill. The results of this assessment are summarized below.

Assessment 1: Exposures to Chedoke Creek and adjoining waterways

Diseases of public health significance (i.e., reportable diseases) listed under *Ontario's Health Protection and Promotion Act* are required to be reported to the local Medical Officer of Health. In response, staff at the applicable local public health unit will investigate and manage these reported cases. As part of this process, persons reported to be infected with a gastrointestinal or waterborne illness are interviewed to determine possible sources (exposures) from where the case may have acquired their infection. This information is documented into the provincial Integrated Public Health Information System (iPHIS). Records of reported cases residing in Hamilton were extracted from the iPHIS database and reviewed for any documented exposures to Chedoke Creek and adjoining waterways.

In total 10,307 exposure records were reviewed for cases of gastrointestinal and waterborne diseases reported to Hamilton Public Health Services between January 1, 2014 and December 31, 2021. All records were searched for any documented exposures to Chedoke Creek and adjoining waterways. Overall, there was only one exposure record found for a case who reported contact with water from an adjoining waterway of Chedoke Creek in 2020, two years after the sewer gate was closed and the initial clean-up had been completed. However, the actual cause of this infection is unclear as the case also reported other exposures that could have been responsible for their infection.

Assessment 2: Changes in gastrointestinal and waterborne disease trends

This assessment used data from two sources (reported cases to public health and emergency department visits) to assess gastrointestinal and waterborne disease trends in the City of Hamilton population from January 1, 2010 to December 31, 2021 (for reference, the Chedoke Creek spill occurred continuously from January 28, 2014 to July 18, 2018, with the initial clean up being completed in August 2018). The gastrointestinal and waterborne diseases from each data source that were included in this assessment are shown below:

1. Reportable Diseases from the Integrated Public Health Information System (iPHIS); and,

- Cryptosporidiosis;
- Cyclosporiasis;
- Amebiasis;
- Listeriosis;
- Campylobacter enteritis;
- Giardiasis;
- Shigellosis;
- Salmonellosis;
- E. coli;
- Hepatitis A;
- Yersiniosis;
- Typhoid fever; and,
- Food poisoning, all causes.

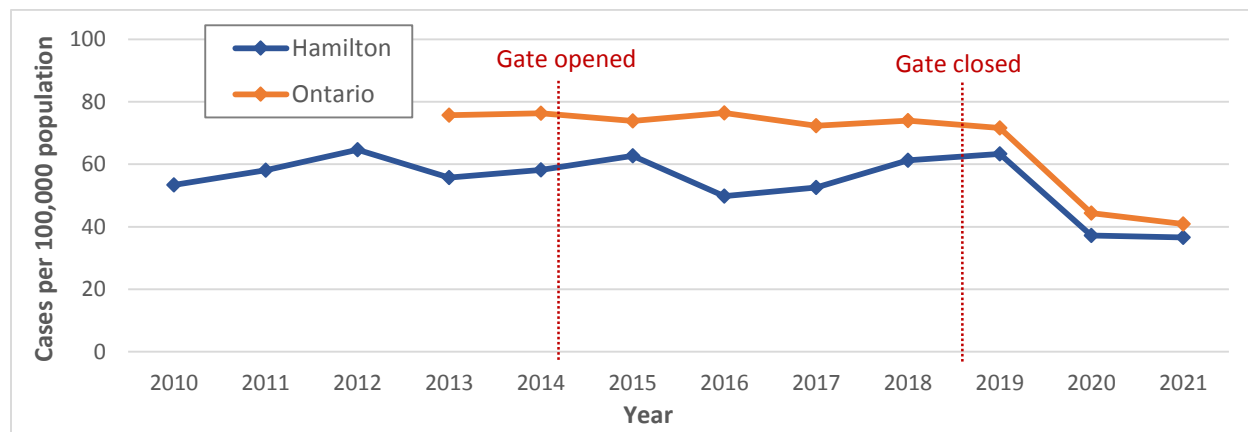
2. Emergency Department Visits from the National Ambulatory Care Reporting System (NACRS):

- Typhoid and paratyphoid fevers;
- Other Salmonella infections;
- Shigellosis;
- Other bacterial intestinal infections;
- Other bacterial foodborne intoxications, not elsewhere classified;
- Amebiasis;
- Other protozoal intestinal diseases;
- Viral and other specified intestinal infections; and,
- Other gastroenteritis and colitis of infectious and unspecified origin.

The results of the assessment of reportable gastrointestinal and waterborne infections from the public health database (iPHIS) are shown in Figure 1 (below). The annual rate of these reportable diseases had a relatively consistent level from 2010 to 2019, consistent with provincial trends. These results indicate that reportable gastrointestinal and waterborne diseases did not increase during the period of the Chedoke Creek spill

relative to the period before the spill. In addition, there was no decrease in the rate of these reportable diseases in 2019 after the sewer gate was closed and the initial clean-up was completed. There was, however, a decrease in the rate of these reportable diseases in 2020 and 2021 but this has been attributed to the COVID-19 pandemic.

Figure 1. Annual Rate of Reportable Gastrointestinal and Waterborne Disease Cases (Probable or Confirmed) in the City of Hamilton, 2010-2021.

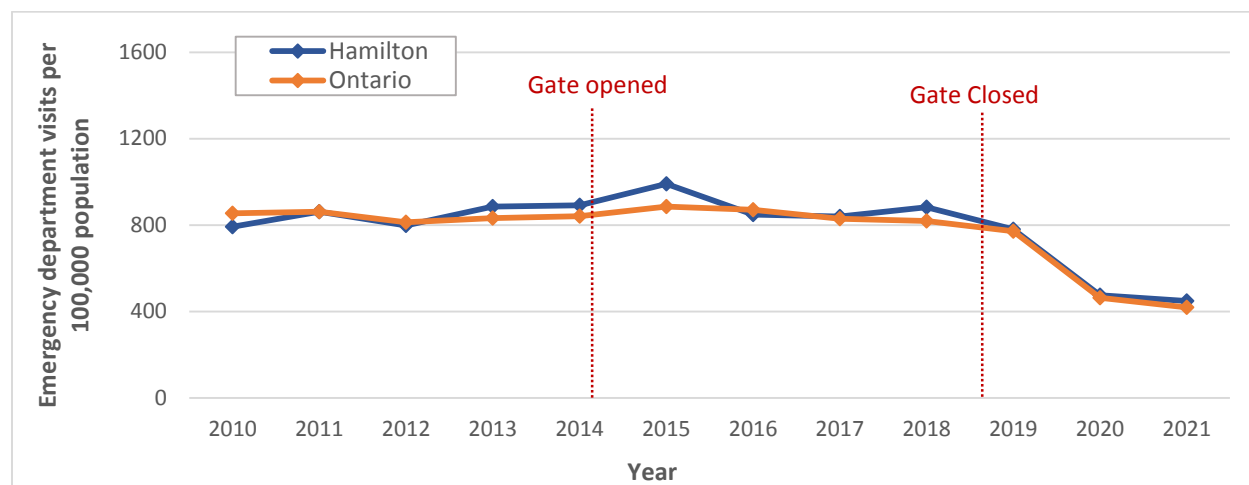


Sources: Integrated Public Health Information System [2010-2021], Extracted: [5 Jan 2023]; Public Health Ontario Infectious Disease Query Tool [2013-2021], Extracted: [17 Jan 2023]; Statistics Canada. Table 17-10-0139-01 Population estimates, July 1, by census division, 2016 boundaries.

Note: At the time of this assessment, provincial data was only available from 2013 and onwards.

The results of the assessment of gastrointestinal and waterborne illness from the emergency department (ED) database are displayed in Figure 2 (below). The rate of ED visits for gastrointestinal and waterborne illness were relatively stable from 2010 to 2019 and Hamilton's rates were similar to the provincial rates during this period. These results indicate there were no unusual trends in the rate of ED visits for gastrointestinal and waterborne illness from 2010 to 2019. These ED rates in Hamilton and Ontario did see a decrease in 2020 and 2021 but again, this has been attributed to the COVID-19 pandemic.

Figure 2. Rate of Emergency Department (ED) Visits due to Gastrointestinal and Waterborne Illness in the City of Hamilton and Ontario, 2010-2021.



Sources: Ambulatory Emergency External Cause [2010-2021], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [5 Jan 2023]; Statistics Canada. Table 17-10-0139-01 Population estimates, July 1, by census division, 2016 boundaries.

Conclusion

Overall, the available data indicates that the Chedoke Creek spill did not result in an increase in gastrointestinal and waterborne illness among Hamiltonians.

APPENDICES AND SCHEDULES ATTACHED

Not Applicable.