Rapid Assessment of Cancer Rates in Joshua Creek

What is the purpose of this document?

There have been concerns raised on social media about cancer rates in the Joshua Creek area of Oakville.

Halton Region Public Health, in consultation with Public Health Ontario and Ontario Health (Cancer Care Ontario), has prepared this summary on cancer rates in Joshua Creek.

Mortality (death) data have been included in this document because in Ontario, local Public Health Units like Halton Region Public Health have access to Vital Statistics data to monitor trends in deaths, based on death certificate information. This allows Halton Region Public Health to calculate mortality rates for areas like Oakville and Joshua Creek. However, local Public Health Units do not have access to cancer incidence data at smaller area levels. Public Health will update this document when additional information is received from Ontario Health (Cancer Care Ontario) on cancer incidence for the Joshua Creek area and Oakville.

The available data demonstrate that there is **not a greater than expected rate of cancer deaths** within the Joshua Creek area.

What is cancer?

Cancer refers to a collection of diseases in which cells of the body begin dividing uncontrollably, forming abnormal growths called tumours. Unlike benign (non-cancerous) tumours that stay in one place in the body, malignant (cancerous) tumours invade surrounding tissues. Cancer can occur almost anywhere in the body.

What causes cancer?

Most cancers seem to be caused by a complex mix of many risk factors. A risk factor is a substance or condition that increases the risk of developing cancer. Examples include:

- getting older
- smoking
- not protecting oneself from the sun
- having certain genetic changes
- being overweight or obese
- not having a healthy diet
- not getting enough physical activity
- drinking alcohol
- contact with harmful chemicals at home or at work
- having certain types of infections

In general, the more often and the longer a person is in contact with a risk factor, the greater the chance that cancer will occur.[1] It can then take many years for cancer to develop.

Unlike age and family history, people have control over certain risk factors such as smoking, sun exposure, inactivity, alcohol consumption, and diet. About 4 in 10 cancer cases can be prevented through healthy living and policies that protect the health of Canadians.[2]

To find out more about cancer risk factors, please visit the Canadian Cancer Society's Prevention statistics page.

How common is cancer?

Cancer is more common than most people think. Ontario Health (Cancer Care Ontario) estimates that **one in two** Ontario residents will be diagnosed with cancer in their lifetime, and **one in four** Ontarians will die from cancer.[3]

Since cancer is common, almost everyone will know one or more people with cancer.

To find out more about your personal risk of cancer, please visit MyCancerIQ.

For more information about cancer in Halton Region, please read the 2023 Halton Region Cancer Report.

Understanding cancer data

A cancer **incidence** rate refers to the number of new cases of cancer diagnosed in a specific population during a defined period of time. A cancer **mortality** rate refers to the number of people who died from cancer in a specific population during a defined period of time.

Age-standardized incidence rates (ASIRs) and **age-standardized mortality rates (ASMRs)** are used to compare rates between different populations. Incidence and mortality rates are standardized to the 2011 Canadian population. Standardization ensures that any differences in rates observed between populations are not due to differences in the age structure of the populations. Age-standardized rates do not represent the actual incidence or mortality rates in the population, but rather what the rates would be in the year used for standardization, enabling comparisons between populations despite differences in their age structures. Comparing age-standardized incidence and mortality rates allows for the most accurate conclusions about whether cancer cases or deaths are more common in one population than another.

When there is a small number of cancer cases or deaths in a population, rates will naturally fluctuate more than when there is a higher number of cases or deaths. For example, if there are two deaths in one year, and four deaths in a subsequent year within a population of the same size, this represents a doubling in the mortality rate. Although the rate has doubled, the actual number of deaths has changed very little, and likely reflects natural fluctuation. An example is shown in Figure 1, using data for illustrative purposes only. Although the number of deaths increased only mildly in this small population between Year 1 (two deaths) and Year 2 (four deaths), and went back down again in Year 3 (two deaths), the rate doubled because of low numbers. In a larger population with more deaths, a similarly minor change in the number of deaths would result in little to no difference in the rate.

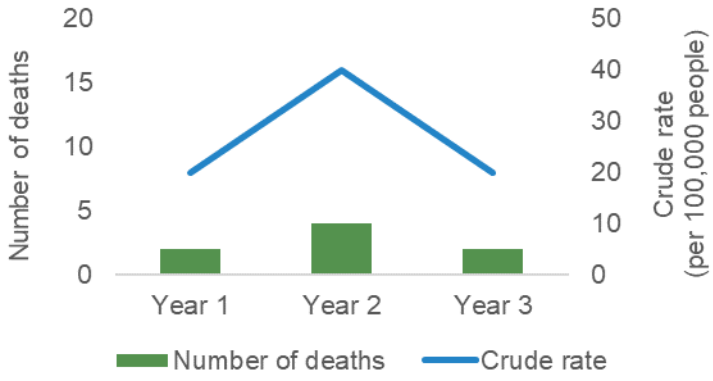
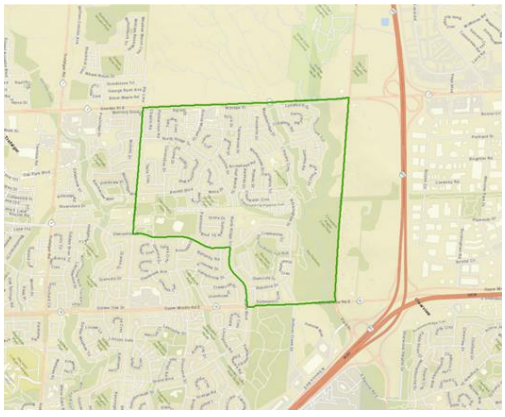


Figure 1: Death counts and crude mortality rates over three years, for illustrative purposes only

The Joshua Creek area of Oakville

Joshua Creek is an area in the Town of Oakville. The Town of Oakville is located within Halton Region, Ontario.

As of the 2021 Census, the Joshua Creek area was home to 10,763 residents. As the Joshua Creek area is a relatively new area that experienced notable population growth beginning in the mid-2000s (i.e., starting between 2001 and 2006), it is not meaningful to look at cancer-related data for the area prior to that time.



Even with its recent population growth, Joshua Creek remains a small community, with a much lower number of cancer cases and deaths each year compared to Oakville, Halton, and Ontario. This means there will be more variability in ASIRs and ASMRs for Joshua Creek when compared to these larger areas. To help provide more reliable estimates, several years of data have been grouped together. However, ASIRs and ASMRs will remain highly variable for Joshua Creek due to its small size.

Cancer incidence rates

Age-standardized incidence rates for all cancers, Ontario, Halton, Oakville, and Joshua Creek, 2007-2021

The Ontario Cancer Registry (OCR) is the main data source for information on cancer diagnoses among Ontario residents. Ontario Health (Cancer Care Ontario) maintains the OCR. Safeguarding confidential information is a guiding principle for Ontario Health (Cancer Care Ontario). All activities – from the initial registration of a new cancer case in the OCR, through to research and reporting – are governed by the Personal Health Information Protection Act, 2004.[4] This Ontario law governs the collection and use of data, and the disclosure of personal health information. The act designates Ontario Health as a *prescribed entity* and authorizes the organization to collect, use and disclose personal health information for the purposes of managing and planning Ontario's health system. Hence, local Public Health Units, including Halton Region Public Health, do not have access to data from the OCR other than from existing reports and tools. Therefore, for smaller areas such as Joshua Creek, data requests must be made to Ontario Health.

Halton Region Public Health has submitted a data request to Ontario Health (Cancer Care Ontario) for cancer incidence statistics for the Joshua Creek area and the Town of Oakville. As of the time of writing this report, Ontario Health is reviewing the request to prepare and disclose cancer incidence statistics for the area and town.

Cancer mortality rates

Age-standardized mortality rates for all cancers, Ontario, Halton, Oakville, and Joshua Creek, 2017-2021 combined

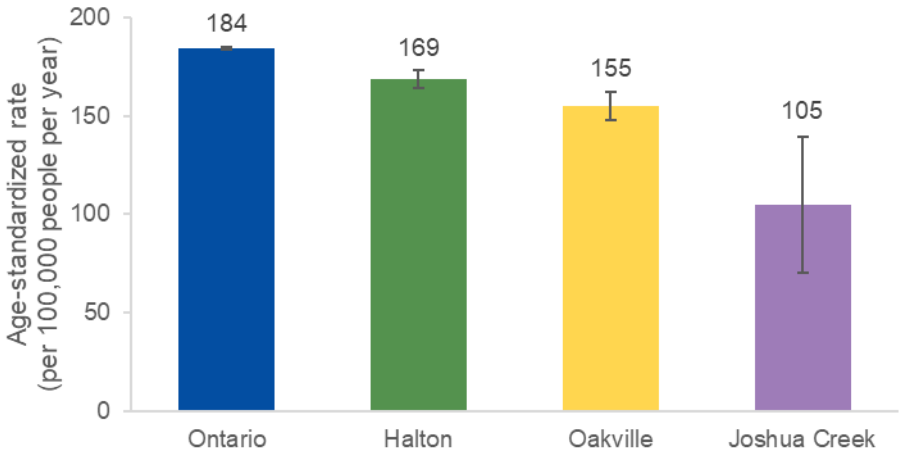


Figure 2: Age-standardized mortality rate per 100,000 people per year for all cancers, Ontario, Halton, Oakville, and Joshua Creek, 2017-2021
Sources: Vital Statistics: Ontario Mortality Data 2017-2021, Ontario Ministry of Health and Long-Term Care: IntelliHEALTH ONTARIO, date extracted: Nov 01, 2024. Population: Statistics Canada, 2021 and 2016 Census of Population.

Key Findings

- In 2017-2021 combined, the ASMR for all cancers was lowest in Joshua Creek, followed by Oakville, Halton, and Ontario.

Age-standardized mortality rates for all cancers, Ontario, Halton, Oakville, and Joshua Creek, 2007-2021

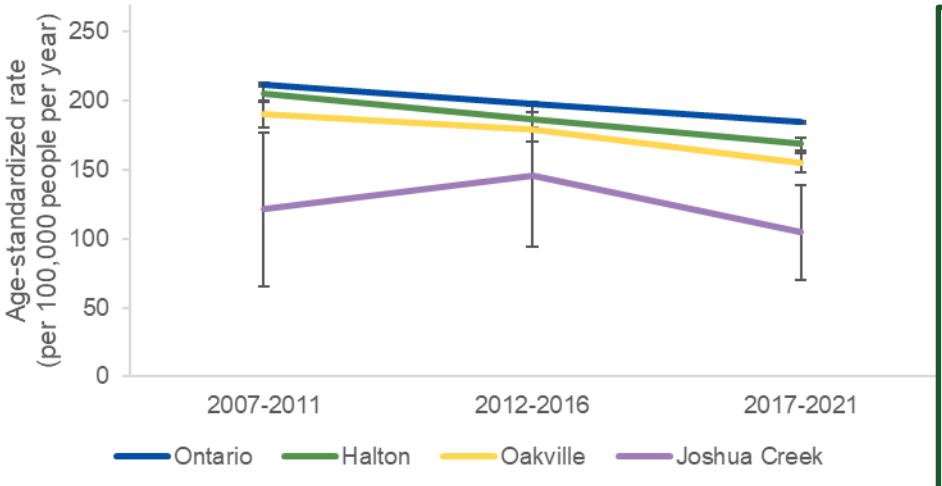


Figure 3: Age-standardized mortality rate per 100,000 people per year for all cancers, Ontario, Halton, Oakville, and Joshua Creek, 2007-2011, 2012-2016, and 2017-2021
Sources: Vital Statistics: Ontario Mortality Data 2007-2021, Ontario Ministry of Health and Long-Term Care: IntelliHEALTH ONTARIO, date extracted: Nov 01, 2024. Population: Statistics Canada, 2021, 2016, 2011, and 2006 Census of Population.

Key Findings

- The ASMR in Joshua Creek was lower than or similar to the ASMR in Ontario for every time period.
- The ASMR in Halton and Ontario decreased between 2007-2011, 2012-2016, and 2017-2021.
- In Oakville, there was no change in the ASMR between 2007-2011 and 2012-2016, followed by a decrease in 2017-2021.
- In Joshua Creek, there was no difference in the ASMR between 2007-2011, 2012-2016, and 2017-2021. The observed variability is expected given the small numbers involved; the number of deaths did not exceed 39 in any time period.

Technical notes

Data sources

- Data source for mortality rates: Vital Statistics: Ontario Mortality Data 2007-2021, Ontario Ministry of Health and Long-Term Care: IntelliHEALTH ONTARIO, date extracted: Nov 01, 2024.
- Data source for population denominators: Statistics Canada, 2021 Census of Population; Statistics Canada, 2016 Census of Population; Statistics Canada, 2011 Census of Population; Statistics Canada, 2006 Census of Population.

Data notes

- All differences described in this document are statistically significant. Statistical significance was determined by non-overlapping 95% confidence intervals for population-specific age-standardized rates. 95% confidence intervals are represented graphically through error bars surrounding the rate. The wider the error bars, the greater the variability of the rate.
- All age-standardized rates were standardized to the 2011 Canadian population.
- 2021 Census data was used as population estimates for years 2019, 2020, and 2021; 2016 Census data was used as population estimates for years 2014, 2015, 2016, 2017, and 2018; 2011 Census data was used as population estimates for years 2009, 2010, 2011, 2012, and 2013; 2006 Census data was used as population estimates for years 2007 and 2008.
- Cancer deaths included deaths with a primary cause that included the following ICD-10 codes: C00-C97.

References

1. Canadian Cancer Society. (2024). *What causes cancer?* https://cancer.ca/en/cancer-information/what-is-cancer/what-causes-cancer
2. Canadian Cancer Society. (2024). *Prevention statistics*. https://cancer.ca/en/research/cancer-statistics/prevention-statistics
3. Ontario Health (Cancer Care Ontario). (2022). *Ontario cancer statistics 2022: Key findings.* https://www.cancercareontario.ca/en/data-research/view-data/statistical-reports/ontario-cancer-statistics-2022/key-findings-2022
4. Government of Ontario. (2004). *Personal Health Information Protection Act, 2004, S.O. 2004, c. 3, Sched. A.*