POPULATION HEALTH STATUS INDICATORS:
BIRTH AND FERTILITY

Public Health Relevance

Births represent a primary component of population growth, while fertility reflects the reproductive behaviours and attitudes of reproductive-age individuals. Since birth and fertility trends influence population structure, tracking these trends can inform service planning and delivery by local public health departments.

Two important public health issues in this area are teen births and the trend towards delayed childbearing. Teens and women of advanced maternal age (35 years and older) are at increased risk for pregnancy complications, while babies born to these women have an increased risk of poor birth outcomes and perinatal mortality.

Highlights

1. The general fertility rate gradually decreased in Toronto from 2007 to 2016. There is a trend to delay childbearing with decreasing fertility rates in younger age groups and increasing fertility rates in older age groups.

2. In 2016, Toronto's general and teen fertility rates were lower than the rates in the rest of Ontario. Conversely, Toronto had the highest fertility rate in older women, aged 35 to 49 years, of all Ontario health units.

3. Higher general fertility rates were found in the northwest and southeast parts of the city.

4. There were 30,676 live births to Toronto women in 2016. Lower income areas of the city have higher general and teen fertility rates while higher income areas have higher fertility rates in older women.

Trends Over Time

The general fertility rate gradually decreased in Toronto from 2007 to 2016. There is a trend to delay childbearing with decreasing fertility rates in younger age groups and increasing fertility rates in older age groups.

Figure 1 shows the general fertility rate (number of live births per 1,000 females aged 15 to 49 years) for Toronto between 2007 and 2016. The general fertility rate decreased by 12% during this ten year period, from 44 per 1,000 in 2007 to 39 per 1,000 in 2016.

Figure 1: General Fertility Rate, Females Aged 15 to 49 Years, Toronto, 2007 to 2016
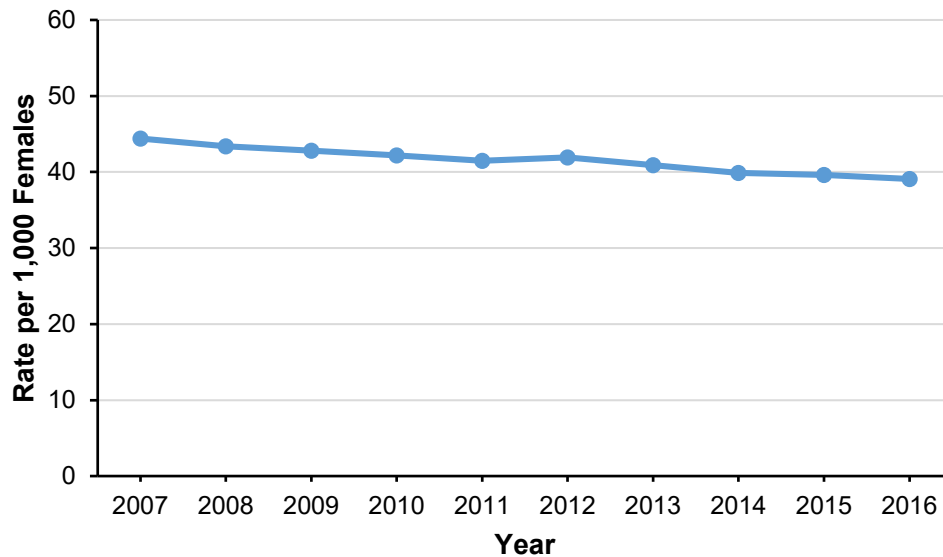
Data Source: Public Health Ontario Snapshot, see Data Notes for details.

Figure 2 shows the number of live births per 1,000 females in five year age groups for Toronto between 2007 and 2016. Over this ten year period there were changes in the age-specific fertility rates, reflecting a trend towards delayed childbearing.

Fertility rates in all age groups under 35 decreased in this ten year period. The rates decreased by:

- 59% among teens (from about 10 to 4 births per 1,000 females).

- 47% among 20 to 24 year olds (from 39 to 20 births per 1,000 females).

- 26% among 25 to 29 year olds (from about 70 to 52 births per 1,000 females).

- 12% among 30 to 34 year olds (from 99 to 87 births per 1,000 females).

Conversely, there was an increase in fertility rates for women aged 40 and older. The rates increased by:

- 21% among 40 to 44 year olds (from about 14 to 17 births per 1,000 females).

- 44% among 45 to 49 year olds (from about 0.9 to 1.3 births per 1,000 females).

Toronto's age-specific fertility rate was highest for females aged 30 to 34 years throughout this time period. Prior to 2010, females aged 25 to 29 had the second highest fertility rate, followed by those aged 35 to 39. In 2010, females aged 35 to 39 surpassed females aged 25 to 29 as the age group with the second highest fertility rate and the gap between these two age groups has continued to widen since then. The trend towards delayed childbearing is further exemplified by the average age of women giving birth, which has increased by approximately one year over a ten-year period from 30.9 years in 2007 to 32.0 years in 2016 (data not shown).

Figure 2: Age-Specific Fertility Rates, Females Aged 15 to 49 Years, Toronto, 2007 to 2016
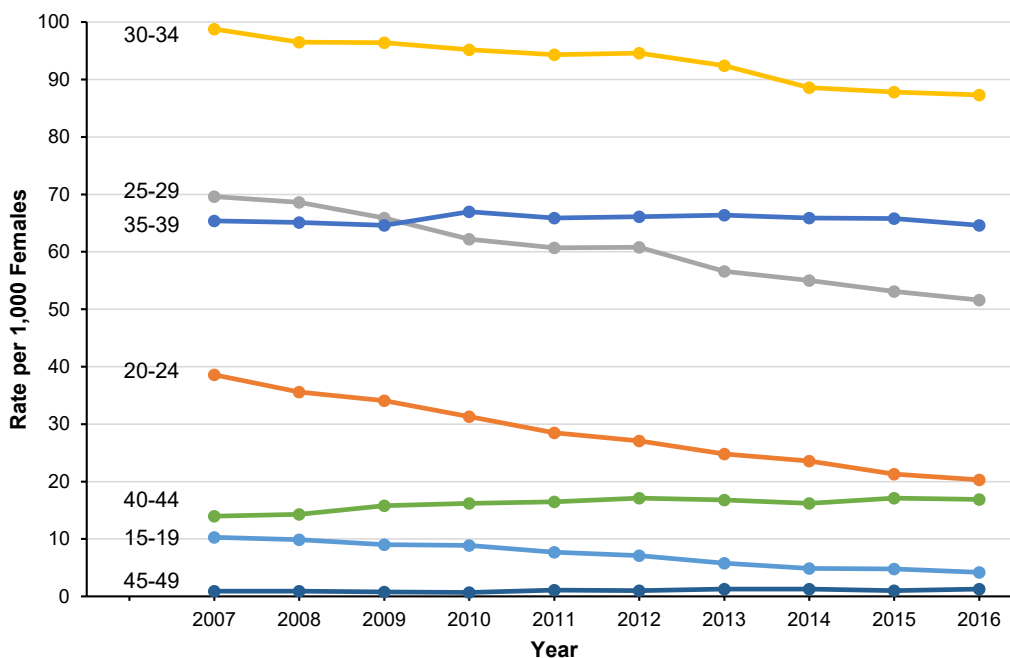
Data Source: Public Health Ontario Snapshot, see Data Notes for details.

Regional Comparisons

In 2016, Toronto's general and teen fertility rates were lower than the rates in rest of Ontario. Conversely, Toronto had the highest fertility rate in older women, aged 35 to 49 years, of all Ontario health units.
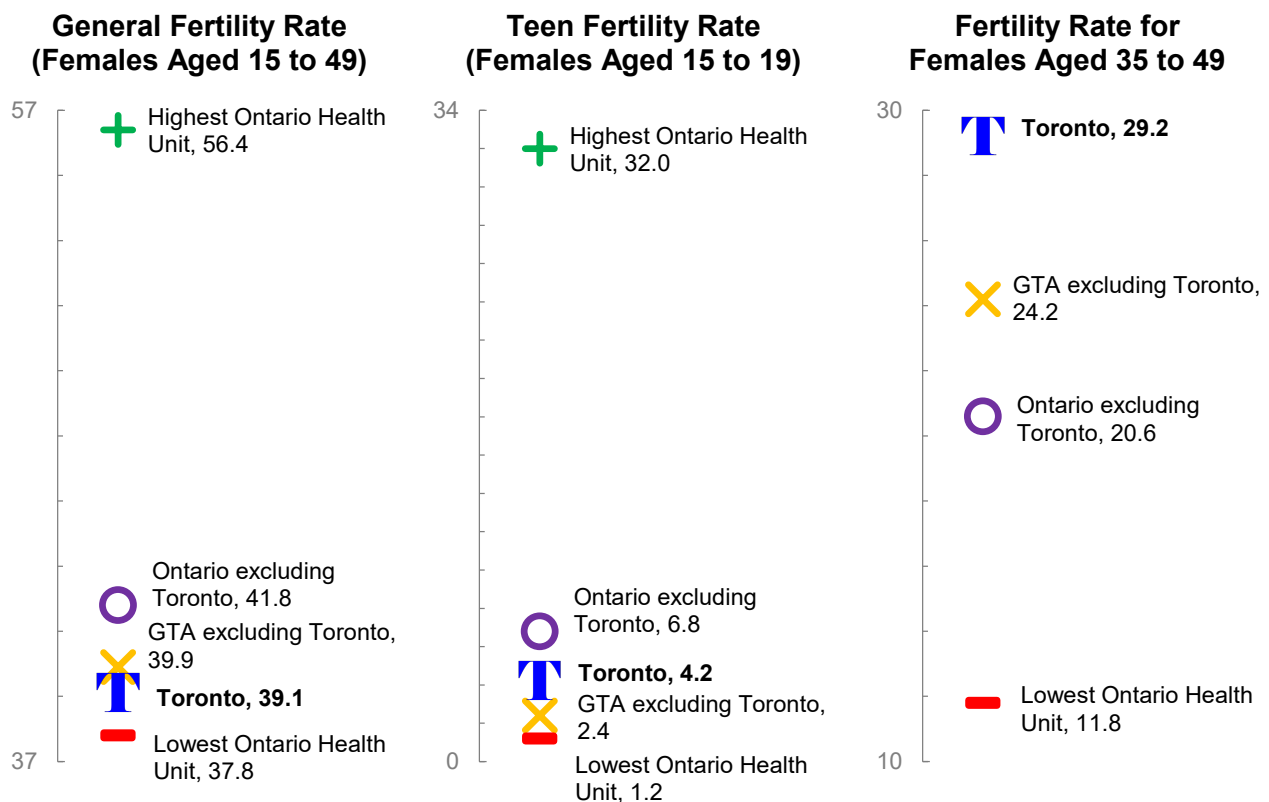
Figure 3 shows the general fertility rate, teen fertility rate, and fertility rate for females aged 35 to 49 years for Toronto in 2016, compared to the rest of Ontario (Ontario excluding Toronto), the rest of the Greater Toronto Area (GTA excluding Toronto), and the Ontario health units with the highest and lowest rates.

The general fertility rate for Toronto was lower than the rest of Ontario. Toronto had the fifth lowest general fertility rate of the 36 health units in Ontario.

The teen fertility rate for Toronto was lower than rest of Ontario but higher than the rest of the GTA.

Toronto had the highest fertility rate for older women, aged 35 to 49 years, of all Ontario health units. The Toronto rate of 29.2 births per 1,000 women was significantly higher than the rest of the GTA and rest of Ontario.

Figure 3: Fertility Rates, per 1,000 Females for Three Age Groups, Toronto Compared to Other Selected Regions in Ontario, 2016

General Fertility Rate (Females Aged 15 to 49)

57 — Highest Ontario Health Unit, 56.4

Ontario excluding Toronto, 41.8
GTA excluding Toronto, 39.9
Toronto, 39.1
Lowest Ontario Health Unit, 37.8

37

Teen Fertility Rate (Females Aged 15 to 19)

34 — Highest Ontario Health Unit, 32.0

Ontario excluding Toronto, 6.8
Toronto, 4.2
GTA excluding Toronto, 2.4
Lowest Ontario Health Unit, 1.2

0

Fertility Rate for Females Aged 35 to 49

30 — Toronto, 29.2

GTA excluding Toronto, 24.2

Ontario excluding Toronto, 20.6

Lowest Ontario Health Unit, 11.8

10

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

Toronto Neighbourhood Comparisons

Higher general fertility rates were found in the northwest and southeast parts of the city.

Map 1 shows the general fertility rate by Toronto neighbourhood for 2014 to 2016 combined. The general fertility rate ranged from 22.9 to 72.4 live births per 1,000 females aged 15 to 49 across the 140 neighbourhoods in Toronto.

Neighbourhoods with higher general fertility rates were clustered in the northwest and southeast areas of the city. Neighbourhoods with lower general fertility rates were clustered in North York and in the downtown core.

Map 1: General Fertility Rate by Neighbourhood, Females Aged 15 to 49 Years, Toronto, 2014 to 2016 Combined
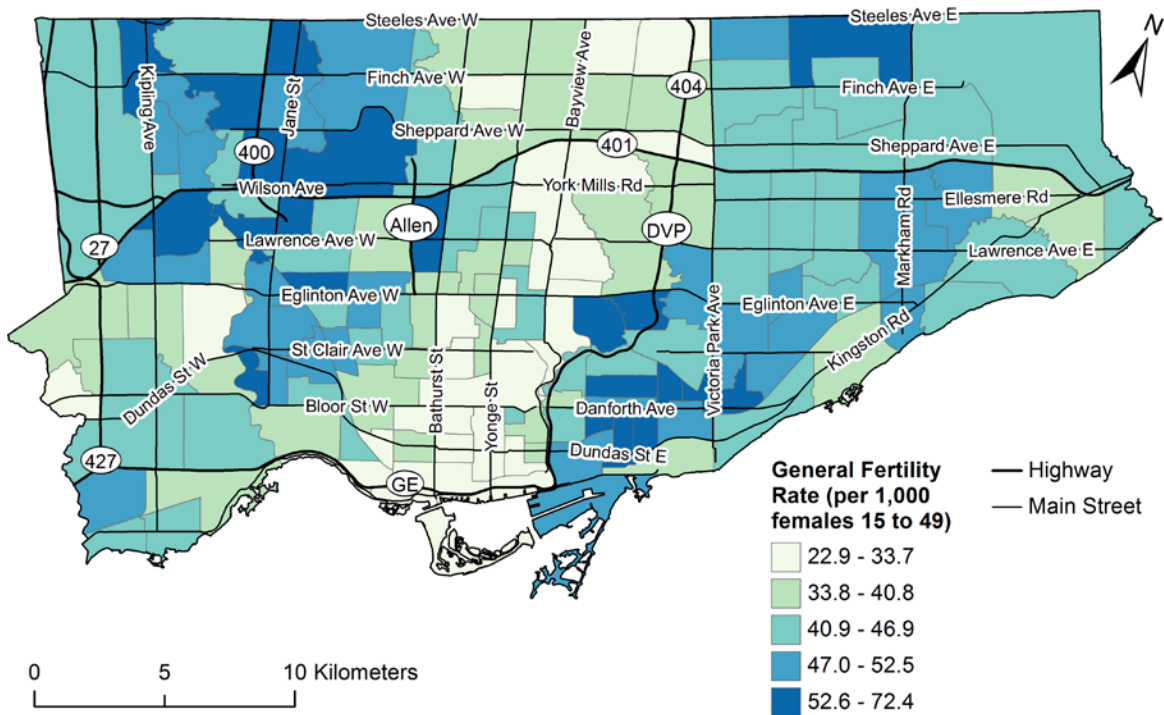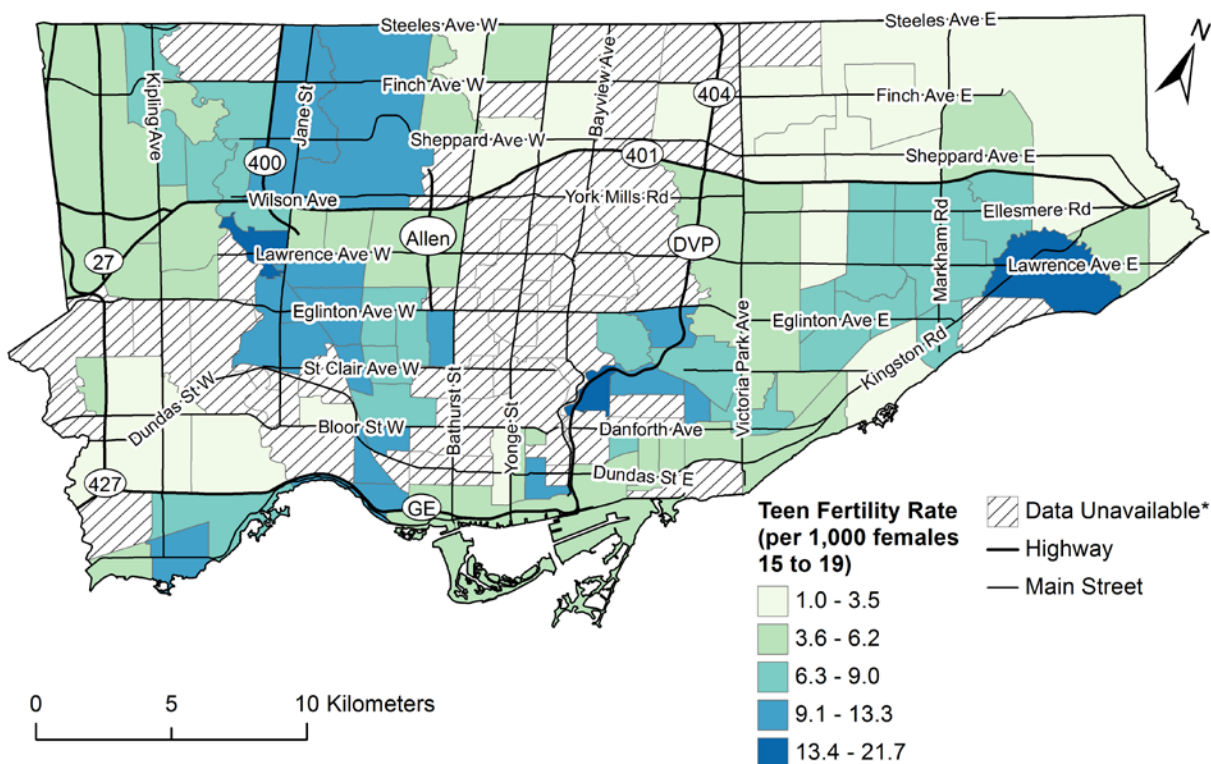
Data Source: BORN Ontario, see Data Notes for details.

Map 2 shows the teen fertility rate by Toronto neighbourhood for 2013 to 2017 combined. Many neighbourhoods had fewer than six births to teens during this five year period. As a result of privacy regulations regarding small numbers, the teen fertility rates in these neighbourhoods could not be shown. Despite low teen fertility rates in the city overall, there were some neighbourhoods with rates as high as 21.7 live births per 1,000 women aged 15 to 19.

Map 2: Teen Fertility Rate by Neighbourhood, Females Aged 15 to 19 Years, Toronto, 2013 to 2017 Combined
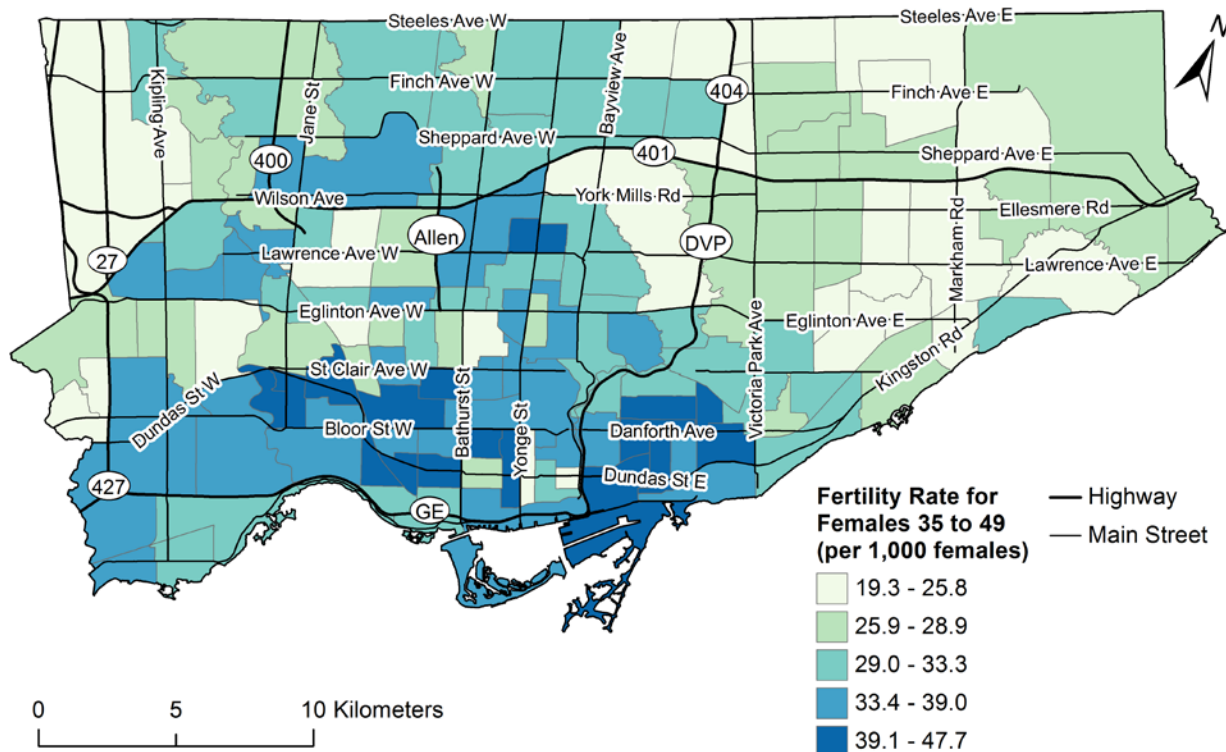

Data Source: BORN Ontario, see Data Notes for details.

Map 3 shows the fertility rate for females aged 35 to 49 by Toronto neighbourhood for 2014 to 2016 combined. The fertility rate for women in this age group ranged from 19.3 to 47.7 live births per 1,000 females across the 140 neighbourhoods in Toronto.

Areas in downtown, midtown, and southwest Toronto tended to have higher rates while areas in Scarborough and North Etobicoke tended to have lower rates.

Map 3: Fertility Rate for Females Aged 35 to 49 Years by Neighbourhood, Toronto, 2014 to 2016 Combined

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

Socio-demographics

There were 30,676 live births to Toronto women in 2016. Lower income areas of the city have higher general and teen fertility rates while higher income areas have higher fertility rates in older women.

There were 30,676 live births to Toronto women in 2016. Tables 1 to 4 show the distribution of these births by selected birth and maternal characteristics. Please note, the totals in these tables may not match the overall total because analyses excluded birth records with missing information.

The majority (85%) of these babies were born to women aged 25 to 39 and 48% were born to primiparous women. The sex ratio at birth was about 107 baby boys to 100 baby girls. The vast majority of newborns were singletons (97%), born with a healthy birth weight (92%), and full-term at birth (92%).The indicators for preterm births and low birth weight are reported separately to allow for more in-depth analysis.

Table 1: Distribution of Live Births by Maternal Age Group, Toronto, 2016

Maternal Age Group	Number of Births	Percent of Total
15 to 19 years	326	1.1%
20 to 24 years	2,220	7.2%
25 to 29 years	6,558	21.4%
30 to 34 years	11,862	38.7%
35 to 39 years	7,727	25.2%
40 to 44 years	1,789	5.8%
45 to 49 years	139	0.5%

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

Table 2: Distribution of Live Births by Parity, Toronto, 2016

Birth Type	Number of Births	Percent of Total
Primiparous	14,366	47.6%
Multiparous	15,801	52.4%

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

Table 3: Distribution of Live Births by Sex, Toronto, 2016

Baby's Sex	Number of Births	Percent of Total
Female	14,789	48.2%
Male	15,869	51.8%

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

Table 4: Distribution of Live Births by Singleton versus Multiple Birth, Toronto, 2016

Birth Type	Number of Births	Percent of Total
Singleton	29,644	96.6%
Multiple	1,032	3.4%

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

Tables 5 and 6 show the distribution of births to Toronto women in 2012 by maternal marital status and maternal place of birth. Due to data limitation, more recent information is not available.

In 2012, 62% of Toronto babies were born to women who were born outside of Canada. The five most common maternal countries of origin were China, Philippines, India, Sri Lanka, and Pakistan. 80% of mothers were married, 18% were single (never married), and 2% were divorced or widowed.

Table 5: Distribution of Live Births by Maternal Place of Birth, Toronto, 2012

Place of Birth	Number of Births	Percent of Total
Canada	11,500	38.2%
Outside of Canada	18,590	61.8%

Data Source: Vital Statistics, see Data Notes for details

Table 6: Distribution of Live Births by Maternal Marital Status, Toronto, 2012

Marital Status	Number of Births	Percent of Total
Divorced/ Widowed	434	1.5%
Married	22,823	80.3%
Single (Never Married)	5,174	18.2%

Data Source: Vital Statistics, see Data Notes for details.

Table 7 shows the general fertility rate, teen fertility rate, and fertility rate for females aged 35 to 49 years by income quintile for Toronto in 2014 to 2016 combined. 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.

A socio-economic gradient was observed in the general and teen fertility rates, with lower income areas of the city having higher rates. Both the general and teen fertility rates were significantly higher in the four lower income quintiles (Quintiles 1 to 4) compared to the highest income quintile (Quintile 5).

Conversely, fertility rates for females aged 35 to 49 were higher in higher income areas of the city. The fertility rates in this age group were significantly lower in the three lowest income quintiles (Quintiles 1 to 3) compared to the highest income quintile (Quintile 5).

Table 7: Fertility Rates per 1,000 Females for Three Age Groups, by Income Quintile, Toronto, 2014 to 2016 Combined

Income Quintile	General Fertility Rate (Females 15 to 49)	Teen Fertility Rate (Females 15 to 19)	Fertility Rate for Females Aged 35 to 49
Quintile 1 (Lowest)	47.3[H]	7.4[H]	29.8[L]
Quintile 2	43.6[H]	5.0[H]	28.6[L]
Quintile 3	41.3[H]	5.6[H]	29.2[L]
Quintile 4	41.3[H]	4.5[H]	33.6
Quintile 5 (Highest)	38.3	1.8	34.3

[H] Significantly higher than Quintile 5, the highest income group.

[L] Significantly lower than Quintile 5, the highest income group.

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

Births to Parents without Access to Permanent Housing

Every year a small percentage of babies in Toronto are born into families without access to permanent housing. These children often live in poverty and lack access to adequate nutrition, which in turn put them at higher risks for numerous acute and chronic physical and mental health disorders.

A study by the Young Parents No Fixed Address (YPNFA) initiative estimated that from 2012 to 2014, approximately 300 babies were born each year to under-housed women in Toronto. Due to the limited number of agencies participating in the YPNFA network, this number may be under-estimated. (Shah et al, 2017).

Data Notes

Notes

- Significant differences were estimated using overlapping confidence intervals. Although this method is conservative (α < 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 show 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 both Ontario excluding Toronto, and to the Greater Toronto Area (GTA) excluding Toronto because Toronto comprises such a large proportion of each of these two areas. Excluding Toronto therefore results in more meaningful comparisons.

- Maps 1 to 3 are based on multiple years of data combined in order to obtain a sample size large enough to analyze at smaller geographic levels. However, by combining years of data, changes over time in and between geographic areas may be hidden.

- Totals in Tables 1 to 6 may not match the overall total because analyses excluded birth records with missing information. Similarly, Tables 1 and 8 and Maps 1 to 3 excluded birth records that could not be linked to a Toronto census tract or neighbourhood.

- For maps 1 to 3, the Natural Breaks (Jenks) classification was used.

- Fertility analyses and distribution by mother's age group exclude births to females under 15 and older than 49 years; there were 13 births to these females in 2016. An additional 42 records were excluded where maternal age group was missing.

Definitions

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

Age-Specific Fertility Rate is the number of live births to females of particular age group per 1,000 females in the age group**.**

General Fertility Rate is the number of live births during a given period per 1,000 females aged 15 to 49 years.

GTA excluding Toronto means the Greater Toronto Area (GTA) with Toronto removed from the GTA data.

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.

Live birth is the complete expulsion or extraction from its mother of a product of conception irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life such as a heartbeat, umbilical cord pulsation, or definite movement of voluntary muscles, whether the umbilical cord has been cut or the placenta is attached. A live birth is not necessarily a viable birth.

Ontario excluding Toronto means Ontario with Toronto removed from the Ontario data.

Parity refers to the number of times a women has given birth to date. Primiparous refers to women who are giving birth for the first time while multiparous refers to a woman who has previously given birth to at least one child.

Sources

BORN Information System: BORN Ontario. Public Health Cube (2013 to 2017 calendar years). Accessed on June 21, 2018. Note: BORN PHU data are reported using submitted records, 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. Used in: Maps 1, 2, and 3; Tables 1, 2, 3, 4, and 7

Income Quintiles: Statistics Canada - Table F-18 annual income estimates for census families and individuals (T1 Family File), 2015. Used in: Table 7

PHO Snapshot: Public Health Ontario. Snapshots: Toronto Public Health: Fertility rates, 2007 to 2016. Toronto, ON: Ontario Agency for Health Protection and Promotion; 2017 Dec 29 [cited 2018 Jan 22]. Available from: https://www.publichealthontario.ca/en/DataAndAnalytics/Snapshots/Pages/Reproductive-Health.aspx Used in: Figures 1, 2, and 3

Vital Statistics, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario (2012 calendar year). Date Extracted: May 3, 2018. Used in: Tables 5 and 6

Denominator data: Population for sub-Toronto Geographies: 2016 Canada Census, Statistics Canada. Used in: Maps 1, 2, and 3; Table 7

S. Shah, J. Bernstein, A. M. Moore, G. Thompson, S. Sohail, L. Ford-Jones and A. Vandermorris, "Three hundred babies born to underhoused mothers in Toronto - understanding the problem and how we can help," Paediatrics and Child Health, vol. 5, no. 282-284, p. 22, 2017.

Population Health Status Indicator: Birth and Fertility

Category: Reproductive Health

Prepared: October, 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