POPULATION HEALTH STATUS INDICATORS:
PRETERM BIRTHS

Public Health Relevance

Preterm birth, defined as a birth before 37 completed weeks of pregnancy, is the leading cause of death among newborns and infants in industrialized countries. Preterm birth is also associated with higher risks of long term health problems such as cerebral palsy, hearing loss, and intellectual disabilities.

Known risk factors for preterm birth include multiple birth pregnancies (i.e., twins, triplets, etc.), history of preterm birth, certain infections during pregnancy, chronic health problems in the mother, as well as smoking, alcohol use, and illicit drug use during pregnancy.

Highlights

1. The preterm birth rate in Toronto remained relatively stable from 2007 to 2016. In 2016, Toronto's preterm birth rate was 8.7%.

2. In 2016, Toronto's preterm birth rate was higher than the rest of Ontario.

3. There was a cluster of neighbourhoods with higher preterm birth rates located in the northwest area of the city.

4. The majority of preterm babies in Toronto were moderate or late preterm.

5. There were no significant differences in the preterm birth rate across income quintiles.

Trends Over Time

The preterm birth rate in Toronto remained relatively stable from 2007 to 2016. In 2016, Toronto's preterm birth rate was 8.7%.

Figure 1 shows the preterm birth rate (number of preterm births per 100 live births) in Toronto from 2007 to 2016.

The preterm birth rate remained relatively stable during this ten year period. On average, approximately 8 of every hundred babies were born preterm each year. The preterm birth rate in 2016 was 8.7%.

Figure 1: Preterm Birth Rate, Toronto, 2007 to 2016
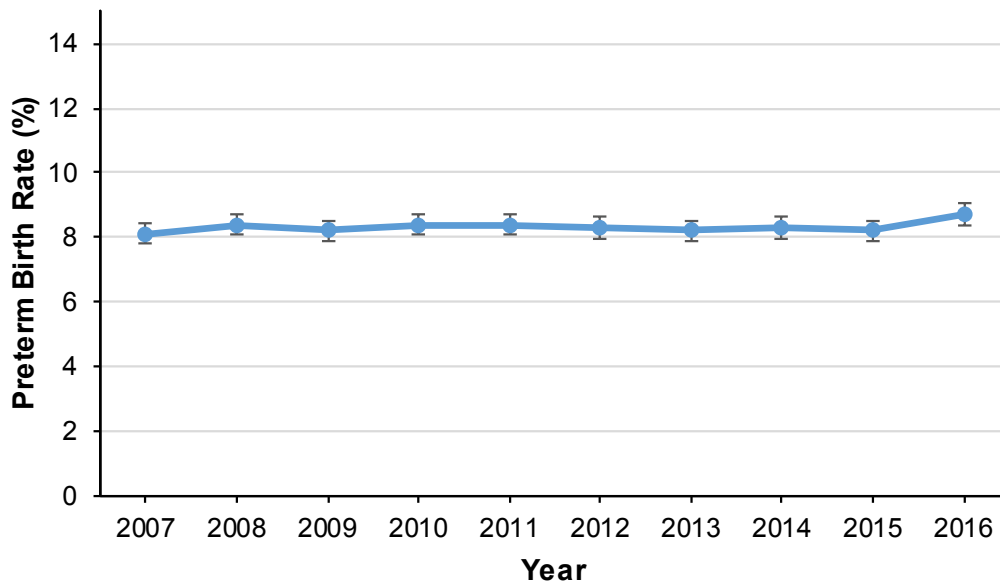
Error bars (I) represent 95% confidence intervals.

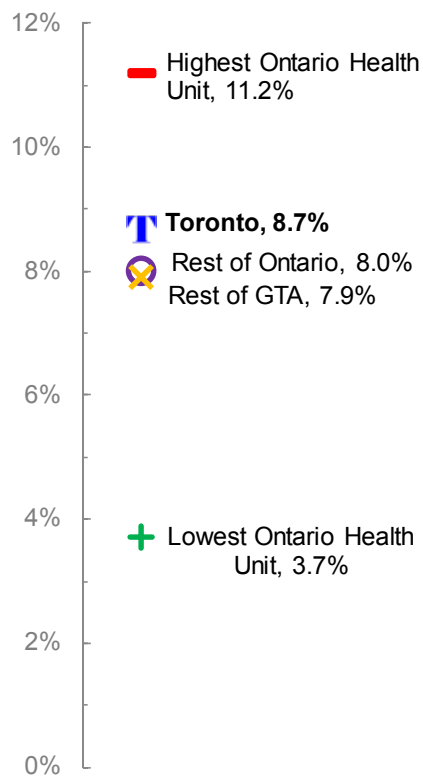Data Source: Public Health Ontario Snapshot, see Data Notes for details.

Regional Comparisons

In 2016, Toronto's preterm birth rate was slightly higher than the rest of Ontario.

Figure 2 shows the preterm birth rate for Toronto in 2016, compared to the rest of Ontario (Ontario excluding Toronto), the rest of the Greater Toronto Area (GTA excluding Toronto), and the Ontario health units with the highest and lowest rates.

The preterm birth rate for Toronto was slightly higher than the rest of Ontario and the rest of the GTA. Toronto ranked 8th of the 36 health units in Ontario with the first ranked health unit having the highest rate.

Figure 2: Preterm Birth Rate, Toronto Compared to Selected Regions in Ontario, 2016

Data Source: Public Health Ontario Snapshot, see Data Notes for details.

Neighbourhood Comparisons

There was a cluster of neighbourhoods with higher preterm birth rates located in the northwest area of the city.

Map 1 shows preterm birth rate by Toronto neighbourhood for 2015 and 2016 combined. The preterm birth rate ranged from 3.8% to 16.0% across the 140 neighbourhoods in Toronto. There was a cluster of neighbourhoods with higher preterm birth rates located in the northwest area of the city.
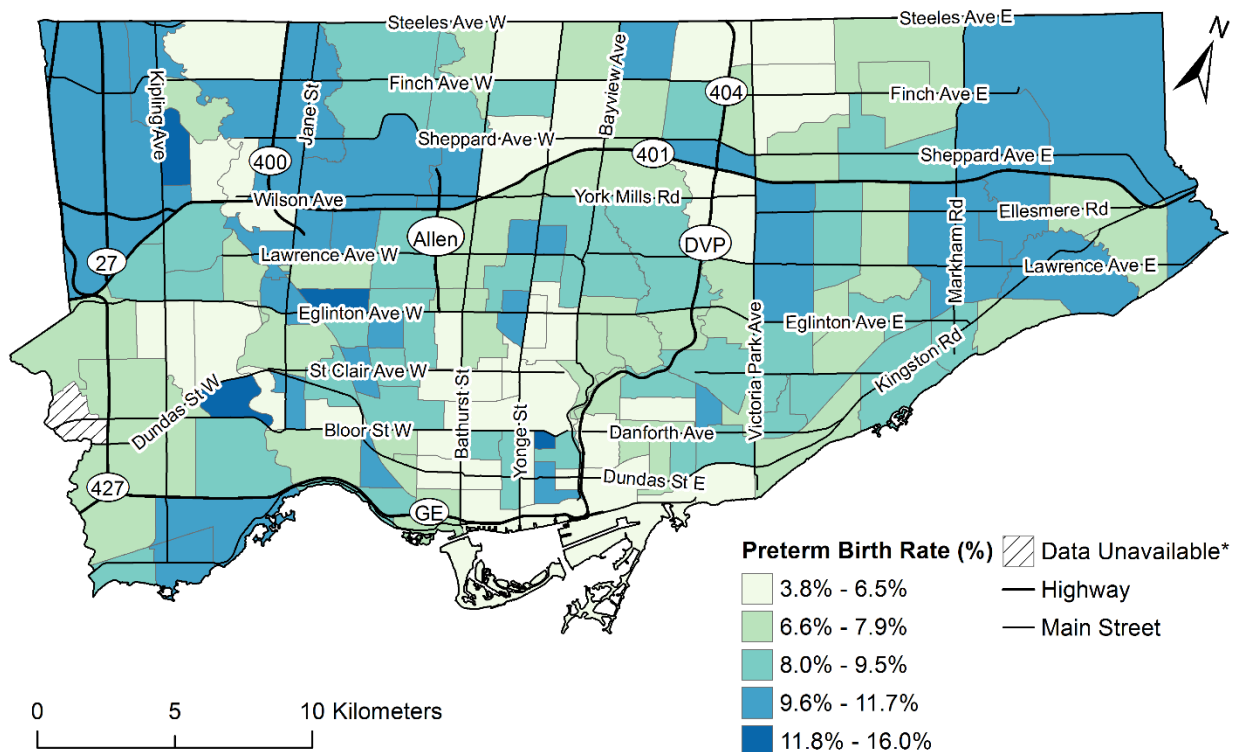
Some neighbourhoods with higher preterm birth rates than the city overall included:

- Beechborough/Greenbrook
- Glenfield-Jane Heights
- Malvern
- North St. Jamestown
- Rouge
- Woburn

Some neighbourhoods with lower preterm birth rates than the city overall included:

- L'Amoureaux
- Mount Pleasant West
- Newtonbrook West
- Palmerston-Little Italy
- Steeles
- Willowdale East

Map 1: Preterm Birth Rate, by Neighbourhood, Toronto, 2015 and 2016 Combined

Preterm Birth Rate (%)

- 3.8% - 6.5%
- 6.6% - 7.9%
- 8.0% - 9.5%
- 9.6% - 11.7%
- 11.8% - 16.0%

Data Unavailable*
Highway
Main Street

* Neighbourhoods with counts of fewer than six are suppressed.
Copyright © 2018. City of Toronto. All Rights Reserved.

Data Source: BORN Ontario, see Data Notes for details.

Table 1 shows the preterm birth rate by Toronto Public Health's Child Health and Development Service Delivery Areas (SDAs). In 2016, The Northeast SDA had a lower preterm birth rate than the rate for Toronto as a whole.

Table 1: Preterm Birth Rate, by Service Delivery Area*, Toronto, 2016

Service Delivery Area	Low Birth Weight Rate
West	9.0%
Northwest	8.8%
Southwest	8.3%
Northeast	7.1% ᴸ
Southeast	7.9%
East	9.3%

ᴸ Significantly lower than the Toronto total.

* Toronto Public Health's service delivery areas for Child Health and Development.

Data Source: see Data Notes.

Socio-demographics

The majority of preterm babies in Toronto were moderate or late preterm. There were no significant differences in the preterm birth rate across income quintiles.

Just over 2,500 Toronto babies were born preterm in 2016. Tables 2, 3, and 4 show the distribution of these babies and the preterm birth rate by selected birth characteristics for Toronto in 2016.

There was a significant difference in the preterm birth rate between sexes with a higher rate in male babies than in female babies.

The preterm birth rate was significantly higher for multiple births than for singleton births. Although babies from multiple births are at higher risk for preterm birth, these babies represented less than a quarter (23%) of all preterm babies in 2016; the majority of preterm babies were singletons (77%).

The vast majority (84%) of preterm babies were born between 32 and 36 weeks (moderate or late preterm).

Table 2: Distribution of Preterm Births and Preterm Birth Rate by Sex, Toronto, 2016

Newborn Sex	Preterm Births	Total Births	Preterm Birth Rate
Female	1,128	14,788	7.6%
Male	1,450	15,869	9.1% [H]

[H] Significantly higher than the preterm birth rate for female newborns.
Data Source: BORN Ontario, see Data Notes for details.

Table 3: Distribution of Preterm Births and Preterm Birth Rate by Singleton versus Multiple Birth, Toronto, 2016

Singleton vs Multiple	Preterm Births	Total Births	Preterm Birth Rate
Singleton	1,995	29,644	6.7%
Multiple	584	1,032	56.6% [H]

[H] Significantly higher for than the preterm birth rate for singletons.
Data Source: BORN Ontario, see Data Notes for details.

Table 4: Distribution of Preterm Births by Gestational Age, Toronto, 2016

Gestational Age	Preterm Births
Less than 28 weeks (extremely preterm)	201
28 to less than 32 weeks (very preterm)	214
32 to less than 37 weeks (moderate/late preterm)	2,164

Data Source: BORN Ontario, see Data Notes for details.

Table 5 shows the preterm birth rate by income quintile for Toronto in 2016. Quintile 1 contains the areas in Toronto with the highest percent of people living below the low income measure (LIM), making it the lowest income quintile. Quintile 5 contains the areas in Toronto with the lowest percent of people living below the LIM, making it the highest income quintile.

There were no significant differences in the preterm birth rate across income quintiles.

Table 5: Preterm Birth Rate, by Income Quintile, Toronto, 2016

Income Quintile	Preterm Birth Rate
Quintile 1 (Lower income)	8.6%
Quintile 2	8.0%
Quintile 3	9.3%
Quintile 4	8.2%
Quintile 5 (Higher income)	7.8%

Data Source: BORN Ontario, see Data Notes for details.

Data Notes

Notes

- Significant differences were estimated using overlapping confidence intervals. Although this method is conservative ($\alpha < 0.01$) and most appropriate when comparing mutually exclusive groups, it was chosen as an objective means of making conclusions on population-based data. Also note that the multiple comparisons performed in the analysis were not taken into consideration when choosing the level of significance to test.

- Data used for the regional comparisons normally shows the rates for the Ontario health units with the highest and the lowest rates. The purpose of these comparisons is to show the rate for Toronto relative to other areas in Ontario.

- Toronto is compared to Ontario excluding Toronto and to the Greater Toronto Area (GTA) excluding Toronto rather than to Ontario and the GTA including Toronto because Toronto comprises such a large proportion of these two areas. Excluding Toronto therefore results in more meaningful comparisons.

- Map 1 is based on two years of data combined in order to obtain sufficient number of preterm births for analysis at the neighbourhood level. By combining multiple years of data, changes over time in and between geographical areas may be hidden.

- Totals in Tables 2, 3, and 4 may not match the overall total because analyses excluded birth records with missing information. Similarly, Tables 1 and 5 and Map 1 excluded birth records that could not be linked to a Toronto census tract or neighbourhood.

- Neighbourhoods identified as having significantly higher or lower rates than Toronto as a whole do not necessarily represent all such neighbourhoods. Cut-offs are arbitrary.

- For Map 1, the Natural Breaks (Jenks) classification was used.

- Two different data sources were used to compile this document. PHO Snapshot data included only hospital births while BORN data included both hospital and home births. The two data sources had slightly different inclusion criteria for data analysis. These differences resulted in slightly different estimates of the preterm birth rate for the same time period. See Sources section for more data information

Definitions

95% Confidence Interval is the range within which the true value lies, 19 times out of 20.

Income Quintiles are five groups, each containing approximately 20% of the population. They were created by ranking Toronto's census tracts based on the percent of residents living below the Statistics Canada after-tax Low Income Measure (LIM), using the 2015 income tax filer data. Quintile 1 includes the census tracts with the highest percent of people living below the LIM and is therefore the lowest income quintile. Quintile 5 includes the census tracts with the lowest percent of people living below the LIM, making it the highest income quintile. LIM is an income level set at 50% of the median family income in Canada in a given year, adjusted for household size.

Preterm Birth is defined as a live birth that occurs at less than 37 completed weeks of gestation. Gestational age can be estimated by two methods: 1) using the first day of the mother's last menstrual period (LMP), which assumes a menstrual cycle of 28 days and ovulations occurring on the 14th day; or 2) using early ultrasound measurements. Ultrasound dating is the more accurate method for women with irregular cycles. In the data source used for current analysis, gestational age is recorded in completed weeks and represents the attending physician's best interpretation of all clinical data, which takes into account both the ultrasound- and LMP-based estimates.

Preterm Birth Rate is the number of preterm live births per 100 live births.

Sex defines people based on their biological characteristics, whereas gender is a socially constructed concept. From a social determinants of health perspective, certain health conditions can be associated with gender, and from a biological perspective, health conditions can be associated with sex. Although reporting based on both concepts would be preferable, the data source used here only collects information on sex, and not gender.

Sources

BORN Information System: BORN Ontario. Public Health Cube (2015 to 2016 calendar years). Accessed on January 24, 2018. Note: BORN PHU data are reported using submitted records from the BORN Information System, which may or may not be acknowledged by the submitting hospital. This may lead to potential fluctuations in recent data as hospital sites submit additional records or update existing records prior to the close of each fiscal year. Used in:
- Tables 1 to 5
- Map 1

Income Quintiles: Statistics Canada – Table F-18 annual income estimates for census families and individuals (T1 Family File), 2015. Used in:
- Table 5

PHO Snapshot: Public Health Ontario. Snapshots: Toronto Public Health: Crude preterm birth rate, 2007 to 2016. Toronto, ON: Ontario Agency for Health Protection and Promotion; 2017 Dec 29 [cited 2018 Jan 22]. Available from: http://www.publichealthontario.ca/en/DataAndAnalytics/Snapshots/Pages/Reproductive-Health.aspx Used in:
- Figures 1 and 2

Population Health Status Indicator: Preterm Births

Category: Reproductive Health

Prepared: April, 2018

This indicator report is part of a series that informs the ongoing assessment of Toronto's health status. For a full list of indicators, please go to: www.toronto.ca/health/surveillance