Reproductive, maternal and child health
in Timiskaming

2021

Services de santé du TIMISKAMING Health Unit

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Highlights

Healthy children start with healthy infants, healthy infants start with a healthy pregnancy, and a healthy pregnancy starts with healthy women. Healthy women and families start with a healthy society and environment where there are equitable opportunities.

Pregnancy and childbirth have an impact on the mental, physical, emotional and socioeconomic health of women and their families.[1]

This report aims to highlight the mechanisms by which various factors can directly and indirectly impact the health status of a given population along the life course of its residents. The social determinants of health are at play even before conception. For example, a women who is low income may not have the means to seek all necessary resources during the pre-conception period, pregnancy and birth, increasing the risk for infant anomalies, injury and mortality.

In Timiskaming there is higher infant mortality (737 per 100,000 compared to 481 per 100,000 in Ontario) and higher infant hospitalization due to injuries (375 per 100,000 compared to 150 per 100,000 in Ontario).

The Timiskaming Health Unit ranks lower compared to Ontario in a variety of social determinants of health and other factors that impact child health such as social support, breastfeeding initiation and substance use during and directly after pregnancy:

- 4% of mothers didn't have support from a partner and 1% had no assistance with parenting or caring for their child
- 18% of mothers in Timiskaming reported smoking, which is significantly higher compared to Ontario (6%)
- 85% of mothers in Timiskaming reported initiating breastfeeding, which is lower compared to Ontario (94%)
- 46% of mothers had one or more mental health concerns, which is significantly higher compared to Ontario (21%)

However, children in the Timiskaming area compared closely to children in Ontario in terms of various early development categories such as motor skills and cognitive development.

It is imperative to build on both the strengths and weakness of a community in order to decrease the impact of social disparities and improve the quality of maternal and child health.

Methodology and interpretation

Reference to Timiskaming means the Timiskaming Health Unit area, which includes the District of Timiskaming and the Municipality of Temagami. See Appendix A for more details on Timiskaming Health Unit's boundaries.

This report is intended to be used by public health staff and community partners to help understand preconception health and maternal and child health in Timiskaming. This report can be used to advocate for healthy practices and policies and to assist in identifying areas of need and informing decision making for local programs.

Data in this report were selected to address the population health assessment and surveillance requirements outlined in the Healthy Growth and Development section of the Ontario Public Health Standards.[2] The Ontario Public Health Standards apply to infants, children and youth aged 0 to 18 years. Where applicable, indicators were calculated based on recommendations and calculation methods outlined by the Association for Public Health Epidemiologists in Ontario . Data in this report do not portray a complete picture of reproductive, maternal and child health, but rather reflect data that was available and most closely describes the topic. Where possible, data for the Timiskaming Health Unit area were compared to Northeastern Ontario and Ontario.

In this report a statistical difference is one that is not likely due to chance alone, more specifically that there is only a one in twenty chance that the difference is not true. Smaller sample sizes, as often seen in Timiskaming, make it more difficult to detect statistical differences as there is more uncertainty around the precision of the estimate.

Since Timiskaming has a small population, in some instances these analyses have combined several years of data to increase sample sizes. When the sample size is small and there is uncertainty around the estimate, it is marked with an [E] to encourage the reader to interpret the estimate with caution. When sample sizes are too small for the results to be released (less than 5−6, depending on the data source), it is indicated with an [F].

Further details on the data sources can be found at the end of this report.

Introduction

Healthy children start with healthy infants, healthy infants start with a healthy pregnancy, and a healthy pregnancy starts with healthy women. Preconception, whether before a first or a subsequent pregnancy, is an opportune period to improve the health of women to prevent adverse maternal and infant outcomes. Healthy women and families start with a healthy society and environment where there are equitable opportunities. There are also other notable links with reproductive outcomes, for example, links with overall health and chronic diseases in adulthood. These links highlight the need to address various reproductive outcomes in preconception health and during pregnancy and early childhood.

Public health has begun to play closer attention to the gaps that exist in populations in which some groups show better health outcomes and others show worse health outcomes.

By understanding all these trends, we hope to identify areas where the rates in Timiskaming are consistent with Ontario rates and areas where the rates indicate better or worse outcomes. This will assist in evidence-informed decision making for local policy decisions.

Health equity considerations

"Health equity is created when individuals have fair opportunity to reach their fullest health potential."[3] Health inequities are avoidable differences that are unfair and unjust, and are related to social and environmental factors like income, social status, race, gender, education and the physical environment.[3] For instance, differences in socioeconomic status are directly associated to inequalities in child development.[4] These inequalities are evident across various cognitive, social, behavioral and health outcomes in children.[4] It is known that if they are not addressed, the discrepancies can grow over time and accumulate throughout the life course.[4]

The environment a child is born into can be vastly different depending on various factors like race, caregiver's financial resources, education level, social support and home environment, to name a few.[4] Therefore, interpreting the data and information in this report with a health equity lens is necessary to truly appreciate the impact on individuals, families, communities and population health.

Chapter 1 – General demographic characteristics of families

Demographic and socioeconomic status of families and women have an important impact on reproductive, maternal and child health. The demographic characteristics of families outlined below can help to provide context in understanding the families, women and children in Timiskaming.

The indicators in this section do not provide a holistic representation of the demographic characteristics of families. Rather, the indicators were selected based on the data and information available at the time of writing this report.

Family composition

In Timiskaming there were 3,335 couples with children in 2016.[7] Of these couples with children, 1,405 had one child, 1,305 had two children, and 630 had three or more children.[7] There were also 1,415 lone-parents with children.[7] Of these lone-parent families, 905 had one child, 380 had two or more children, and 140 had three or more children.[7]

In 2019, 6% of Timiskaming infants had a mother who was a single parent. This is not statistically different compared to Ontario infants who are born to a single mother (4%) during the same time period.[5]

Families living with low income

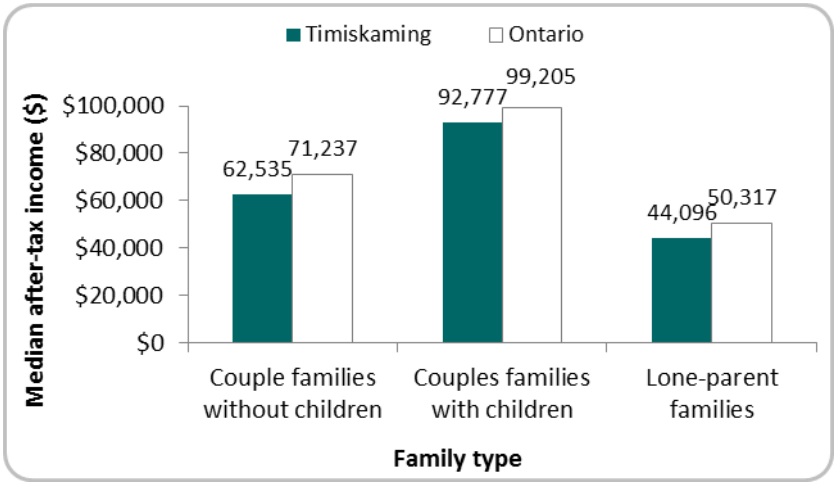
Income is perhaps the most important social determinant of health in terms of degree of impact. Both directly and indirectly, income is responsible for:

- Shaping overall living conditions
- Affecting psychological functioning
- Influencing health-related behaviours, and
- Determining the quality of other social determinants of health such as food security, housing and other basic prerequisites of health.[6]

Family income

In Timiskaming, couples without children (consisting only of two adults) had a median after-tax income of $62,535, couples with children had a median after-tax income of $92,777, and lone-parent families had a median after-tax income of $44,096 (*Figure 1*).[7]

Figure 1: Median family income (after-tax) by family type, Timiskaming, Ontario, 2015[7]



Low income

The low income measure (LIM) accounts for income and household size to reflect how the need of a household increases as the number of people increases.[7] The current cut-offs based on household size do not take into account duration and exclude those who have incomes barely above the cut-offs but who may have similar living situations. These measures also exclude Indigenous people living on-reserve.

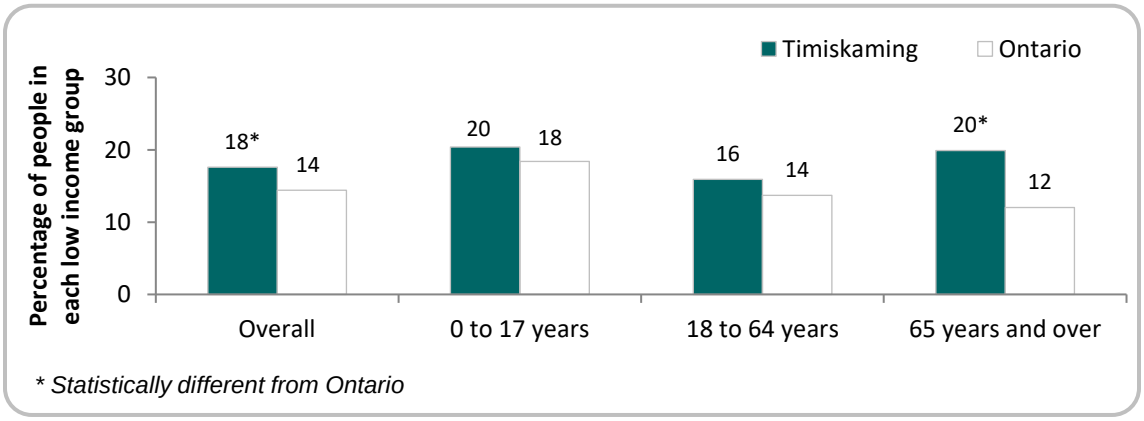
When the after-tax income of a person falls below the thresholds outlined in *Table 1*, they are considered to be living in low income.

Table 1: Low income measure thresholds (after-tax) by household size, Timiskaming, 2015.[8]

Household size	Income
1 person	$22,133
2 persons	$31,301
3 persons	$38,335
4 persons	$44,266
5 persons	$49,491
6 persons	$54,215
7 persons	$58,558

In Timiskaming, 5,675 people live with low income, which is 18% of residents (*Figure 2*).[7] Of these, 1,235 are children and youth under the age of 17 years (20% of all children and youth), 3,095 are aged 18 to 64 years (16% of all adults), and 1,340 are aged 65 years or older (20% of all seniors).[7] The children group can be broken down further to 0 to 5 year olds, where 23%, or 470 children, live in low income (20% for Ontario).[7]

Figure 2: Low income measure (after-tax) overall and by age, Timiskaming, Ontario, 2015[7]

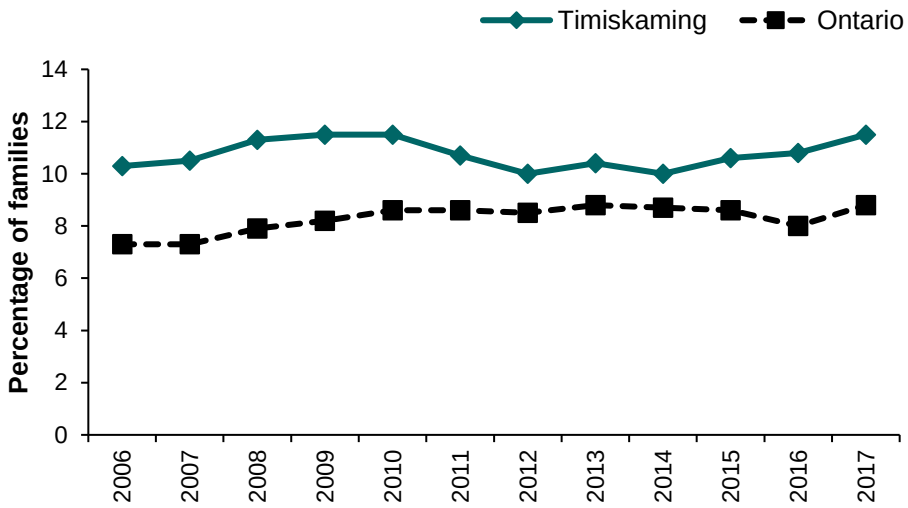


Families with social assistance

In an attempt to offset some of the negative impacts of social disadvantage, Ontario has two social assistance programs available for those in need: the Ontario Works (OW) program and the Ontario Disability Support Program (ODSP). This report considers enrollment in either of these programs as receiving social assistance.

Over time, the proportion of families receiving social assistance in Timiskaming has remained relatively stable around 10%, whereas the proportion of families in Ontario has been slightly increasing (*Figure 3*).[6]

Figure 3: Proportion of families receiving social assistance, Timiskaming, Ontario, 2006–2017.[6]



Families with concerns about money

From 2017 to 2019, 2% of families with infants had concerns about not having enough money to pay for housing or rent, food, clothing, utilities and other basic necessities.[5] This rate was not statistically different from families in Ontario, where 4% of families expressed concerns about money.[5]

Families who experience food insecurity

Food insecurity refers to the inadequate or insecure access to food due to financial constraints. It negatively impacts physical, mental and social health, and increases health care system costs. Food insecurity reflects a household's material circumstance, taking into account income, assets (like property) and other resources a household could draw upon.[9]

From 2009 to 2014, 91% of households in Timiskaming were food secure, 2%[E] were marginally food insecure, 4%[E] were moderately food insecure and 3%[E] were severely food insecure.[10]

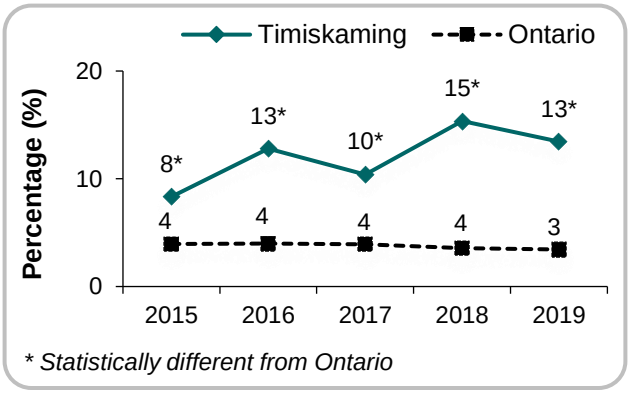
The Nutritious Food Basket survey measures and monitors the cost of basic healthy eating based on food items that follow Canada's Food Guide. The lowest available price of each item was recorded from six grocery stores in Timiskaming and averaged to calculate the cost of feeding a family. In 2019, the cost of the Nutritious Food Basket for a family of four was $219.27 per week, which is a $2.74 increase since 2017. The cost of the Nutritious Food Basket was higher than the Ontario average of $204.00.[11]

Families who are involved with Child Protective Services

The foundations of health for a child are stable and responsive relationships, safe and supportive environments and appropriate nutrition. When these needs are not met, it can result in mental and physical health consequences.[12]

It is important to note that there can be a range of risk and needs associated with Child Protective Services. The goal of Child Protective Services is to ensure children are safe and can thrive with emphasis on keeping families together.

Figure 4: Proportion of infants whose families are involved in child protective services, Timiskaming, Ontario, 2015–2019[5]



This indicator includes infants with parent(s) or caregiver(s) who have been involved with Child Protection Services as a parent. In 2019, 13% of Timiskaming infants had parent(s) who were involved with Child Protective Services.[5] This was statistically higher than Ontario (3%).[5] There were no major changes over time in either Timiskaming or Ontario (*Figure 4*).[5]

Families with a parent with a disability

The term disability refers to a broad range and degree of conditions, some visible and some invisible. A disability can be present from birth, caused by trauma or developed over time. There are physical limitations, mental and learning disabilities, hearing or vision disabilities, epilepsy, mental health disabilities and addictions and environmental sensitivities, to name a few.[13]

Ableism is a conscious or unconscious belief system that considers people with disabilities as being less worthy of respect and consideration, less able to contribute and participate or of less inherent value than others. It underlies paternalistic behaviour toward people with disabilities and rationalizes the exclusion, neglect, abuse and exploitation of people with disabilities. Ableism may be embedded in institutions, systems or the broader culture of a society.[13]

Barriers to equality and inclusion continue to exist for people with disabilities. Women with disabilities experience health, social and health care disparities. Although pregnancy rates among women with disabilities are increasing, there is limited data available about the preconception and pregnancy outcomes of these women.[14] "Disability" continues to be the most frequently cited ground of

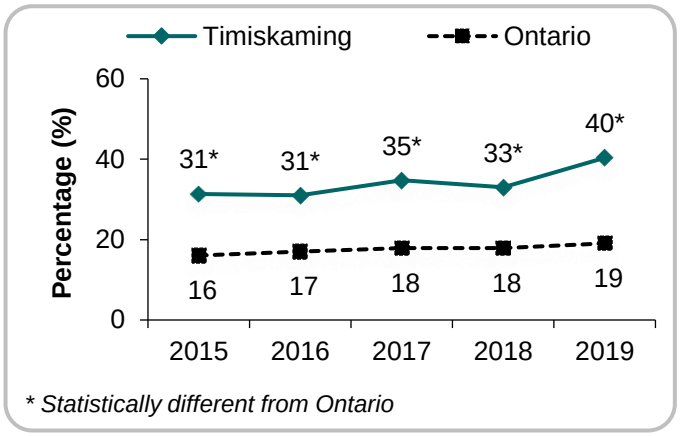
discrimination under the Ontario Human Rights Code.[13] Overall, Ontarians with disabilities continue to have lower educational achievement levels, a higher unemployment rate, lower income and are less likely to live in adequate, affordable housing than people without disabilities.[15]

A disability in this section is defined as parent(s) or caregiver(s) with disability such as a mental or physical challenge that may impact their parenting. Between 2017 and 2019, 2% of infants in Timiskaming had a parent or caregiver with a disability, which was not statistically lower than the 1% of families in Ontario.[5]

Families with a parent with mental illness

In 2019, 40% of infants in Timiskaming had a parent or caregiver with a history of depression, anxiety or other mental illness. This is statistically higher than families in Ontario (19%).[5] There were no statistical differences over time in Timiskaming (*Figure 5*).[5] It is important to note that this measure is self-reported and not the diagnosis from a medical practitioner.

Figure 5: Proportion of infants with a parent with mental illness, Timiskaming, Ontario, 2015–2019[5]



** Statistically different from Ontario*

Chapter 2 – Population-level reproductive health

Population-level reproductive health indicators are standard indicators used to compare overall reproductive health between different geographical areas. Reproductive health indicators are highly influenced by social and economic factors such as income and education, as outlined in *Chapter 1*.

Number of births in Timiskaming

The average number of live births in Timiskaming over the last five years (2016–2020) was 341 per year.[16,17] There was a change in the data source for vital statistics from 2012 to 2013; however, the overlap in the two sources suggests that they are comparable (not shown).

Crude birth rate

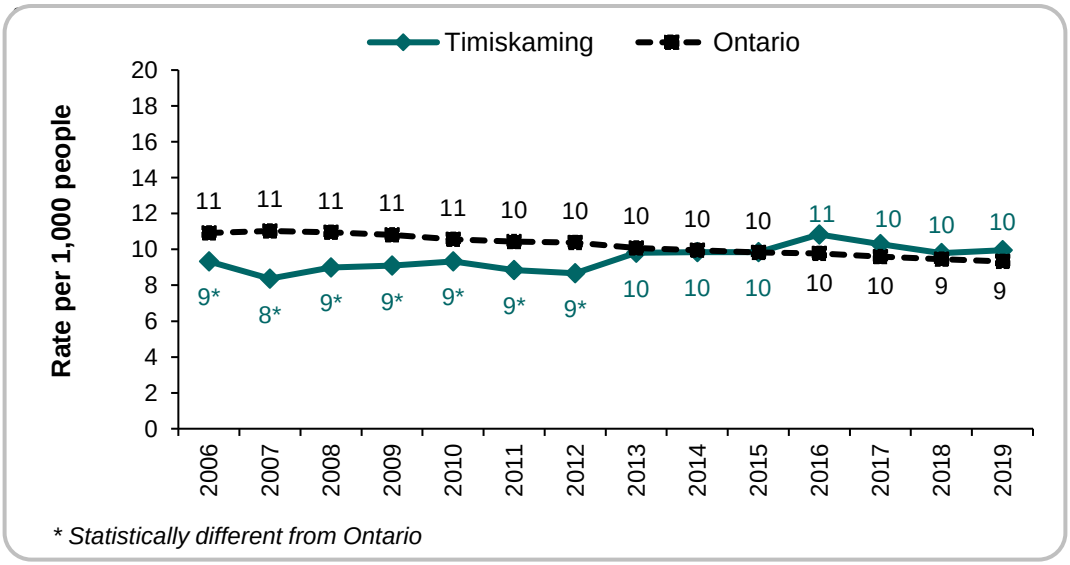
Definition

The crude birth rate is the total number of live births per 1,000 people, without adjusting for other factors like age and socioeconomic status.

The crude birth rate provides a basic description of the reproduction in a population. Because the rate does not take existing demographic factors into account, comparing the crude rate of one population to another is difficult. As an example, an area with a higher number of women of childbearing age will have a higher crude birth rate.

The crude birth rate in Timiskaming was lower than Ontario's rate from 2006 to 2012, then it was not statistically different from Ontario's rate from 2013 to 2019 (*Figure 6*).[18]

Figure 6: Crude birth rate (per 1,000), Timiskaming, Ontario, 2013–2019[18]Error! Bookmark



Fertility rate

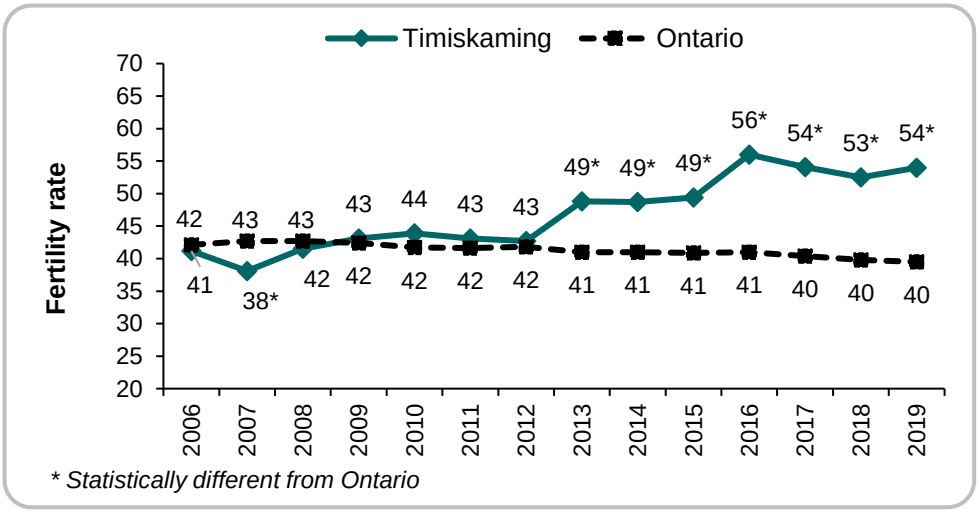
Definition

The fertility rate is the average number of live births per 1,000 women of reproductive age (15–49 years). It is calculated by dividing the number of live births by the number of women in the population of reproductive age.

While the crude birth rate considers the number of births to the whole population, the fertility rate considers the number of births for women who are of childbearing age.

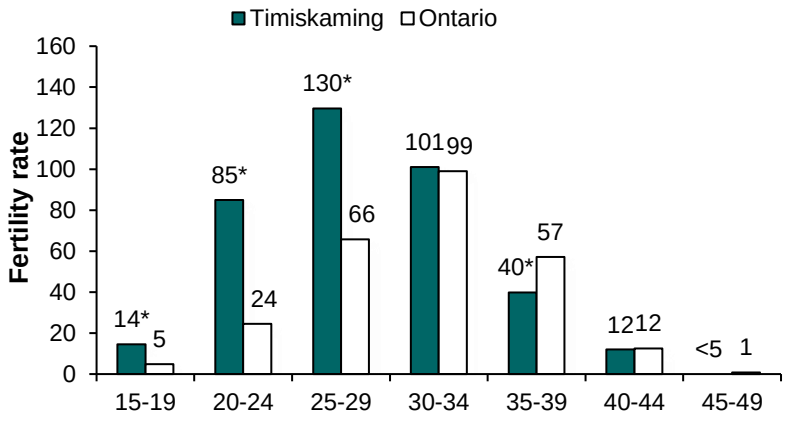
The fertility rate in Timiskaming was higher than Ontario from 2013 to 2019.[18] When considering Timiskaming's rate over time, Timiskaming's rate was higher in 2016 and 2019 compared to 2006. Ontario's fertility rate showed a very gradual decrease over several years (*Figure 7*).[18]

Figure 7: Fertility rate (per 1,000) among women aged 15–49 years, Timiskaming, Ontario, 2006–2019[18]



In general, fertility rates indicate that women in Timiskaming give birth at a younger age than women in Ontario. From 2018–2019, the fertility rates in Timiskaming were higher than Ontario in every age group under 30 years of age (15–19, 20–24, 25–29 years), and lower than Ontario for the 35–39 age group. There were no statistical differences found between fertility rates in Timiskaming and Ontario for the other age groups (*Figure* 8).[18] In Ontario, the highest fertility rate was in the 30–34 year age group, whereas in Timiskaming the 25–29 year age group represented the highest fetility rate.[18]

Figure 8: Fertility rate (per 1,000) among women aged 15–49 years by age, Timiskaming, Ontario, 2018–2019[18]



** Statistically different from Ontario*
<5 indicates a sample size of less than 5, resulting in suppression

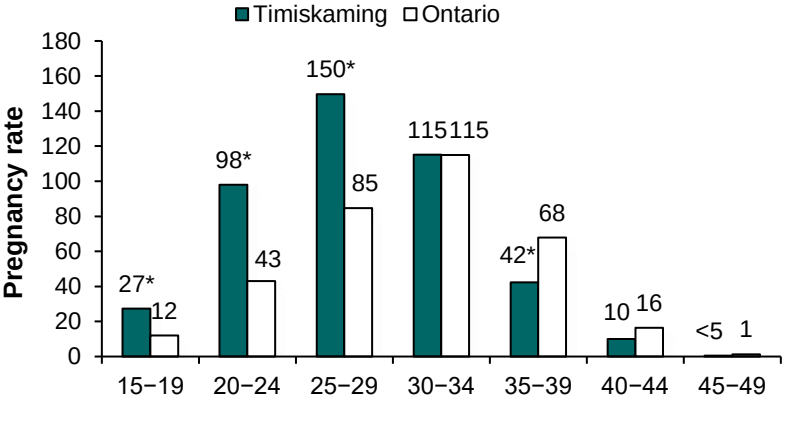
Pregnancy rate

Definition

The pregnancy rate is the total number of pregnancies per 1,000 women of reproductive age. Pregnancies include live births, stillbirths and therapeutic abortions.

Pregnancy rates provide an estimate of the number of pregnancies in a population. The pregnancy rates for women in Timiskaming in age groups under 30 (15–19, 20 –24, 25–29 years) were statistically higher than Ontario (*Figure 9*).[18] The pregnancy rate for women in Timiskaming in the 35–39 year age group was statistically lower than Ontario.[18] In Ontario, the age group with the highest pregnancy rate was the 30 to 34 age group and in Timiskaming the highest pregnancy rate was in the 25 to 29 age group.[18] As with the fertility rate, there was no statistical difference between Timiskaming and Ontario in the 30–34 year age group.[18]

Figure 9: Pregnancy rate (per 1,000) among women aged 15–49 years by age, Timiskaming, Ontario, 2017–2018[18]



** Statistically different from Ontario*
<5 indicates a sample size of less than 5, resulting in

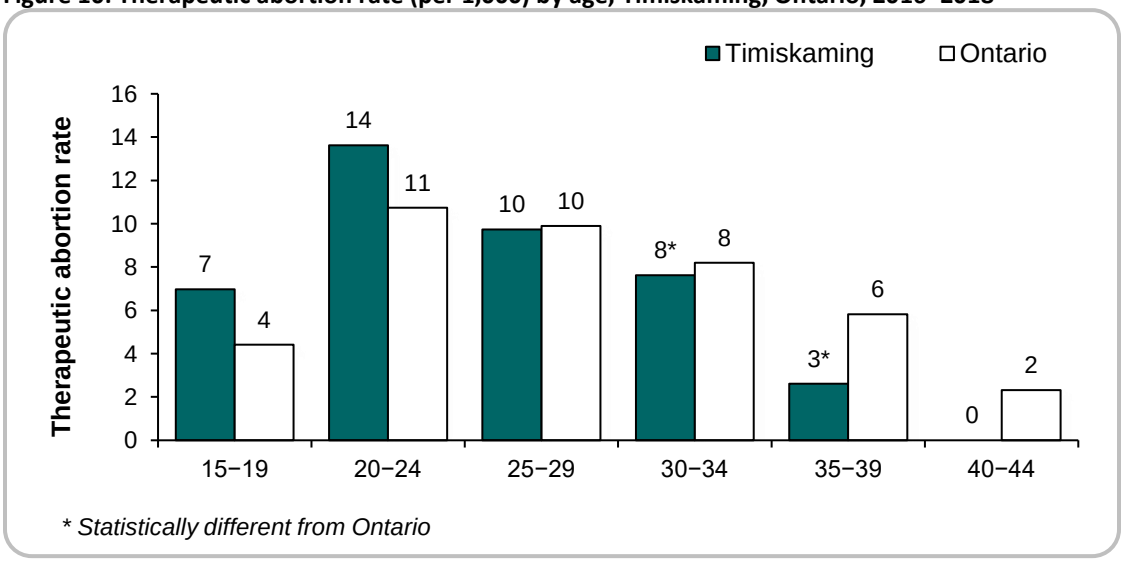
Therapeutic abortion rate

Definition

The therapeutic abortion rate is the number of induced abortions per 1,000 women of reproductive age.

In both Timiskaming and Ontario, the therapeutic abortion rate was highest in the 20 to 24 year age group, followed by 25 to 29, then the 30 to 34 year age group.[19] The only statistical difference was for the 35 to 39 year age group, where Timiskaming's rate was statistically lower than Ontario's rate (*Figure 10*).[19]

Figure 10: Therapeutic abortion rate (per 1,000) by age, Timiskaming, Ontario, 2016–2018[19]



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Stillbirths

Definition

A stillbirth is the birth of a fetus which does not breathe or show signs of life at the time of birth. The fetus must weigh at least 500 grams at birth or must have completed 20 weeks of gestation. Death may occur before or after delivery.

Stillbirths account for approximatly one third of all fetal deaths.[22] Stillbirths can be caused by congenital anomalies, placental abruption, umbilical cord accidents, infection or maternal complications such as diabetes.[22] However, 25% of stillbirths do not have a known cause. The following risk factors can increase the rate of stillbirths: prior stillbirths, low socioeconomic status, an older maternal age, first-time mothers, maternal smoking, high pre-pregnancy weight, multiple pregnancies and placental factors.[22]

In Timiskaming, 0.3% of all births (including all live and stillbirths) result in a stillbirth, which is the same as Ontario (2014-2018).[18]

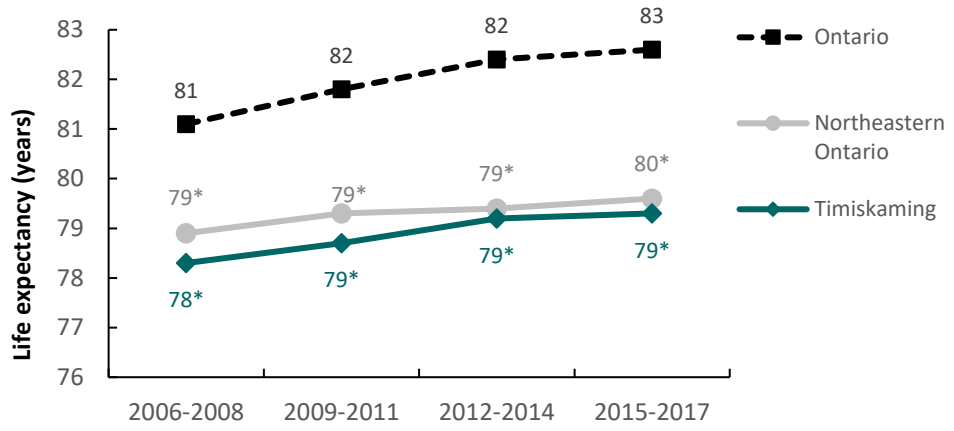
Life expectancy at birth

Life expectancy at birth describes the average number of years a newborn can be expected to live if the current death trends continue. People living with low incomes and those living in poorer neighbourhoods tend to have shorter life expectancies.[20]

Timiskaming residents are expected to live 79 years, which is not statistically different from the 80 years that Northeastern Ontario residents are expected to live, but is statistically lower than the 83 years that Ontario residents are expected to live (*Figure 11*).[21]

Life expectancy in Ontario and Northeastern Ontario is increasing over time. Timiskaming's life expectancy throughout the years did not statistically increase over time (*Figure 11*). The increase in life expectancy over time is a result of improved nutrition, better hygiene, easier accessibility to safe drinking water, effective birth control, immunization and other medical interventions.[21]

Figure 11: Life expectancy at birth, Timiskaming, Northeastern Ontario, Ontario, 2006–2017[21]



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Chapter 3 – Determinants of maternal health

Women who are healthy before (preconception health) and during their pregnancy are more likely to have a healthy pregnancy and a healthy baby.

Health is shaped by many factors, the most important of which are environmental and social conditions. These conditions, called "social determinants of health," influence both the woman's and the baby's health. Some important social determinants of health for mothers are income, employment, education and social support. There are also factors that influence health that cannot be changed, such as age and genetic factors.

Behaviours and lifestyle choices made by the mother before and during pregnancy can also influence the health outcome of the pregnancy and the child.

Social determinants of health for mothers

Income and employment

Income is perhaps the most important social determinant of health. Level of income impacts health both directly and indirectly by shaping overall living conditions, affects psychological functioning, influences health-related behaviours, and determines the quality of other social determinants of health such as food security, housing and other basic prerequisites of health.[6]

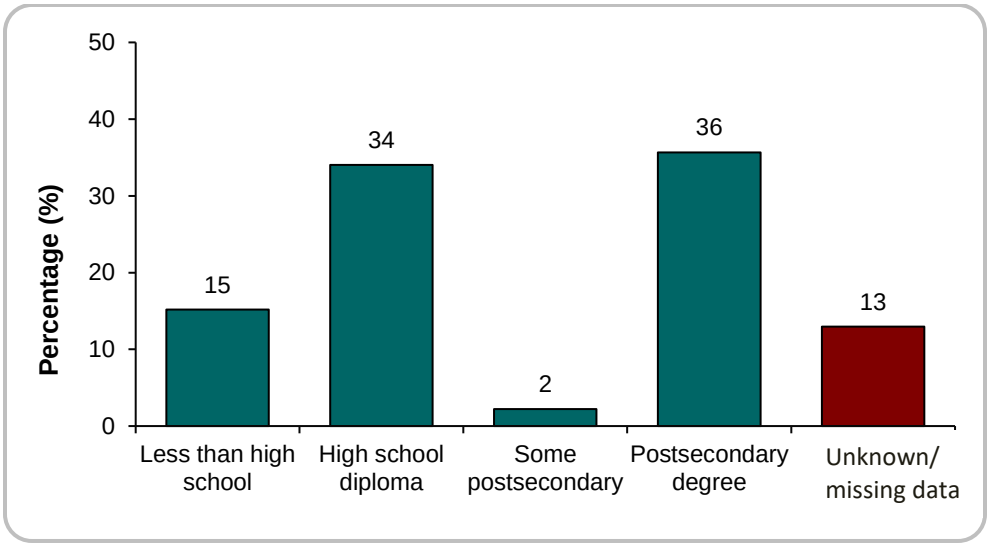
Income and employment data specifically for mothers in Timiskaming were not available; however, the income section in Chapter 1 provides information on family income, low income, families with social assistance and families with concerns about money.

Education

Health improves with education level because education helps people to gain the knowledge and skills for problem solving, provides a sense of control and also increases job opportunities, leading to income security.[25] For mothers, a lower education is associated with higher risks of preterm birth, low birth weight, stillbirth and infant mortality.[22] Women who have a higher education level are more likely to have healthier maternal behaviours like seeking prenatal care early, attending prenatal classes, supplementing with folic acid, not smoking or drinking and choosing to breastfeed.[22]

The education level of mothers in Timiskaming is illustrated in *Figure 12.* The highest proportion of mothers in Timiskaming in 2016-2017 had postsecondary education (36%). However, caution should be used when interpreting this information because 13% of mothers' education levels were unknown (missing data).[23] Nonetheless, these data provide an estimation of education levels for mothers in Timiskaming. It is not possible to test for statistical differences between mothers and general education levels in Timiskaming or Ontario due to differing data sources.

Figure 12: Highest level of education attained, Timiskaming, 2016/2017[23]



In general, educational attainment levels for the Timiskaming population are lower compared to the province, with fewer Timiskaming residents completing high school and a university degree. [7,24]

Social support and social exclusion

Better health is associated with support from families, friends and communities.[25] Social support provides emotional reassurance and helps to cope with adversity.[25] These social support networks could be very important in helping people solve problems and deal with adversity, as well as in maintaining a sense of mastery and control over life circumstances. Additionally, the caring and respect that occur in social relationships, and the resulting sense of satisfaction and wellbeing, act as a buffer against health problems.[25]

Social support

Of the mothers who had a child in 2018:

- 4% indicated that they did not have a partner, father, or support person involved with the care of their baby,
- 1% could not identify a person who could assist with the parenting of their baby,
- 1% could not identify a person who could assist with the care of their baby,
- 1% identified that their relationship with their partner is strained.[26]

Social exclusion refers to specific groups being denied the opportunity to participate in daily life because they are marginalized by society, which limits access to social, cultural and economic resources. People who are socially excluded are more likely to be unemployed, earn lower wages, have limited access to health and social services, have fewer means of furthering their education and have little influence upon decisions made by governments and other institutions.[6] Both community and individual health are deeply impacted by marginalization.[27]

Families requiring newcomer support

A newcomer is defined as someone living in Canada for less than five years. Newcomers may lack social support or be experiencing social isolation. At this time, there were too few infants whose families required newcomer support to produce a valid estimate for Timiskaming. In Ontario, 4% of infants' families required newcomer support.[5]

Maternal age at time of birth

Teen mothers have a higher risk of health problems such as poor maternal weight gain and anemia. Their babies are at a higher risk of having a lower birth weight or being preterm.[22] These poor health outcomes can also be related to a disadvantaged social environment, not completing school, biological immaturity, social deprivation, inadequate prenatal care and increased likelihood of risky health behaviors such as smoking.[22] Teen pregnancy is more common in disadvantaged teens and is known to be associated with social, educational and employment problems later in life.

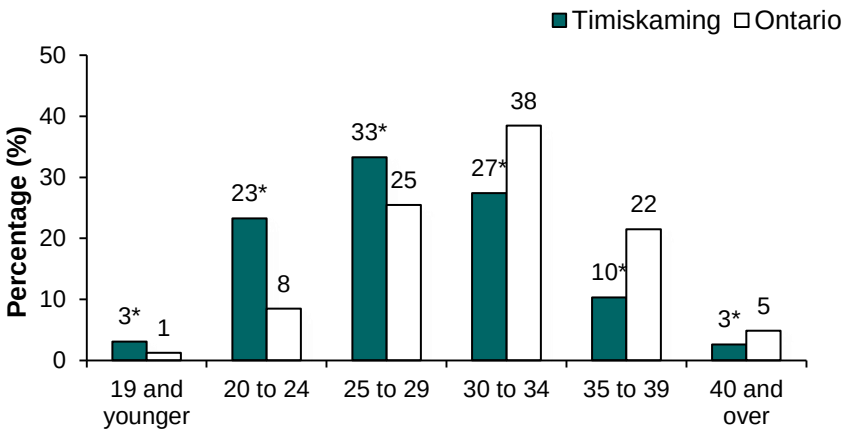
> *While there are risks to teen pregnancy, it is important to support teens that do become pregnant and provide an environment which helps them to make healthy choices. Therefore, messaging and actions must be carefully considered to avoid stigma that might lead to unintentional negative health impacts.[28]*
>
> *Furthermore, it is important to apply a cultural lens when considering teen pregnancy. For instance, some Indigenous communities feel that having children in late teens is healthy and culturally appropriate. This leads to creating a community atmosphere of support for teenage parenting.[29]*

In comparison to younger mothers, older mothers have greater general risks during pregnancy and labour, are more likely to have a chronic illness and are at a higher risk of fetal chromosomal abnormalities.[22] Older mothers are also more likely to have a multiple birth both for natural reasons and because they are more likely to use assisted human reproduction.[22] However, older women having their first child usually have a higher level of education and socioeconomic status, seek prenatal care earlier, are less likely to have pre-pregnancy obesity and are also less likely to smoke during pregnancy. In general, older women who have no chronic conditions have healthy babies.[22]

In 2017, the average age of mothers in Timiskaming was 28 years, which was statistically lower than Ontario's average age of 31 years.[30] There was no change over time for Timiskaming's rate, but Ontario's rate very slowly increased since 2006.

Figure 13 depicts the percentage of Timiskaming and Ontario mothers by age for 2019 and 2020 combined. A greater proportion of Timiskaming mothers were under the age of 30 compared to Ontario, and a smaller proportion were over the age of 30.[18]

Figure 13: Proportion births by age of mother, Timiskaming, Ontario, 2019–2020[16]



**Statistically different from Ontario's rate*

Maternal behaviours and risk and protective factors

Personal health practices refer to the actions by which people can prevent diseases, promote self-care and make choices that enhance health.[25,28]

People may experience stress due to not having enough money, being unemployed, having unsafe housing, discrimination, trauma or violence, which may result in more physical strain on their body. Ongoing stress can weaken the immune system, which makes people more at risk of illness and disease. People who experience high levels of stress may also relieve these pressures by adopting unhealthy coping behaviours, such as substance use (including tobacco, alcohol and other substances). These behaviours are effective in bringing momentary relief and may be used as a response to adverse life circumstances, but they make the situation worse in the long run.[6]

This section largely refers to health behaviours during the life stage of pregnancy. However, it is important to note that good preconception health can improve both maternal and child health outcomes. In Ontario, approximately 40% of all pregnancies are unplanned, which stresses the importance of identifying, managing, reducing and preventing risk factors even before pregnancy.[31]

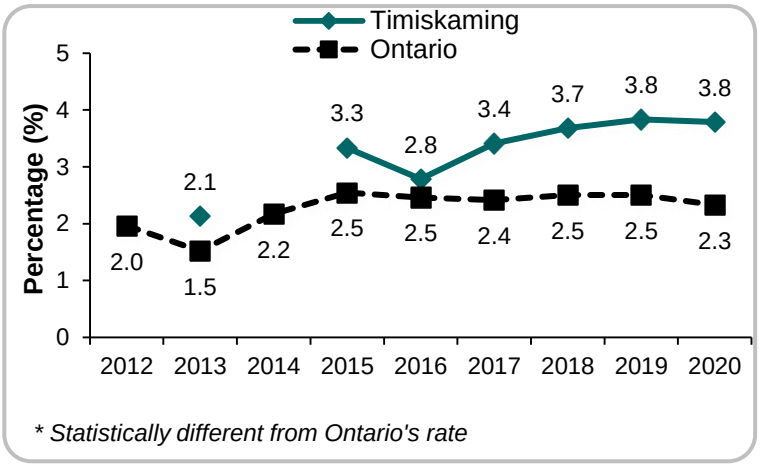
Alcohol use during pregnancy

Alcohol consumption during pregnancy can cause fetal alcohol spectrum disorder, which is associated with birth defects, behavioral and emotional issues and physical, brain and central nervous system disabilities.[32] Research suggests that it may also increase the risk of the child later developing adult alcohol abuse and alcohol dependence.[22]

In 2020, 3.8% of Timiskaming women reported alcohol use during their pregnancy, which was not statistically different from Ontario's rate of 2.3%.[33] From 2017 to 2020, the majority of the alcohol exposure happened prior to receiving their pregnancy confirmation (2.6% of the total 3.7%, which is approximately two-thirds).[33] The next largest majority was from women who drank less than one drink per month (0.7% of the total 3.3%).[33]

Timiskaming's rates are not statistically different from Ontario's rates for any of the years shown in *Figure 14.* Estimates for 2012 and 2014 were not available due to small sample sizes.

Figure 14: Proportion of women who reported alcohol use during pregnancy, Timiskaming, Ontario, 2012 (Apr - Dec)–2020[33]



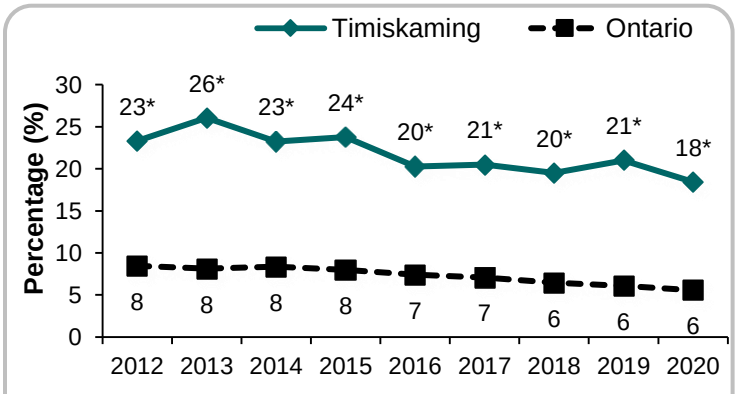
** Statistically different from Ontario's rate*

Smoking during pregnancy

Smoking during pregnancy can increase the risk of sudden infant death syndrome, stillbirth, placental complications and an overall increased risk of infant mortality and morbidity.[22] Smoking rates during pregnancy are higher among women with low socioeconomic status.[22]

In 2020, 18% of mothers were smoking at the time of the newborn's birth, which was statistically higher than Ontario's rate *(Figure 15*).[33] Of the women who smoked, 61% smoked less than 10 cigarettes per day and 38% smoked more than 10 cigarettes per day.[33]

Figure 15: Proportion of women who smoked at the time of their newborn's birth, Timiskaming, Ontario, 2012 (Apr-Dec)–2020[33]



** Statistically different from Ontario's rate*

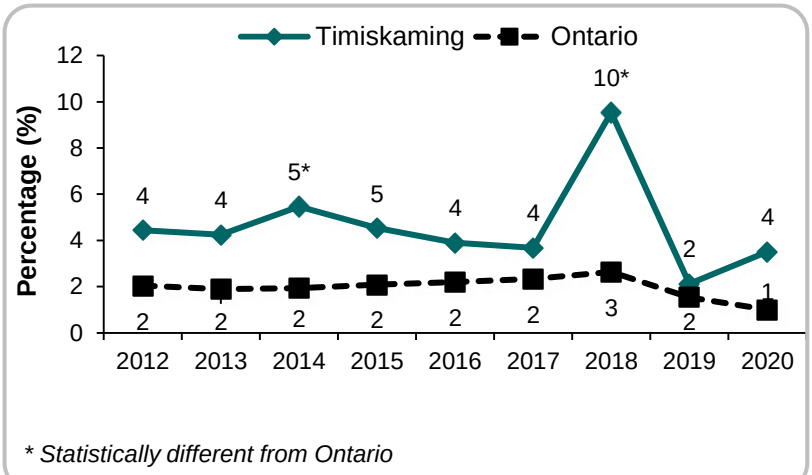
Other drug and substance use during pregnancy

Drug use during pregnancy can cause harm in a variety of manners depending on the specific drug used. Drugs can affect the fetus directly, alter the function of the placenta, cause harmful contractions of the uterus, or affect the fetus indirectly such as altering the mother's blood pressure, which may reduce blood and nutrient flow to the baby.[34]

Drug or substance use during pregnancy in Timiskaming women from 2012 to 2020 generally ranged around 4% or 5% with the exception of 2018 and 2019.[33] In 2018 there was a drastic increase in the number of women who reported using cannabis, and in 2019, 2% of women reported using drugs or substances (*Figure 16*).[33]

Timiskaming's rate was statistically higher than Ontario's rate in 2014 and 2018.[33]

Figure 16: Proportion of women who did drugs or other substances during pregnancy, Timiskaming, Ontario, 2012 (Apr - Dec)–2020[33]



** Statistically different from Ontario*

Nutrition

Diet in preconception and early pregnancy can affect birth and maternal outcomes through several mechanisms. Insufficient folate intake increases the risk of neural tube defects; iron deficiency increases the risk of early delivery and development of iron deficiency in the child within the first few years of life; and vitamin D deficiency in the mother increases the risk for infant vitamin D deficiency.[35,36]

While iron and folate supplementation is recommended during pregnancy and vitamin D supplementation is recommended after birth, these supplements should be taken in addition to a diet based on Canada's Food Guide.[37]

There is no data specific to the diet of Timiskaming women during pre-pregnancy or during pregnancy.

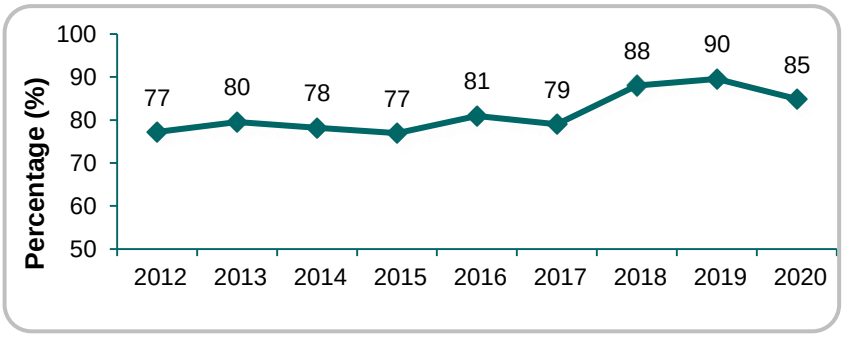
Folic acid supplementation

Folic acid supplementation reduces the risk of neural tube defects such as spina bifida and anencephaly.[22] In addition to eating according to Canada's Food Guide, it is recommended that women of childbearing age should take 0.4mg of folic acid daily.[22] In 1998, folic acid was added to all white flour, pasta and cornmeal in Canada, which was associated with a 42% decrease in the rates of neural tube defects.[22]

In 2020, 85% of the pregnant women in Timiskaming supplemented with folic acid (*Figure 17*).[38] Among women in Timiskaming who were supplementing with folic acid:

Figure 3: Proportion of pregnant women who supplemented with folic acid during preconception or pregnancy, Timiskaming, 2012 (Apr-Dec)–2020[38]

- 2% did so during the preconception period only,
- 57% did so during pregnancy only, and
- 27% did so during both preconception and pregnancy.[38]



Healthy weight gain during pregnancy

Definition

Weight bias is the "negative social attitudes and beliefs about others based on their body weight, shape and/or size."[39]

Definition

Weight stigma is the "labelling and stereotyping based on one's body weight, shape and/or size, which stems from weight bias." It leads to prejudice and weight discrimination, which is the "action or decision to treat individuals or a group of people differently based on their body weight, size and/or shape" resulting in negative impacts on health outcomes.[39]

When considering weight at a societal level, it is important to consider weight bias and weight stigma. Internalized weight stigma results in shame, blame, anxiety, depression, low self-esteem, poor body image and body dissatisfaction leading to subsequent unhealthy weight-control practices, eating disorders and weight gain.[39]

This section should be interpreted with the awareness that little research has been conducted regarding weight bias and pregnancy.[40] Recent studies suggest that experiencing weight-related discrimination during pregnancy is linked to excess pregnancy weight gain, weight gain retention and postpartum depression.[41] Furthermore, maternal pre-pregnancy Body Mass Index (BMI) categories are used to evaluate gestational weight gain, predicting pregnancy and birth outcomes. Today, pre-pregnancy BMI is the only available anthropometric indicator recommended by the World Health Organization, Institute of Medicine and Health Canada. Women who are overweight or obese prior to their pregnancy are more likely to gain excessive weight during their pregnancy. Excessive weight gain during pregnancy increases the risk of gestational diabetes, hypertension, complications during labour and delivery and difficulties

losing the extra weight after pregnancy.[42] Higher gestational weight gain is also associated with increased childhood weight gain and increased risk of the child developing type II diabetes later in life.[42]

Being underweight increases the risk of maternal complications during pregnancy and the delivery of small and premature newborns.[35]

BMI is a ratio of weight to height, and is calculated by dividing an individual's weight in kilograms by his or her height in meters squared. *Table 2* provides the percentage of Timiskaming and Ontario women's BMI category pre-pregnancy.[33] There was a lower percentage of pre-pregnancy women who had a normal weight in Timiskaming compared to Ontario, and a higher percentage of pre-pregnancy women who were obese in Timiskaming compared to Ontario.

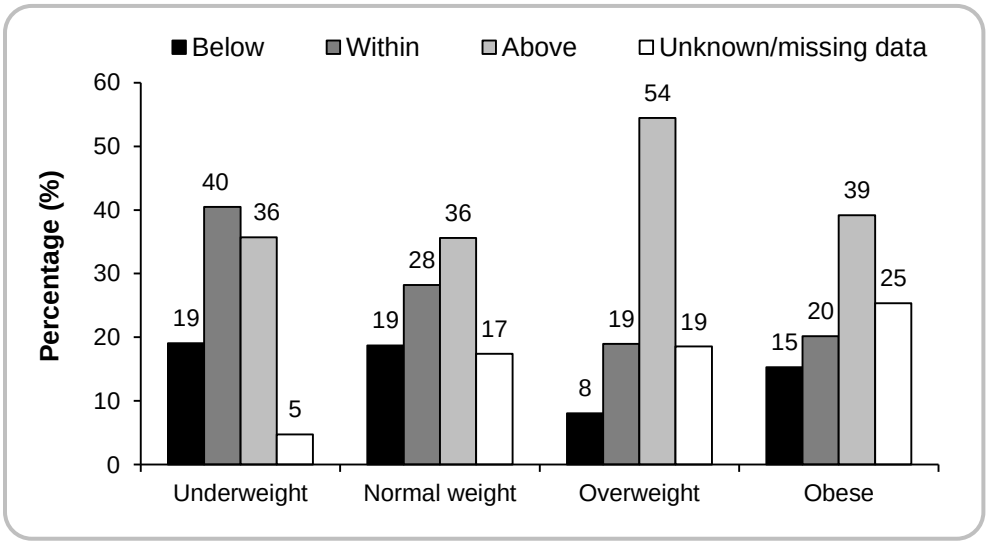
Table 2: Proportion of mothers by pre-pregnancy BMI category, Timiskaming, Ontario, 2018–2020[33]

	Timiskaming	Ontario
Underweight	4%	5%
Normal	40%	50%
Overweight	26%	25%
Obese	29%	20%

There were also higher percentages of weight gain beyond the recommended amount during pregnancy in Timiskaming, especially in women who were overweight or obese pre-pregnancy. About half of the women who were overweight (54%) or obese (39%) prior to pregnancy gained more weight than was recommended during pregnancy.[43]

Since there was a large proportion of unknown weight gain values in local data (missing data), this grouping was also illustrated (*Figure 18*).

Figure 4: Pre-pregnancy body mass index categories by weight gain below, within, or above what is recommended in pregnancy, Timiskaming, 2018–2020[43]



Regardless of their pre-pregnancy weight, 19% of women gained below the recommended weight, 30% of women gained the recommended weight, and 52% gained above the recommended weight.[43]

Physical activity

Physical activity during pregnancy improves mood and energy level, builds strength for labour and birth and helps with appropriate weight gain, better sleep, constipation, backaches and bloating.[44]

There is no current local information on the physical activity levels of pre-pregnant or pregnant women in Timiskaming.

Preparation for parenting

There are no indicators currently available that directly show how prepared parents and caregivers are for parenting. Attendance at prenatal classes and parents and caregivers expressing concern about their ability to parent their infant are the only indicators available that may provide insight into preparation for parenting.

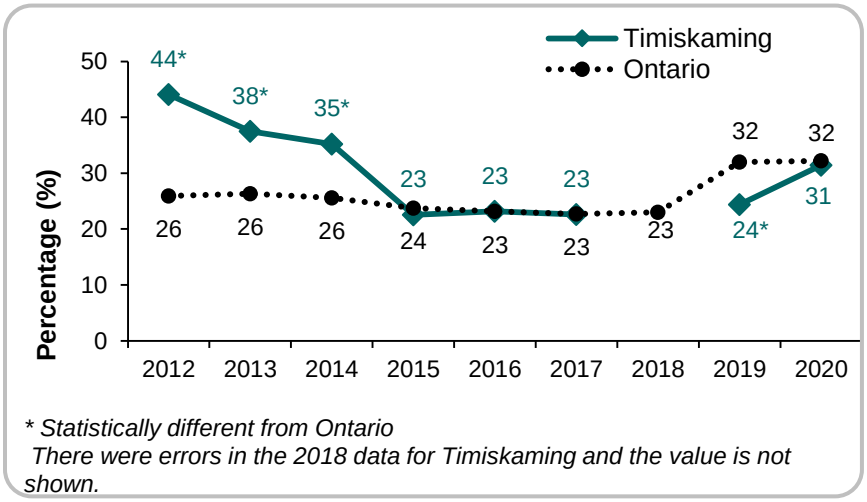
Prenatal classes

Prenatal classes are designed to provide important pregnancy, birthing and infant care information.

In Timiskaming, 31% of expecting women attended prenatal education (either in-person or the online prenatal class).[33] This includes women who attended an educational session for a previous birth (*Figure 19*). There were errors with the 2018 rate for Timiskaming and that value is omitted in the graph.[33]

In 2020 there were no statistical differences between Timiskaming and Ontario.

Figure 19: Proportion of women who gave birth and attended a prenatal class, Timiskaming, Ontario, 2012 (Apr-Dec)–2020[33]



** Statistically different from Ontario*
There were errors in the 2018 data for Timiskaming and the value is not shown.

Concern about ability to parent

In 2018, very few parents or caregivers to new infants expressed concern about their ability to parent their baby.[26] Similarly, very few parents or caregivers to new infants expressed concern about their ability to care for their baby.[26]

Maternal health conditions during pregnancy

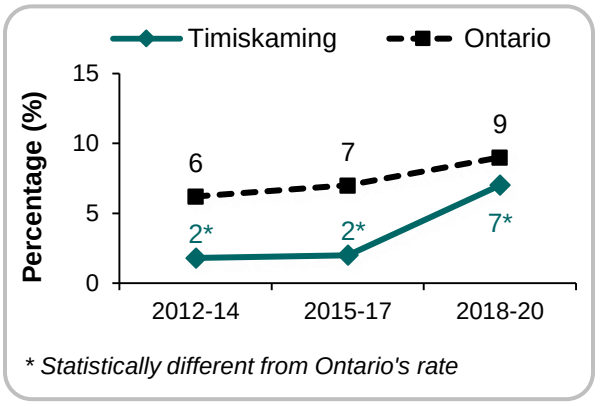
Certain conditions can be present or develop during pregnancy, which can pose a risk to the health of both the mother and fetus. The proportion of mothers in Timiskaming who experienced some of the more common conditions is described in more detail below.

Gestational diabetes

In 2018-20, 7% of pregnant women in Timiskaming had gestational diabetes during their pregnancy, which was statistically lower than Ontario's rate of 9%.[33]

The rate for Timiskaming statistically increased from 2015-17 to 2018-2020 (*Figure 20*).[33]

Figure 20: Proportion of women who had gestational diabetes during their pregnancy, Timiskaming, Ontario, 2012 (Apr-Dec)–2020[33]



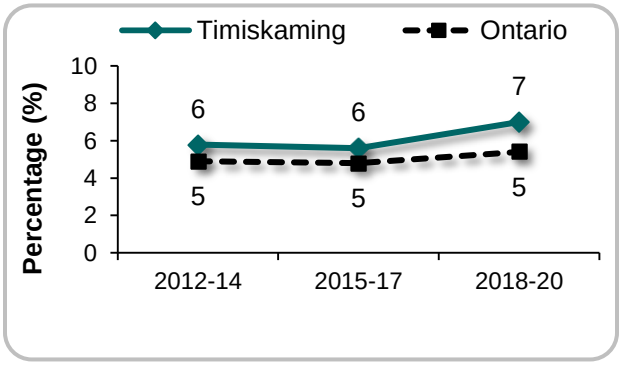
Maternal hypertension disorder

Between 2018 and 2020, 6% of pregnant women in Timiskaming had a maternal hypertension disorder during pregnancy, which was not statistically different than Ontario's rate of 5%.[33]

Neither Timiskaming's nor Ontario's rate statistically changed from 2012-14 to 2018-20 (*Figure 21*).[33]

The most common hypertension disorder in Timiskaming was gestational hypertension (69%), followed by preeclampsia (18%).[33]

Figure 21: Proportion of women with maternal hypertension disorder, Timiskaming, Ontario, 2012 (Apr-Dec)-2020[33]

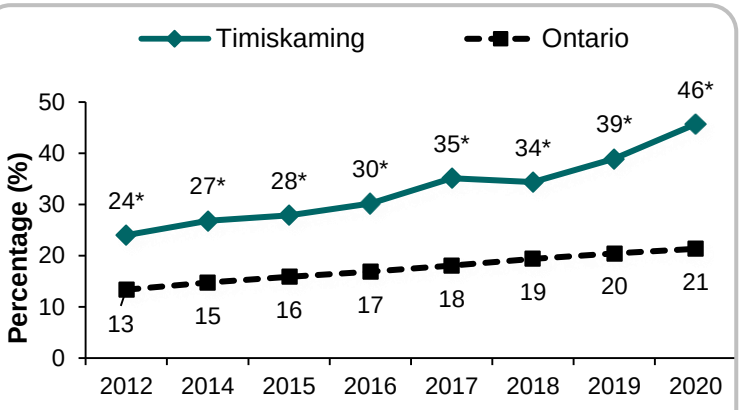


Mental health concerns

In 2020, 46% of pregnant women in Timiskaming had one or more mental health concern, which was statistically higher than Ontario's rate of 21%.[33]

The rates in Timiskaming each year between 2012 and 2020 were statistically higher than Ontario's rate (*Figure 22*). Timiskaming's rates did not statistically increase by year; however, the rates show a more gradual increase. For instance, the 2018, 2019 and 2020 rates were statistically higher than the 2012 rate.[33]

Figure 22: Proportion of women with one or more mental health concerns during pregnancy, Timiskaming, Ontario, 2012 (Apr-Dec)–2020[33]



** Statistically different from Ontario's rate*

In 2020, the most frequent mental health concerns among pregnant or new mothers in Timiskaming were anxiety (54%), depression (31%) and history of postpartum depression (9%).[33]

Chapter 4 – General birth outcomes

This section outlines the population-level birth outcomes. Health in the first stage of life is a vital precursor to health in childhood and even extends into adulthood.

Parity

Both first-time mothers and mothers who have already had three or more births are at a higher risk of poor perinatal outcomes.[45]

First-time mothers are at risk of giving birth to low weight infants, having preterm births and giving birth to an infant with underdeveloped uterine and vascular structures. High parity women are at higher risk for poor perinatal outcomes, which may be due to maternal depletion of nutrients and postpartum stress. However, the poorer outcomes due to high parity may also be due to low socioeconomic status and behavioral factors.[45]

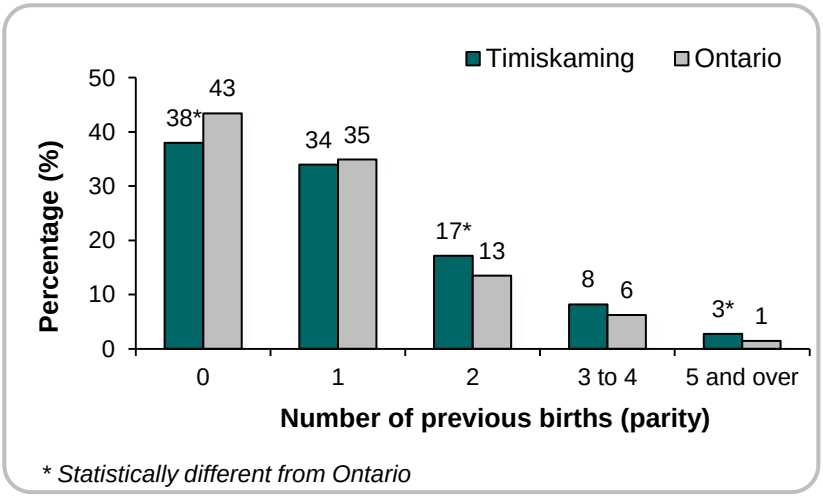
Definition

Parity is the number of previous births (both live and stillbirths) a woman has experienced.

In Timiskaming, 38% of birthing women gave birth to their first child, 34% to their second child, 17% to their third or fourth child, and 3% to their fifth child or over.[33]

Compared to Ontario, the percentage of women who gave birth in Timiskaming for the first time was statistically lower. The percentage who gave birth two times and five and over times were statistically higher than Ontario (*Figure 23*).[33]

Figure 23: Proportion of women who gave birth by parity category, Timiskaming, Ontario, 2019-2020[33]



** Statistically different from Ontario*

Multiple births

Definition

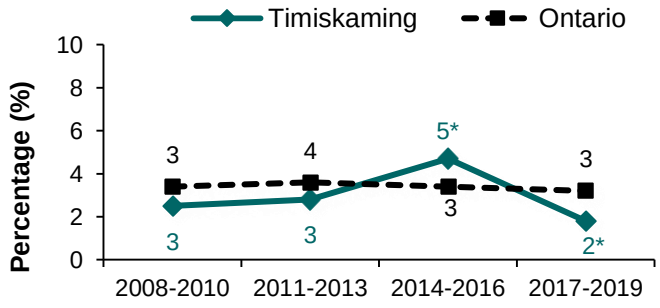
The multiple birth rate is the total number of live multiple births divided by the total number of births.

Mothers with multiple gestation pregnancies are at an increased risk for poor perinatal outcomes such as anemia, pre-eclampsia, having preterm labour and birth and caesarean delivery. The infants in these pregnancies are also at risk for poor health outcomes such low birth weight, poor fetal growth and perinatal death.[46]

The percentage of multiple births has increased in Canada from 2.2% of total births in 1995 to 3.0% in 2004.[47] The upward trends in multiple birth rates are likely the result of an increased use of assisted reproductive technology.[48,49,50] Older women are more likely to have natural multiple gestation pregnancies and are also at increased risk for infertility, which may increase the usage of assisted reproductive technology.[51]

Between 2017 and 2019, 3% of all births in Timiskaming were multiple births, which equates to an average of 6 births per year.[18] *Figure 24* contains the percentage of births that were multiple in Timiskaming and Ontario over time. Timiskaming's rate was higher than Ontario's in 2014-2016 and lower than Ontario's in 2017-2019.[18]

Figure 24: **Proportion of multiple births, Timiskaming, Ontario, 2008–2010 and 2017–2019[18]**



** Statistically different from Ontario's rate*

Gestational age

Definition

The preterm birth rate is the percentage of live births with a gestational age at birth of less than 37 completed weeks.

The leading cause of death in infants in Canada is prematurity.[22] Babies born preterm are at greater risk of cerebral palsy, respiratory failure, gastrointestinal complications, immunologic deficiencies, central nervous system hemorrhage and developmental problems.[22] Preterm births can be influenced by behavioural and psychosocial factors, neighbourhood characteristics, environmental exposures, medical conditions, infertility treatments and genetic factors like race and ethnicity.[22]

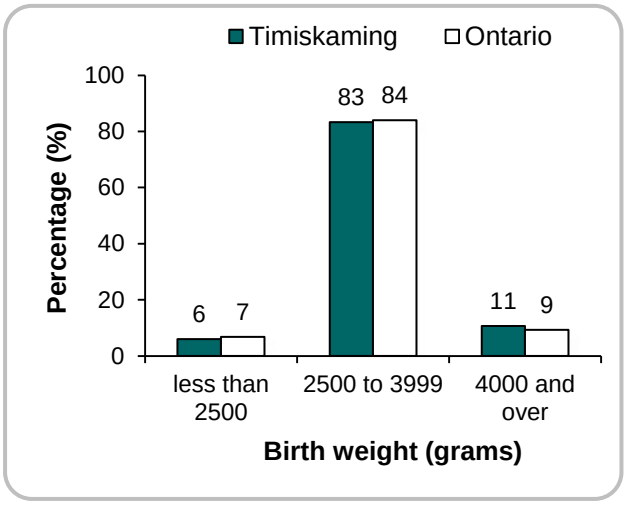
In Timiskaming from 2018 to 2020, most infants (92%) were born at 37 to 41 weeks, which was the same as Ontario's rate of 92%.[52] The percentage of preterm births was 7%, which was not satistically different from Ontario's rate of 8%.[52] When preterm births were broken down further, most were in the 34 to 36 weeks (5% for Timiskaming and 6% for Ontario).[52]

Birth weight

Definition

Low birth weight is expressed as a percentage of all live births between 500 g and 2,500 g. The rate excludes stillbirths and multiple births. Normal birth weight is 2,500 g up to 4,500 g and high birth weight is 4,500 g and over. The data available on birth weight does not align perfectly with the categories defined above; however, these data can still provide insight into birth weight in Timiskaming and Ontario.

Low birth weight is a universal measure associated with premature birth or slow growth of the fetus. It is associated with increased risk of death and developing certain conditions later in life.[22]



Low birth weight can be influenced by various factors such as maternal cigarette smoking, genetic factors (including race and ethinicity), nutritional factors, parity and maternal health conditions.[22] High birth weight, although less researched, has increased risks for both the mother and infant and may also be influenced by various factors such as maternal diabetes, genetic predispositions and race and ethnicity.

In 2019-2020, 83% of birth weights in Timiskaming were in the normal weight category,[52] 6% were underweight and 11% were 4,000 g or over.[52] None of these percentages were statistitically different from Ontario (*Figure 25*).[52]

Congenital anomalies

Definition

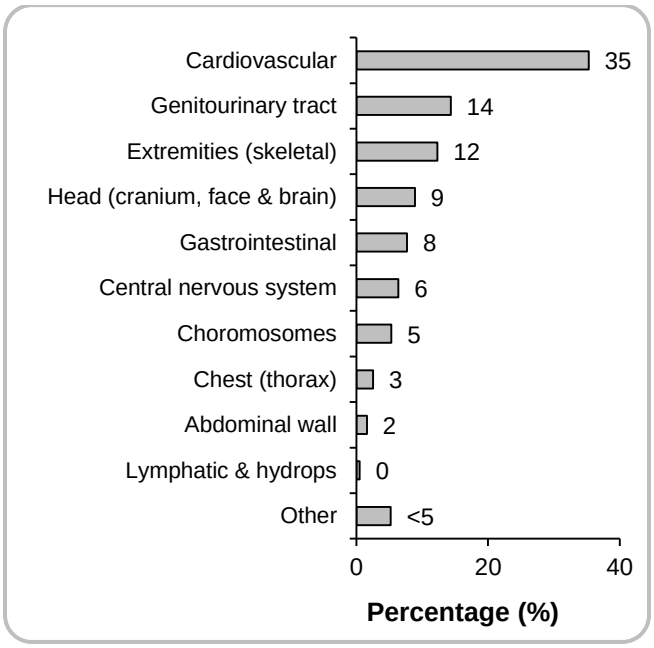
Congenital anomalies, also known as birth defects or congenital malformations, describe an abnormality of structure or function, which is present at birth.

Overall, the number of deaths due to congenital anomalies has been decreasing over time. This decrease may be due to numerous factors such as improved nutrition, prenatal care and recognition of medications linked to congenital anomalies.[22] Congential anomalies can be influenced by a wide range of factors such as genetics, environmental exposures, infections, medications, nutrition, maternal health conditions such as obesity and diabetes, age and race.

Between 2018 and 2020, 0.4% of Timiskaming births (including stillbirths and live births) had a congenital anomaly, which was statistically higher than Ontario births with anomalies (0.3%).[52]

The proportion of various congenital anomalies are not available in Timiskaming due to few congenital anomalies overall; therefore, only Ontario is illustrated in *Figure 26*. Overall, the most common congenital anomaly types in Ontario in 2019-2020 were cardiovascular (35%), genitourinary tract (14%) and skeletal extremities (12%).[52] It is important to note that these proportions are not mutually exclusive, meaning a baby can have more than one congenital anomaly.

Figure 26: Congenital anomalies present at birth, Ontario, 2019-2020[52]



Chapter 5 – Infant, child and adolescent health

Infant feeding

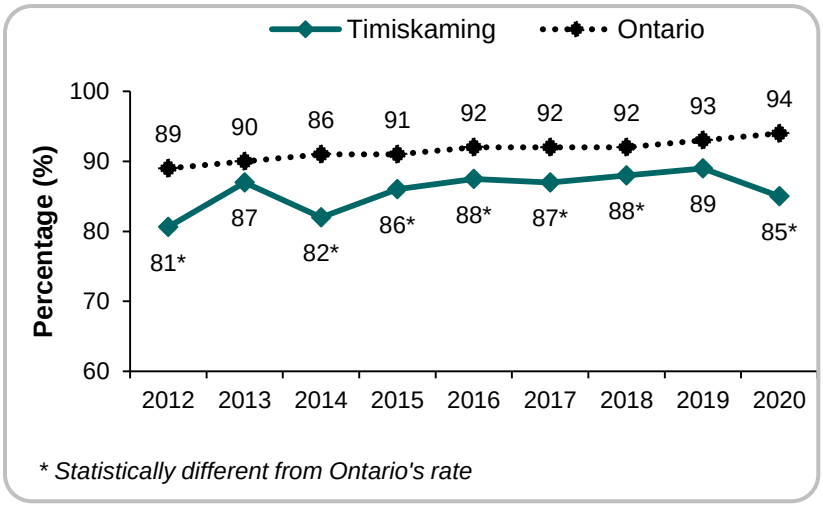
Breastfeeding has health benefits for both the child and the mother. The benefits to infants are optimum growth, optimum cognitive development and enhanced immunity.[22] The benefits to the mother include reduced postpartum bleeding, improved bone remineralization, reduced risk of breast cancer and a faster return to pre-pregnancy weight.[22]

Initiating breastfeeding

In 2020, 85% of mothers in Timiskaming initiated breastfeeding, which was statistically lower than the 94% of Ontario mothers.[52]

Years where Timiskaming's rates were statistically different from Ontario's are outlined in *Figure 27*.[52]

Figure 27: Proportion of mothers who initiated breastfeeding, Timiskaming, Ontario, 2012 (Apr-Dec)–2020[52]



Infant feeding 48 hours after birth

In 2017, 66% of mothers were exclusively breastfeeding, 19% of mothers were non-exclusively breastfeeding and 15% were providing formula only at 48 hours after discharge.[23]

Mothers who did not exclusively breastfeed were asked to provide their rationale for their infant feeding choice. The most common responses in 2017 were informed parental decision (56%), infant not latching (13%) and not enough milk (10%). Other less common reasons included preterm infant (4%), mother too tired (3%) and hypoglycemia (3%).[23]

When mothers were asked about infant feeding support, 95% of mothers stated that after they left the hospital, they knew how to get help with feeding their infant if it were required.[23]

Infant feeding 6 months after birth

In 2017, 46% of mothers were providing breast milk (either exclusively or non-exclusively) to their six month old child.[23]

Of the mothers who were still breastfeeding their infant at 6 months in 2017 (82 mothers), 39% planned to breastfeed as long as the baby wanted breast milk, 37% planned to breastfeed until the child was 12 to 18 months of age and 11% planned to breastfeed until the child was 6 to 12 months of age.[23]

Mothers were asked at what age they started feeding their infant solid foods. The average infant's age when mothers introduced solid foods was 5.4 months. Two months was the youngest, and the majority (66%) were 5.5 months of age or older.[23]

Infant, child and adolescent mortality

Definition

A mortality rate is the number of deaths in the population, usually expressed per 100,000 people. For instance, the mortality rate for infants would be the number of infant deaths per 100,000 infants.

Over the last 100 years, infant mortality has been decreasing due to improvements in sanitation, nutrition and child and maternal care. Even with these improvements, infants have a high mortality rate compared to older children mostly due to congenital problems.

Table 3 contains the mortality rates for infants, children and adolescents in Timiskaming and Ontario.[53] In general, Timiskaming's mortality rates should be interpreted with caution as there were very few deaths, which resulted in a small sample size. For infants, there was an average of 2 deaths per year, and for those 10 to 19 years of age there was an average of 2 deaths per year.[53] Timiskaming's mortality rates for infants and those aged 10 to 19 years were statistically higher than Ontario's rates.

The top causes of death in Timiskaming infants were from congenital malformations, deformations and chromosomal abnormalities (48%), followed by 35% from "certain conditions originating in the perinatal period" (such as complications during pregnancy and delivery, disorders related to the length of gestation and perinatal infections).[53] There were too few deaths to calculate the top causes for children aged 1 to 9 years but for children aged 10 to 19 years, the top cause was transportation collisions (45%), followed by intentional self-harm (23%) (*Table 4*).[53]

Table 3: Infant, child and adolescent mortality, Timiskaming, Ontario, 2006–2015[53]

Age Group (years)	Timiskaming rate per 100,000	Ontario rate per 100,000
Under 1	737	481
1–9	F	11.7
10–19	52	20.4

[F] The estimate failed because there were not enough deaths in this age group to calculate a rate.

Table 4: Leading causes of mortality by age, Timiskaming, 2006–2015[53]

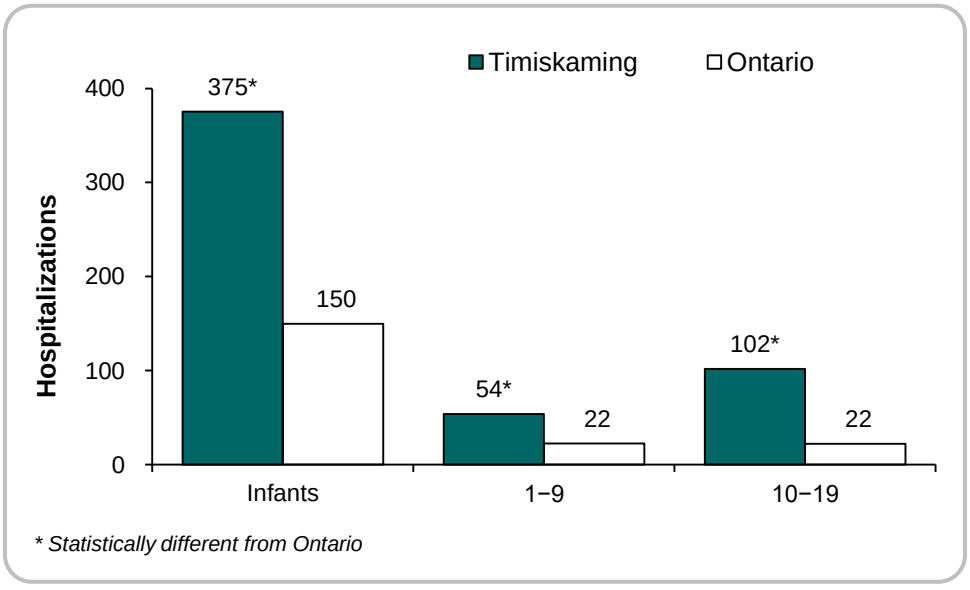
Age Group (years)	Timiskaming	Ontario
Under 1	• 48% congenital malformations, deformations and chromosomal abnormalities • 35% conditions originating in the perinatal period	• 61% conditions originating in the perinatal period • 23% congenital malformations, deformations and chromosomal abnormalities
1–9	• Not enough deaths to provide results	• 15% cancers • 13% congenital malformations, deformations and chromosomal abnormalities
10–19	• 45% transportation collisions • 23% intentional self-harm	• 22% transportation collisions • 19% intentional self-harm

Infant, child and adolescent hospitalization

Hospitalization data provides information on severely ill or injured children who required admission to a hospital. However, a person may be hospitalized more than one time for the same reason or may be discharged from one hospital and transferred to another hospital. Data does not include illnesses or injuries not serious enough to be admitted to a hospital.

Data in the figure below compare infant (under 1 year of age), child (aged 1–9) and adolescent (10–19) hospitalization rates in Timiskaming and Ontario. Infants had the highest hospitalization rate even though hospitalizations for birth were excluded.[54]

Figure 28: Infant, child and adolescent hospitalization rates (per 1,000), Timiskaming, Ontario, 2014–2018[54]



The most common causes of hospitalization for infants in Timiskaming was conditions originating in the perinatal period such as complications during pregnancy and delivery, disorders related to the length of

gestation and perinatal infections, (41%), followed by diseases of the respiratory system (17%).[54] For children 1 to 9 years of age, the most common causes of hospitalization were diseases of the respiratory system (30%) and injury and accidental poisonings (11%). Finally, for adolescents in Timiskaming, the most common causes of hospitalization were mental and behavioural disorders (37%), followed by injuries and accidental poisonings (13%).[54] See *Table 5* for more details and Ontario comparisons.

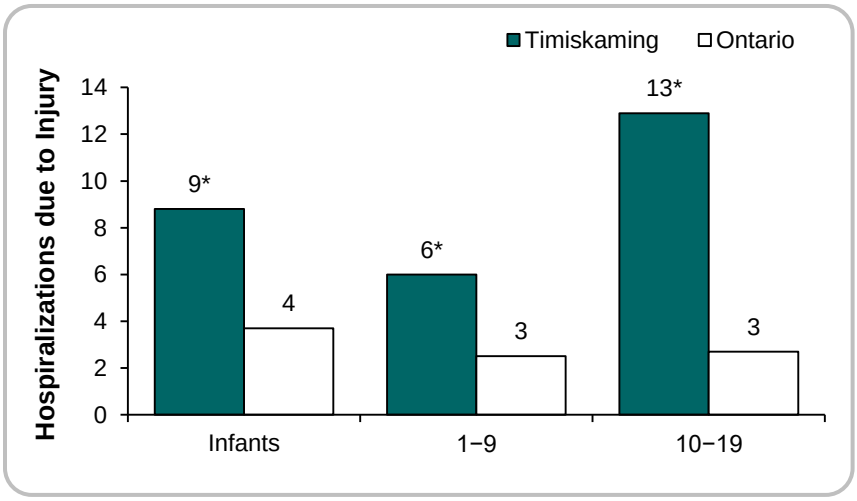
Table 5: Leading causes for hospitalizations by age, Timiskaming, Ontario, 2014–2018[54]

Age Group (years)	Timiskaming	Ontario
Under 1	• 41% conditions originating in the perinatal period • 17% diseases of the respiratory system • 11% congenital malformations, deformations & chromosomal abnormalities	• 43% conditions originating in the perinatal period • 18% diseases of the respiratory system • 7% congenital malformations, deformations & chromosomal abnormalities
1–9	• 30% diseases of the respiratory system • 11% injuries & accidental poisonings • 11% other symptoms, signs & abnormal clinical & laboratory findings	• 31% diseases of the respiratory system • 11% injuries & accidental poisonings • 9% certain infectious & parasitic diseases
10–19	• 37% mental & behavioural disorders • 13% injuries & accidental poisonings • 11% diseases of the digestive system • 11% pregnancy, childbirth & the puerperium	• 25% mental & behavioural disorders • 14% diseases of the digestive system • 12% injuries & accidental poisonings

Childhood injuries

Similar to hospitalizations overall, children in Timiskaming have statistically higher rates of hospitalizations due to injury compared to children in Ontario across all age categories (*Figure 29*).[53] The highest rates of hospitalizations due to injuries were seen in older children aged 10–19, with automobile accidents being the leading cause (not shown).

Figure 29: Proportion of children (19 and under) hospitalized due to injuries, Timiskaming, Ontario, 2017[53]



Early learning and education

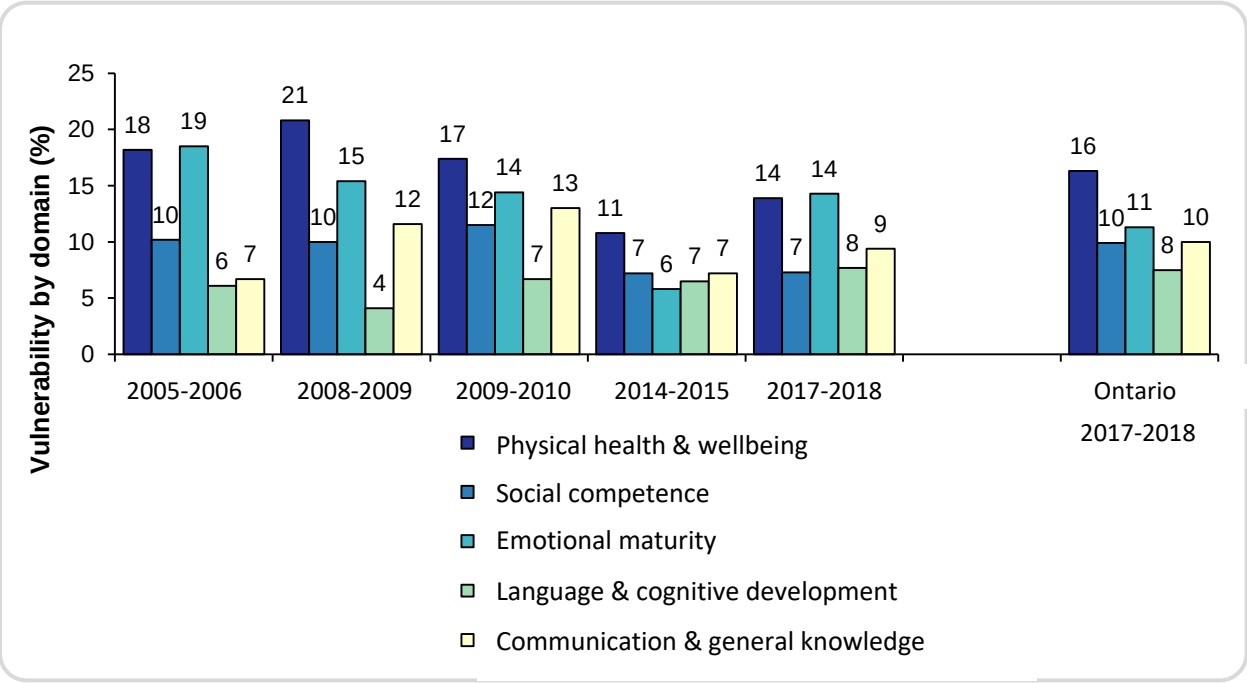
Early child experiences form the foundation for a child's development across each of the life stages by influencing physical, social, emotional and cognitive development. This in turn affects several aspects of a child's life such as their ability to learn and overall educational achievement, employment in adulthood and overall health and quality of life. Investments in early child development are powerful equalizers

among children from different socioeconomic backgrounds as it has been observed to provide the greatest gains for the most deprived children.[55]

The Early Development Instrument (EDI) is a Canadian-made early development questionnaire from McMaster University.[55] The questionnaire is completed by a child's senior kindergarten teacher and is meant to measure a child's ability to meet age-appropriate developmental expectations in five domains of early development. These domains are physical health and wellbeing, social competence, emotional maturity, language and cognitive development and communication skills and general knowledge. All five of these domains are directly and indirectly impacted by a child's environment in their early years (birth up to and including 5 years).[56] If a child does not meet these age-appropriate expectations in one or more of the domains, they are considered to be "vulnerable" in terms of being at an increased risk of difficulties in school years and beyond. Healthy children who experience appropriate growth and development are more likely to grow up to be healthy in adolescence and adulthood.

In the 2017-2018 school year, 29% of children in Timiskaming were considered vulnerable in at least one EDI domain, which increased from the previous cycle in the 2014-2015 school year (23%).[55] The increase in vulnerability occurred across all five domains but the only statistically significant increase occurred in the emotional maturity domain. Conversely, the proportion of children in Ontario who were vulnerable did not change substantially between 2014-2015 and 2017-2018, with 29% and 30%, respectively.[56] In 2017-2018, differences in vulnerability between Timiskaming and Ontario were not statistically significant. (*Figure 30*).

Figure 30: Proportion of vulnerable children by domain, Timiskaming, 2005-2006, 2008-2009, 2009-2010, 2014-2015, 2017/2018[56]



Four of the five domains are further broken down into subdomains, which can be used to ascertain the areas where children are particularly struggling in Timiskaming.

Communication skills and general knowledge

A child's communication skills development is assessed in several areas including storytelling, want and ability to socialize appropriately and having age-appropriate knowledge about life and the world.

In Timiskaming, 9% of children were not meeting expectations in 2017-2018, which was comparable to the 2014-2015 cycle, where 7% of children were not meeting expectations.[55]

In 2017-2018, children in Timiskaming compare closely to children in Ontario, which showed that approximately 10% of children are not meeting expectations in respect to one or multiple of these skills.[55]

Physical health and wellbeing

The subdomains within the physical health and wellbeing domain are 1) physical readiness, 2) physical independence and 3) gross and fine motor skills.

In Timiskaming, 14% of children did not meet expectations in 2017-2018, which was comparable to the 2014-2015 cycle, where 11% of children did not meet expectations.[55] In 2017-2018, children in Timiskaming were similar to children in Ontario, which shows that approximately 16% of children were not meeting expectations in respect to one or multiple of these skills.[55]

When assessed for gross and fine motor skills, 19% of children were not ready for school. 16% were not ready in terms physical independence.[55]

Social competence

The subdomains within the social competence domain are 1) overall social competence, 2) responsibility and respect, 3) approaches to learning and 4) readiness to explore new things. This domain describes a child's curiosity and eagerness, their knowledge of acceptable behavior, ability to play and work with other children and respect of adults and rules.

> *Children who start school not ready to learn are at a disadvantage and often never catch up. The degree to which a child is ready to learn at school predicts how well they will do at school.*
>
> - *Offord Centre for Child Studies*

In Timiskaming, 7% of children did not meet expectations in 2017-2018, which is comparable to the 2014-2015 cycle, where 7% of children did not meet expectations.[55]

In 2017-2018, children in Timiskaming were similar to other children in Ontario, which shows that approximately 10% of children were not meeting expectations in respect to one or all of these skills.[55]

When assessed for overall social competence, 13% of children were not ready for school.

Emotional maturity

The subdomains within the emotional maturity domain are 1) prosocial and helping behaviour, 2) anxious and fearful behaviour, 3) aggressive behaviour and 4) hyperactivity and inattentive behaviour. This domain describes a child's ability to express and deal with feelings including fear, anger and empathy.

In 2017-2018, 14% of children in Timiskaming did not meet expectations for emotional maturity, which was statistically higher compared to 2014-2015, where only 6% of children did not meet expectations. Specifically, when assessed for prosocial and helping behaviours, 24% of children were not ready for school and 17% were not ready due to hyperactivity and inattention.[55]

Children in Timiskaming were similar to children in Ontario in 2017-2018, which shows approximately 11% of children are not meeting expectations in respect to one or multiple of these skills.[55]

Language and cognitive development

The subdomains within the language and cognitive development domain are 1) basic literacy, 2) interest in literacy/numeracy and memory, 3) advanced literacy and 4) basic numeracy. This domain includes a child's ability to read, write and remember specific pieces of information, as well as comprehend numeracy and similarities and differences.

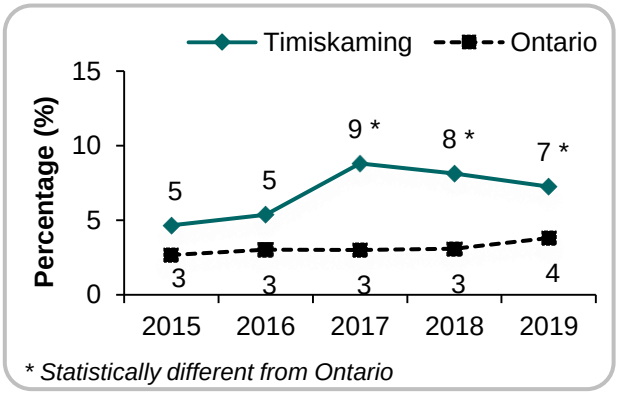
In 2017-2018, 8% of children in Timiskaming were not meeting expectations for language and cognitive development. Specifically, when assessed for basic numeracy, 13% of children were not ready for school.[55] This is comparable to 7% of children who were not meeting expectations in the 2014-2015 cycle.[55]

In 2017-2018, children in Timiskaming were similar to children in Ontario in respect to these skills, with only about 8% of children not meeting expectations in one or multiple of these skills.[55]

Mother or infant does not have a primary care provider

In Canada, access to health care is not equitable, which means that those with higher socioeconomic status have increased access to almost every health service available, despite experiencing better health outcomes and having a decreased need for health care. Ensuring equitable access to effective and appropriate health services can help mitigate the disparities in health outcomes due to the social determinants of health.[57] Whether or not an individual has a family physician generally determines the access to health care services, especially specialists, in Canada.

Figure 31: Percentage of infants whose parent(s) do not have a primary care provider, Timiskaming, Ontario, 2015–2019[5]



In 2019, 7% of infants and/or mothers in Timiskaming did not have a primary care provider, which was statistically higher than the 4% of Ontario infants and/or mothers (*Figure 31*).[5] For Timiskaming and Ontario, there were no changes in rate over time.[5]

Growth and development

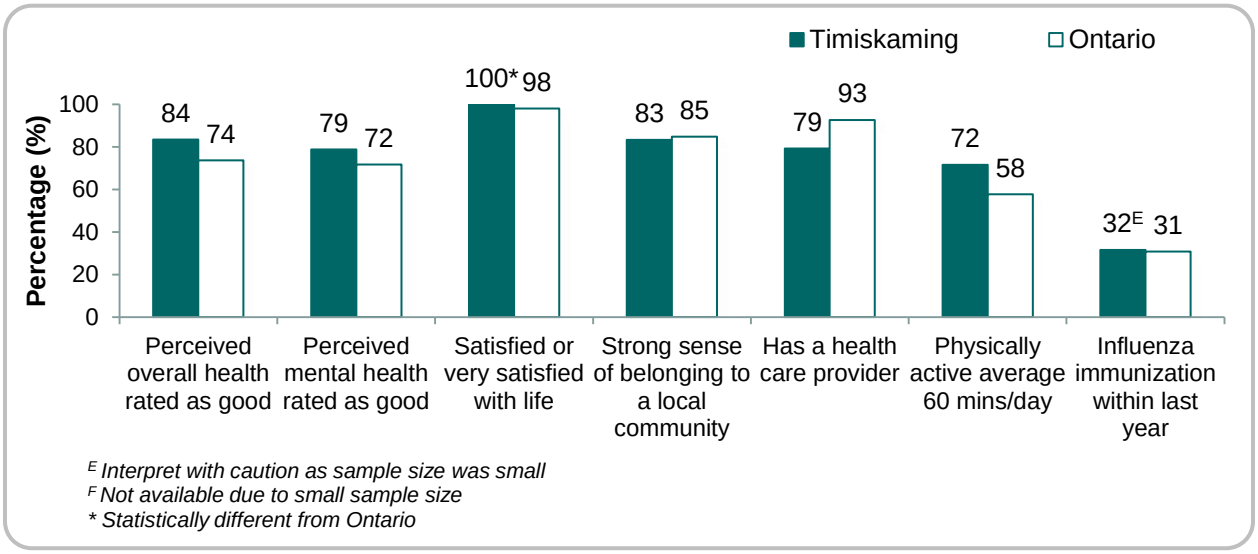
General health

General health indicators can help identify areas of concern in a population, while behavioural indicators can provide a sense of the future health of a population.

This section summarizes some general youth health indicators and indicators for behaviours that are available for Timiskaming's youth. Unfortunately, there were no data available for children under the age of 12 (*Figure 32*).

The only indicator that was statistically different from Ontario was being satisfied or very satisfied with life, where Timiskaming youth were higher than Ontario's youth.[58]

Figure 32: General health indicators for youth aged 12–17 years, Timiskaming, Ontario, 2017-2018[58]



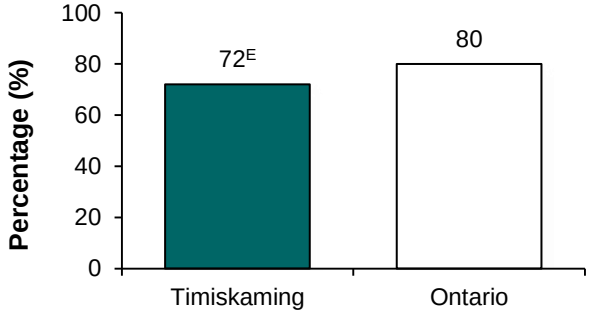
E Interpret with caution as sample size was small
F Not available due to small sample size
** Statistically different from Ontario*

Oral health

Poor oral health increases the risk of periodontal diseases, which in turn increase the risk of respiratory infections, cardiovascular disease, diabetes, poor nutrition, osteoporosis and rheumatoid arthritis.[59] There is also a strong link between poor oral health and children living in low-income conditions.[59]

Oral health screening is done in junior kindergarten, senior kindergarten and in some schools for grades 2, 4 and 7. Of the 1,768 students screened in the 2018-19 school year, 186 students (11%) were identified as having a cavity that required urgent care.[61]

Figure 33: Proportion of youth aged 12–19 who visited the dentist in the past year, Timiskaming, Ontario, 2015-2016[60]



E Small sample size, interpret with caution

In Timiskaming, 72%[E] of youth aged 12 to 19 visited the dentist in the past year.[60] This was not statistically different from Ontario's rate (*Figure 33*).[60]

Visual health

Vision is one of the most important senses for child development.

During the 2018-2019 school year, visual screening tests were offered to all senior kindergarten students in Timiskaming. These screening tests provide a means of identifying children with potential risk factors for vision disorders. Overall, there were 289 students screened during the school year, of whom 125 (43%) were referred for further assessment or a vision exam (not shown).[61]

School students' vaccination rates

Keeping vaccinations up-to-date protects children and youth from serious infectious diseases by preparing their immune systems to fight off diseases. Up-to-date coverage refers to the percentage of the school pupils who have received the recommended number of doses for each recommended vaccine by the appropriate age. In addition, children with evidence of immunity are considered to be protected, thus are also categorized as up-to-date. Measles, mumps, rubella, diphtheria, polio and tetanus immunization have been required under the Immunization of School Pupil's Act since 1982. In September 2014, pertussis, meningococcal and varicella were added to the Act.

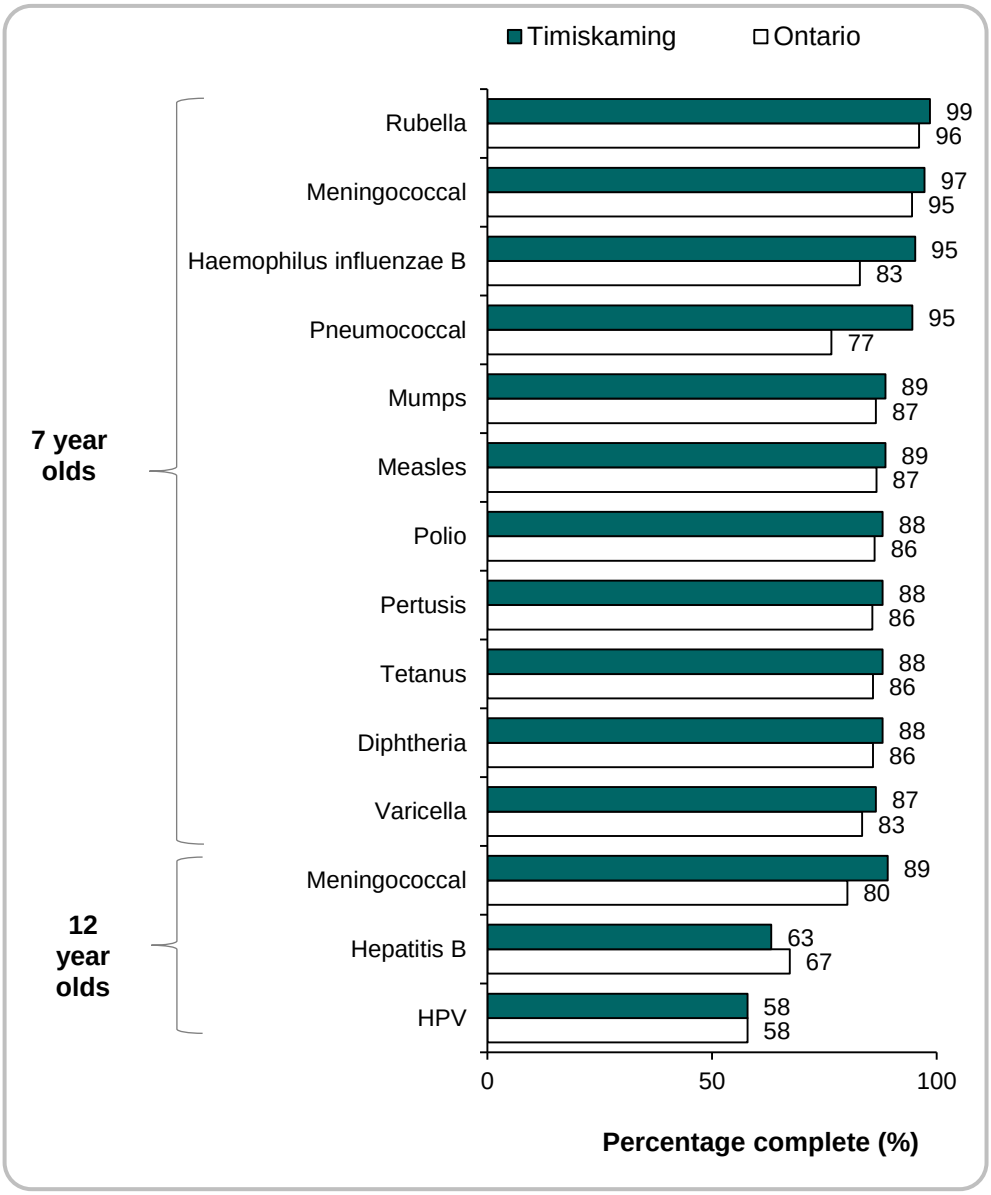
This report excludes children who do not attend traditional schools, such as those being homeschooled or those who attend private schools.

Figure 34 depicts the immunization status in Timiskaming and Ontario school pupils at the end of the 2017-2018 school year. Compared to schools pupils in Ontario, all of the coverage values in Timiskaming were higher, except for hepatitis B and human papilloma virus (HPV) vaccinations.[62]

Limitations of this data include:

- Students' school records not being up-to-date or accurate; and
- Administrative issues, since immunizations administered by health care providers are not required to be reported to public health.[62]

Figure 34: Proportion of school pupils who have up-to-date vaccine coverage, Timiskaming, Ontario, 2018-2019[62]



Because the vaccines mentioned above are required by the *Immunization of School Students Act,* children who do not receive these vaccines need to provide information for a valid exemption. Exceptions to any of these vaccines are classified into two categories, non-medical and medical.

- Non-medical exemptions include exemptions due to a conscientious or religious belief.
- Medical exemptions are usually due to severe allergies to vaccines or components of the vaccines, or immune system disorders.

In the 2017-2018 school year, 3% of 7 year olds in Timiskaming had non-medical exemptions for at least one vaccine. There were no students in Timiskaming who had medical exemptions.[61]

Chapter 6 - Physical, chemical and built environments

Although physical, chemical and built environments data are not presented in this report, their importance to reproductive, maternal and child health is vital. Pregnant women and children need their surroundings to be safe, secure and supportive. For instance, mental and physical problems can occur from fetal and child exposure to chemicals in the environment, such as cigarette smoke, medications, lead, etc.[63] Children exposed to toxins in utero or during childhood are particularly susceptible.[63] Furthermore, the built environment such as walkable neighbourhoods and access to parks and playgrounds, can encourage interaction. This provides opportunities for children to develop physical skills which can lead to lifelong physical activity.[63] For these reasons, it is important that physical, chemical and built environments, such as the home, child care settings and neighbourhoods are considered important factors to reproductive and child health.

Climate change implications for children and youth

Climate change impacts health directly through heat-related illnesses and indirectly through increased food insecurity, air pollution, reduced access to clean water and widespread social and economic disruption.[64,65]

Climate change is projected to impact the health of Timiskaming residents by 2050 in the following ways:

- There will be a 16% increase in skin cancer from exposure to UV radiation from the sun;
- Mosquitoes that spread West Nile Virus will be able to survive in Timiskaming's climate; and
- There will be more than five times as many heat waves.[66]

The average temperature already increased in Ontario by 1.5°C between 1948 and 2008 and is expected to continue to rise by as much as 3°C to 8°C over the next century.[66] The greatest increases in temperature are projected to occur in Northern Ontario.[67]

Infants and children are more vulnerable to the implications of climate change compared to adults because they metabolize more water, air and food for their body weight.[68] For instance, infants have an increased risk of morbidity and mortality due to heat because their temperature regulation systems are immature.[68] Due to higher respiratory rates and immature lungs, infants are also more susceptible to poor air quality.[68] Furthermore, children who are socioeconomically disadvantaged or who have a chronic condition are also at a greater risk.[68]

Conclusion

This report was designed to highlight how various factors directly and indirectly impact an individual's health status and quality of life throughout the life course. Despite some areas lacking local data, such as nutrition and education attainment specific to mothers, there is evidence to support health initiatives to improve reproductive, maternal and child health outcomes.

Both the mother and the child benefit from having a healthy pregnancy. The health of the mother, child, families and society overall can be improved by interventions that address modifiable risk and protective factors during pregnancy.[31]

Good preconception health can improve both maternal and child health outcomes. In Ontario, approximately 40% of all pregnancies are unplanned, which stresses the importance of identifying, managing, reducing and preventing risk factors even before pregnancy.[31]

Healthy child development encompasses physical, mental, emotional and social wellbeing. Healthy child development is linked to mental and physical health outcomes throughout the life course.

Interventions across the life stages of preconception, pregnancy, newborn, child, youth, parental and family health must also address the negative impact of social determinants that contribute to health inequities. Before birth, there are social determinants of health that can impact the health of the mother and thus impact pregnancy, birth and early childhood health outcomes. As a child reaches adulthood, their health behaviours are impacted by those uncontrollable social determinants of health, which can either increase disparities or create opportunities for success and growth.

The data provided in this report will assist service providers from multiple sectors to continue to build policies, programs and services that lead to enhanced health among Timiskaming's children and families.

It is important to approach addressing reproductive, maternal and child health using evidence informed interventions and also to consider the socio-ecological model, therefore shifting attention away from individual behaviour to the broader societal factors.

About the data sources used in this report

Better Outcomes Registry Network (BORN) collects, interprets and shares data about pregnancy, birth and childhood in Ontario. These data are collected electronically from hospitals, labs, midwifery practice groups and clinical programs. A few cautionary notes to aid in interpreting these data: the fiscal year data for 2012 is not complete province-wide yet and three hospitals in Ontario do not yet submit data (Sunnybrook, Mt. Sinai, and London Health Sciences). When these data are added, there will be fluctuations in Ontario's rates. The 2012 data are only available from April to December. All Ontario values for 2020 may fluctuate as data is completed reconciled by June 30 and these data were extracted mid to end May.

The **Canadian Community Health Survey** is a cross-sectional survey by Statistics Canada which collects health information about the Canadian population. It surveys a large number of respondents and was designed to provide reliable estimates at the health region level. CCHS data are collected from people aged 12 and over living in private dwellings. The survey excludes individuals living on-reserve and on Crown lands, institutional residents and full-time members of the Canadian Forces.

The **Infant Feeding Surveillance System** data were collected using voluntary telephone or in-person surveys conducted by Timiskaming Health Unit's Public Health Nurses. All Timiskaming mothers who consented to participate were surveyed at three time points: 48 hours after hospital discharge, when their baby was 2 months of age, and when their baby was 6 months of age.

Participation rates were calculated by comparing our respondents to the known number of new mothers in the area. The largest reason for mothers not participating was being unable to be contacted by telephone and only a small portion of mothers declined to participate. Due to some mothers not participating, it is estimated that the initiation, 48 hours, 2 month and 6 month data for each year are accurate within plus or minus the percentage noted under 'margin of error' in Table 1.

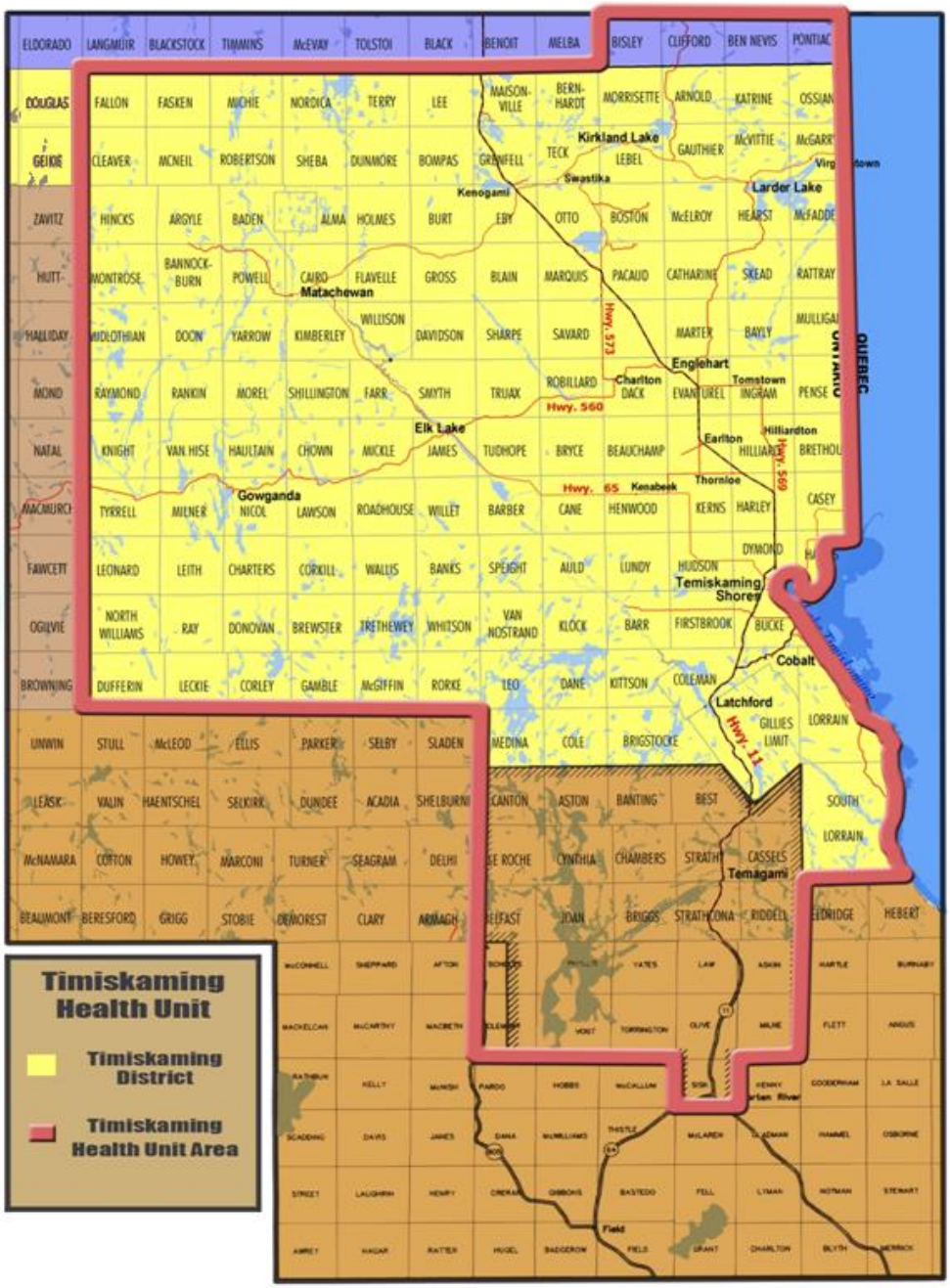
IntelliHEALTH is an analytical tool that provides access to various sources of data such as health services data (hospital emergency department visits, hospitalizations, inpatient mental health, complex continuing care, etc.), medical services, vital statistics (births and deaths) and population estimates and projections. Each source of data has specific cautionary notes and these are included throughout the text.

The 2016 Census is a mandatory survey that collects demographic and linguistic information on all permanent and non-permanent people living in Canada at the time of the Census. The Census uses various forms to collect information. A short form is used to collect data from private dwellings such as age, sex, relationship to household members and language. A long form is completed by 25% of private dwellings and includes the following topics: activities of daily living, sociocultural information, mobility, place of birth, education, labour market activities and housing. There are also different forms used to enumerate residents of collective dwellings. Income variables were created by linking 2015 tax-filer and other administrative data from the Canada Revenue Agency to the short form Census respondents.

Throughout this report, collective dwelling statistics are excluded unless otherwise noted. The short and long form non-response rate was 7.1% for Timiskaming, 6.8% for the North East Local Integration Network and 4.7% for Ontario.

Appendix A: Timiskaming Heath Unit boundaries

The Timiskaming Health Unit's boundaries are not the same as the Timiskaming District. When compared to the District of Timiskaming, the Health Unit boundaries also include the municipality of Temagami and the following townships: Ben Nevis, Bisley, Clifford, Pontiac, Clement and Scholes. Furthermore, the health unit catchment area does not include the following Timiskaming District townships: Childerhose, Douglas, Doyle, Fripp, Geikie, Hillary, McArthur, McKeown, Musgrove, Pharand and Reynolds.[69]



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