Porcupine
Health Unit • Bureau de santé

Maternal Health

Status Report 2016

ACKNOWLEDGEMENTS

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TABLE OF CONTENTS

HIGHLIGHTS

This is the first Maternal Health Status Report that describes the reproductive and maternal health of women giving birth in the Porcupine Health Unit (PHU) area. It provides information on the social determinants of health as they relate to maternal health, birth and fertility, maternal behaviours and risk factors, birth outcomes, and breastfeeding. The purpose of the report is to assist both public health and community partners to understand the health status of mothers and newborns and identify opportunities for further health improvements.

Population of PHU is both younger and older than Ontario

The Porcupine Health Unit area has a higher proportion of individuals less than 19 years of age and older than 50 years of age compared to Ontario. This suggests that the primarily working age population, 20 to 49, may be migrating out of the PHU area for school or work opportunities. The overall population of the PHU area has decreased by approximately 1.9% since 2010, but the population of women of reproductive age (15 to 49 years of age) has decreased at a higher rate of 3%.

Challenges associated with social determinants of health

Maternal and birth outcomes are better for women with higher socioeconomic status, measured often by income and education levels. Women in the PHU area have both lower income and lower education compared to women in Ontario. The PHU area also has six times the Aboriginal population than in Ontario overall. Aboriginal women are more likely to face numerous challenges related to maternal health including lack of prenatal care, higher rate of chronic diseases such as diabetes, and challenging living conditions related to housing, sanitation, and food security. These risk factors can lead to higher risk for smoking, substance abuse, poor nutrition, and lower chances of breastfeeding, all of which in turn can result in poor maternal and birth outcomes.

Higher pregnancy and abortion rates but lower mortality

In 2014, there were a total of 814 births in the PHU area. The birth rate decreased by about 30% in the PHU and by about 9% for Ontario between 2007 and 2014. During this same time, the abortion rate increased in the PHU area by 19%. Pregnancy and abortion rates for women under the age of 20 were higher for women residing in the PHU area than Ontario overall. In particular, the PHU teenage pregnancy rate in 2013 was more than twice the provincial rate (44.3 per 1,000 women vs. 19.3 per 1,000 women).

In terms of type of birth, more than a third of women in the PHU area had a caesarean section (35.3%) compared to 27% of women in Ontario. Stillbirth and mortality rates have decreased significantly in the PHU area since 2007. The stillbirth rate decreased by 85.4% for

PHU and by 63.4% for Ontario, while the perinatal mortality rate decreased by 51% for PHU and stayed relatively steady for Ontario.

High levels of risk associated with maternal behaviours

Pregnant women in the PHU area have significantly more lifestyle factors that put them at increased risk for adverse maternal and birth outcomes. This higher level of risk is mostly concentrated among pregnant women under the age of 20.

Approximately, 43% of women giving birth in the PHU area were overweight or obese compared to 34.5% in Ontario. Similarly, pregnant women in the PHU area had lower rates of fruit and vegetable consumption compared to pregnant women in Ontario. About one-third of women giving birth in the PHU area did not use folic acid at any time during their pregnancy, and among those less than 20 years of age, more than half did not take folic acid.

A higher percentage of pregnant women in the PHU area reported alcohol consumption compared to counterparts in Ontario overall (2.9% vs. 2.1%). Drug exposure, in particular, was about 2.5 times greater amongst pregnant women in the PHU area compared to Ontario (4.8% vs. 1.9%). Finally, smoking was about three times more prevalent amongst pregnant women in the PHU catchment area compared to provincially. For all substances, locally the highest rates of consumption were amongst pregnant women under the age of 20.

In the PHU region, more than one-fifth of younger mothers did not visit a healthcare provider during their first trimester and 70% of mothers under the age of 25 did not ever attend a prenatal class.

At term, healthy weight babies

Most babies in the PHU area were born at term, with only 7% of babies being preterm, which is similar to Ontario overall. Although most babies born locally were average weight for gestational age, about 13% of births were large for gestational age, which is higher than the 10% in Ontario. This could be due to the higher proportion of overweight and obese pregnant women in the PHU area. Locally, there were fewer small for gestational age babies compared to Ontario. The proportion of babies born with congenital anomalies in both the PHU area and Ontario was very low, about 1.2%.

Breastfeeding rates significantly lower locally

More than twice the number of pregnant women in the PHU area did not intend to breastfeed their babies compared to pregnant women in Ontario. About three times the number of local mothers giving birth did not attempt to breastfeed their baby or have skin-to-skin contact with them compared to their counterparts provincially. Similarly, more than twice the number of mothers giving birth locally were exclusively formula feeding at discharge compared to mothers giving birth in Ontario. The highest rates of exclusive formula feeding were among mothers less than 20 years of age.

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION/BACKGROUND

There are 36 public health units in Ontario, all of which are guided by the Ontario Public Health Standards (OPHS) (1), which establish requirements for fundamental public health programs and services. Each health unit is governed by a board of health, which is responsible for the assessment, planning, delivery, management, and evaluation of public health programs and services.

In accordance with the OPHS, health units are required to conduct health assessment and surveillance, health promotion and policy development, disease and injury prevention, and health protection. Health units administer health promotion and disease prevention programs to inform the public about healthy lifestyles, communicable disease control, immunization, food premises inspection, healthy growth and development, health education for all age groups, and selected screening services.

This is the first report on Maternal Health Status for the Porcupine Health Unit, and it assists the health unit in meeting its OPHS requirements. Under the Family Health Program Standards for Reproductive Health and the Population Health Assessment and Surveillance Protocol (1), health units must conduct analysis of surveillance data, monitor trends over time, and report on:

- Preconception health;
- Healthy pregnancies;
- Reproductive health outcomes; and,
- Preparation for parenting.

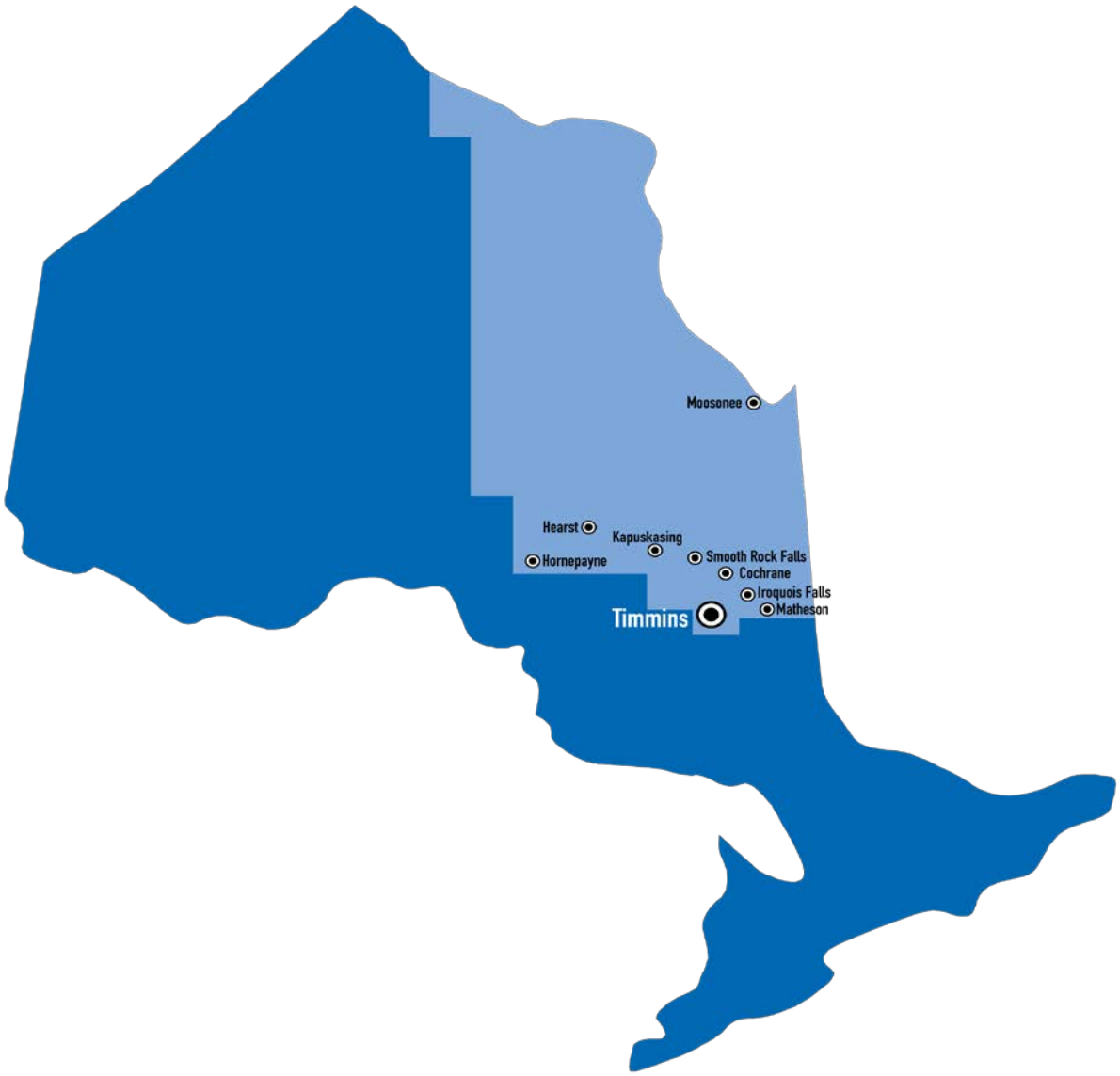
The report is also intended to be used by public health staff and community partners to better understand reproductive and maternal health in the PHU area. By doing so, it is hoped that the information provided in this report will assist to identify areas of need, inform decision making, and advocate for programs and policies, with the overall goal of improving reproductive and maternal health in the PHU area.

ABOUT THE PORCUPINE HEALTH UNIT

The Porcupine Health Unit (PHU) is located in Northeastern Ontario, serving the entire Cochrane District and Hornepayne, in Algoma District. The main office is located in Timmins, Ontario, with branch offices in Cochrane, Hearst, Hornepayne, Iroquois Falls, Kapuskasing, Matheson, Moosonee and Smooth Rock Falls (see Figure 1).

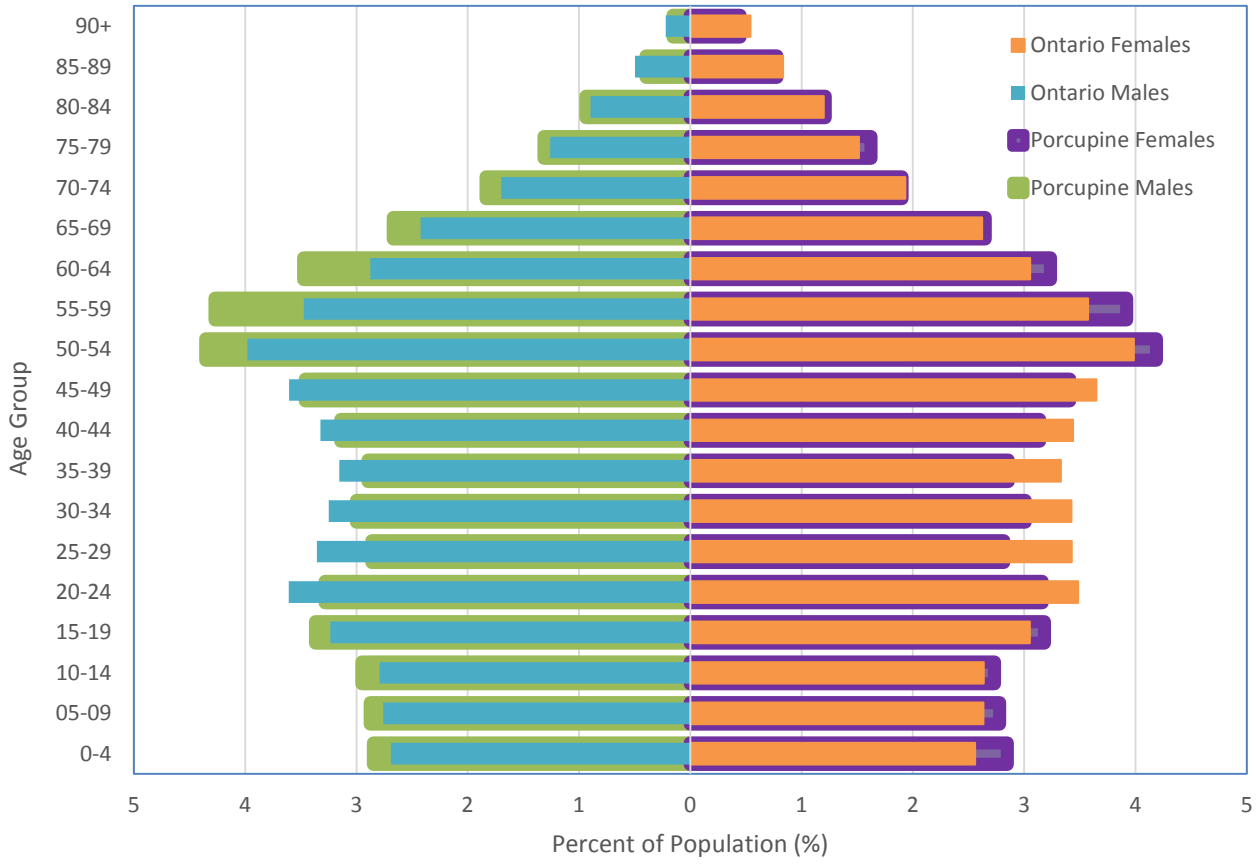
Geographically, it is the largest of the 36 health units in Ontario and in 2014 was home to 86,372 residents, also making it the most sparsely populated of all the health units. The population of the PHU area has been decreasing steadily over recent years, and in 2014 was 1.9% less compared to 2010.

Figure 1: Map of the Porcupine Health Unit area



The population pyramid below shows that the Porcupine Health Unit (PHU) area has both a younger (0 to 19 years of age) and an older (50 to 84 years of age) population than Ontario (Figure 2). The primarily working age population, or those between 20 and 49 years of age, make up a smaller proportion of the population in the PHU area compared to Ontario, suggesting that people (both males and females) in their prime working ages may be leaving the PHU area for work or school.

Figure 2: Population pyramid, by sex, Porcupine Health Unit & Ontario, 2014

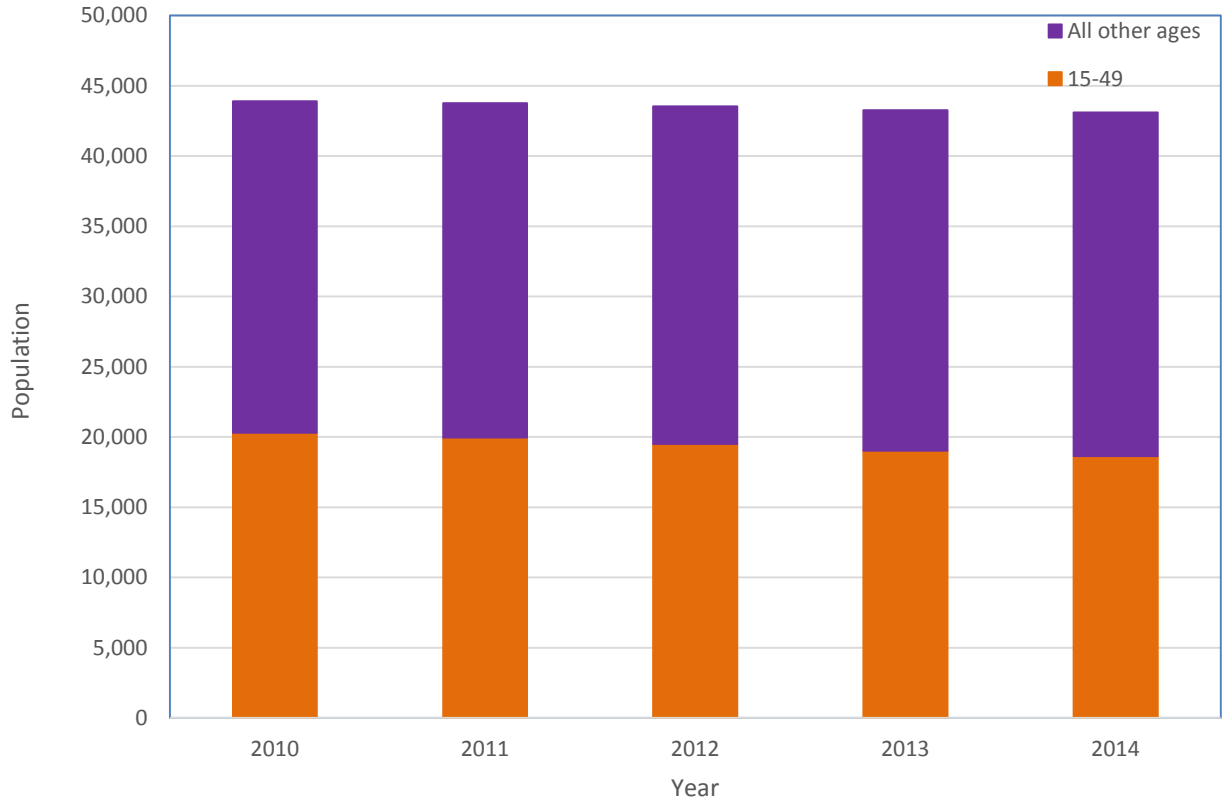


Source: Population estimates, IntelliHealth, Ministry of Health & Long-Term Care, extracted October 19, 2015

The Association of Public Health Epidemiologists in Ontario (APHEO) defines the reproductive age of females as 15 to 49 years of age (2). The overall population of women in the PHU area has decreased by about 1.8% between 2010 and 2014 (Figure 3).

Furthermore, the orange portion of the bars show that the proportion of women of reproductive age, 15 to 49 years old, has decreased at a higher rate of about 3%. This finding is supported by the population pyramid in Figure 2 which shows that the proportion of women 15 to 49 years of age is smaller in the PHU area compared to Ontario.

Figure 3: Proportion of females 15-49 years old, by year, Porcupine Health Unit, 2010-2014



Source: Population estimates, IntelliHealth, Ministry of Health & Long-Term Care, extracted October 19, 2015

SOCIAL DETERMINANTS OF HEALTH

Income, Education, Employment

A healthy mother is more likely to have a healthy pregnancy and give birth to a healthy baby. But what affects the health of an individual? The primary factors that shape health are not medical treatments, age, or genetics, but rather the conditions in which people live and work (3). These conditions are known as the social determinants of health.

Income, education, and employment are important social determinants of health that affect both the mother's and the baby's health. Income is perhaps the most important social determinant of health since it affects overall living conditions and determines the quality of other social determinants of health such as food security and housing (3).

Higher education levels are also related to better health outcomes since they lead to more stable employment, stable or higher incomes, and better knowledge of factors associated with health (3). Even in high income countries, mothers with low education levels have a higher risk of low birthweight babies, infant mortality, preterm birth, and stillbirth (4). Women with higher education levels are more likely to seek prenatal care early, attend prenatal classes, supplement with folic acid, abstain from smoking or drinking, and breastfeed their baby (5).

Indigenous status is also related to higher levels of adverse maternal and birth outcomes due to lower incomes, lower educational attainment, and challenging living conditions related to housing and sanitation (6). Studies have found significantly increased risk of low birthweight, preterm birth, small for gestational age, neonatal and perinatal morality, and stillbirths among babies born to Indigenous women (7).

Definition

- *Immigrant refers to a person who is or has ever been a landed immigrant/permanent resident. In the 2011 National Household Survey, 'Immigrants' includes immigrants who landed in Canada prior to May 10, 2011.*
- *'Aboriginal identity' includes persons who reported being First Nations (North American Indian), Métis or Inuk (Inuit) and/or those who reported Registered or Treaty Indian status and/or those who reported membership in a First Nation or Indian band.*
- *Education refers to the total population aged 15 years and over by highest certificate, diploma or degree earned.*
- *Income refers to the total income in 2010 of the population aged 15 years and over.*

Table 1: Immigrant, Aboriginal identity, education, and income status, Porcupine Health Unit & Ontario, 2011

	Porcupine			Ontario		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
Immigrants	2.9	3.0	3.0	27.6	29.4	28.5
Aboriginal Identity	14.5	14.7	14.6	2.3	2.4	2.4
Education						
No certificate, diploma or degree	30.8	31.0	30.9	18.9	18.4	18.7
High school diploma or equivalent	21.4	24.7	23.1	26.4	27.1	26.8
Postsecondary certificate, diploma or degree	47.7	44.3	46.0	54.7	54.5	54.6
Income						
Under $20,000	16.8	31.0	24.0	18.5	28.2	23.5
$20,000 to $39,999	23.4	28.2	25.8	22.0	25.6	23.9
$40,000 to $59,999	19.5	14.3	16.9	17.7	15.3	16.5
$60,000 to $79,999	12.9	5.8	9.4	11.2	7.3	9.2
$80,000 to $99,999	7.3	3.8	5.6	6.7	4.3	5.5
$100,000 and over	7.8	2.3	5.0	8.8	3.3	6.0
Median income ($)	39,715	23,701	30,744	36,971	25,412	30,526
Average income ($)	47,369	31,212	39,297	50,242	34,716	42,264

Source: National Household Survey 2011, Statistics Canada, extracted October 23, 2015 (52)

Immigrants made up a relatively small component of the population in the PHU area (3%) compared to Ontario where immigrants represented 28.5% of the population in 2011. In contrast, those who indicated Aboriginal identity on the 2011 National Health Survey (NHS), comprised a much larger proportion of the PHU population (14.6%) compared to Ontario (2.4%).

Residents of the PHU area are less educated compared to Ontario residents overall (Table 1). About 31% of PHU residents have no certificate, diploma or degree compared to 18.7% of Ontario residents. About one-quarter of PHU residents have a high school diploma or equivalent, which is similar to the proportion of Ontario residents. However, fewer PHU residents have higher levels of education (46%), such as a postsecondary certificate, diploma or degree compared to Ontario residents (54.6%). Education status was similar across males and females.

Income status was similar for PHU residents and Ontario residents as a whole. About two-thirds (66.7%) of PHU residents earned less than $60,000 in 2011, compared to 63.9% of Ontario residents. Income status did vary by sex, with almost 60% of females and 40.2% of males in the PHU earning less than $40,000. In Ontario, 53.8% of females and 40.5% of males earned less than $40,000.

The overall median income was similar between PHU residents and Ontario residents. However, the median income gap between males and females was greater in the PHU area with females earning about $16,000 less than males. In Ontario, the median female income was $11,500 less than the median male income.

Maternal and Paternal Age

Older mothers have an increased risk of adverse maternal and birth outcomes. For example, babies born to mothers older than 35 years of age had a 30% increased risk for developing autism (8). Older mothers also had higher rates of complicated labour leading to birth interventions such as caesarean section (9, 10). Mothers older than 45 years had higher rates of stillbirths, preterm births, low birth weight, and perinatal death (11). However, older mothers also usually have a higher level of education, seek prenatal care earlier, are less likely to smoke, and more likely to breastfeed their babies (5).

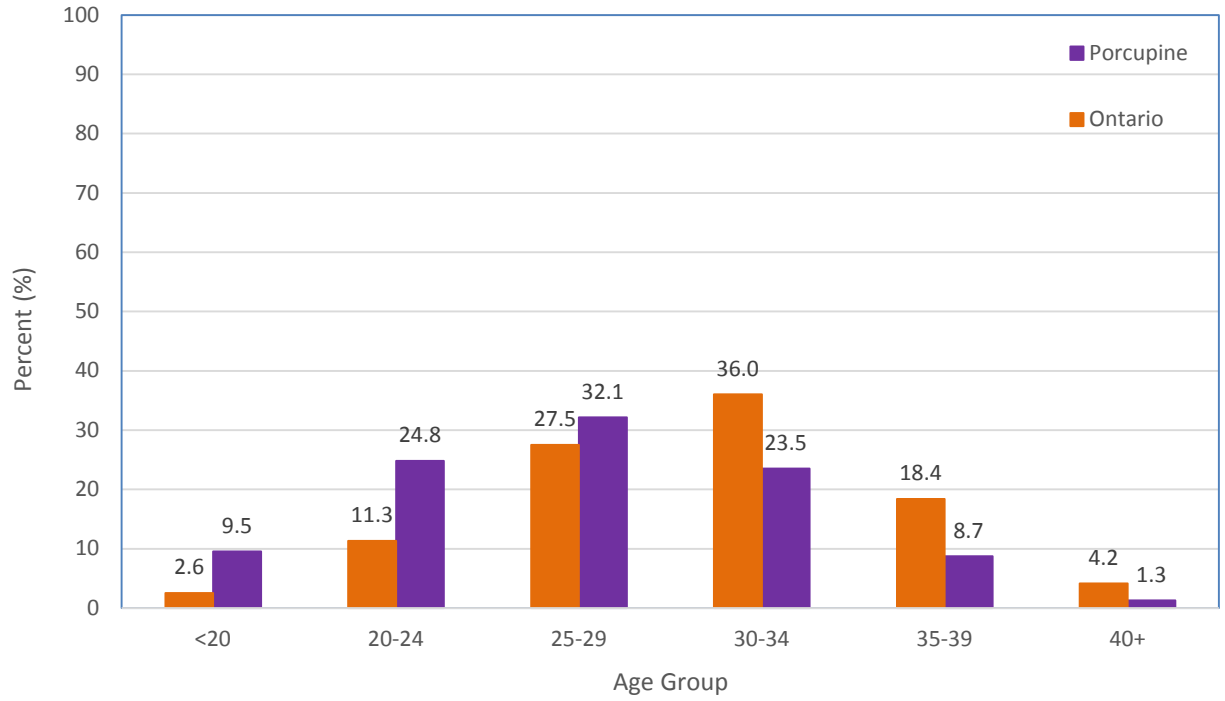
Males 40 years and older had a greater likelihood of fathering babies that were stillborn, had low birth weight, or were preterm (12). This can be explained by the fact that paternal genes contribute to placental growth and harmful gene mutations are more often associated with increased age (12).

On the other end of the age spectrum, younger mothers and fathers (less than 20 years of age), also have higher rates of low birthweight babies and preterm births (13, 14). Young

mothers are also at increased risk of maternal anaemia. These adverse outcomes are associated with lower education levels, inadequate prenatal care, and increased likelihood of risky behaviours such as smoking (15). For fathers, the higher birth risks are associated with lower socio-economic status and education levels, combined with higher adolescent hormonal and stress levels (16).

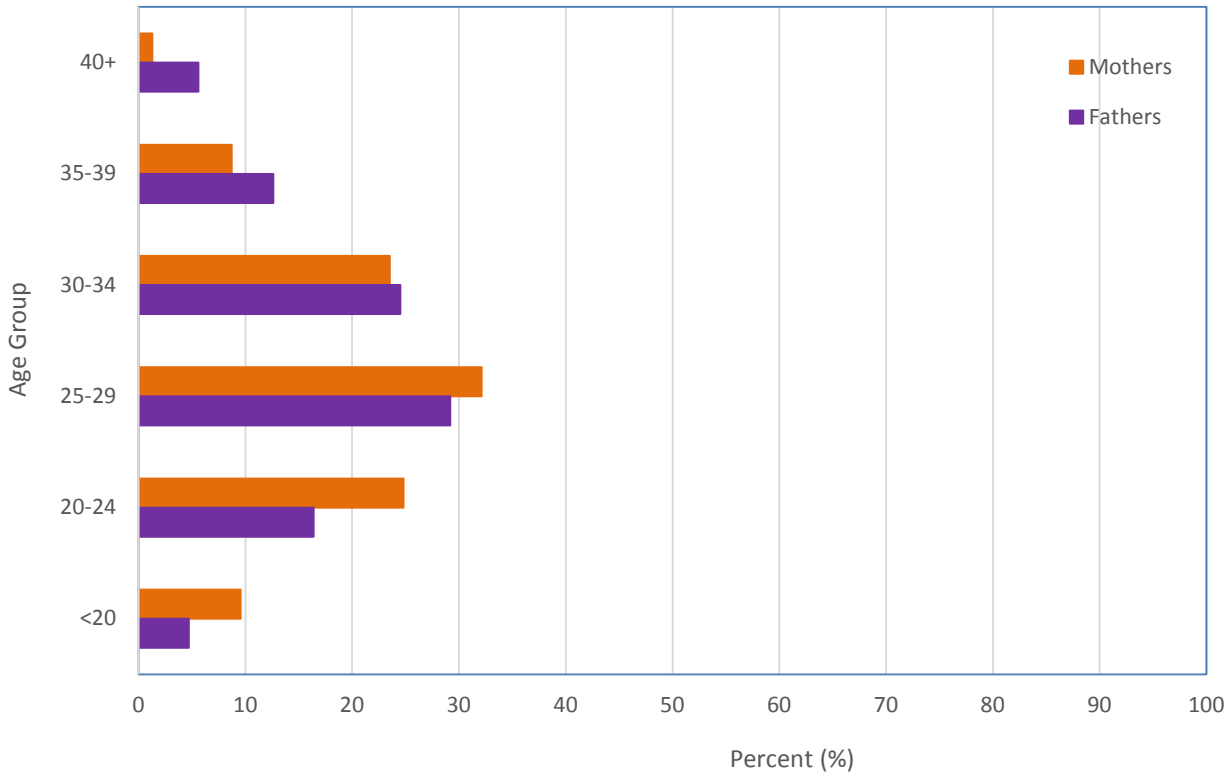
Mothers giving birth in 2013 in the PHU area were younger than mothers giving birth in Ontario that year (Figure 4). The majority of mothers in the PHU (66.4%) were under the age of 30, while the majority of mothers in Ontario were 30 years of age or older (58.6%).

Figure 4: Percent of births by maternal age, Porcupine Health Unit & Ontario, 2013



Source: BORN Information System, BORN Ontario, 2013-2014, extracted October 28, 2015

Figure 5: Maternal and paternal age*, Porcupine Health Unit



Source: IntelliHealth, 2007-2011, Ministry of Health & Long-Term Care, extracted October 29, 2015; BORN Information System, BORN Ontario, 2013-2014, extracted October 28, 2015
** Maternal age is from 2013 BORN data while paternal age is from 2007-2011 combined IntelliHealth data.*

The majority of both mothers and fathers in the PHU area were 25 to 29 years of age, at the time of their baby's birth (Figure 5). As expected, fathers were slightly older than mothers ranging in age from 15 to 64 years old with an average age of 27.9 years. The average age of mothers at baby's birth was 26.7 years, with age ranging from 15 to 45 years.

About 1.3% of mothers in the PHU were 40 years of age or older, however, 9.5% of mothers were less than 20 years of age. A higher percentage of fathers were older than 40 years (5.6%), while a smaller percentage were less than 20 years of age (4.7%).

BIRTH AND FERTILITY

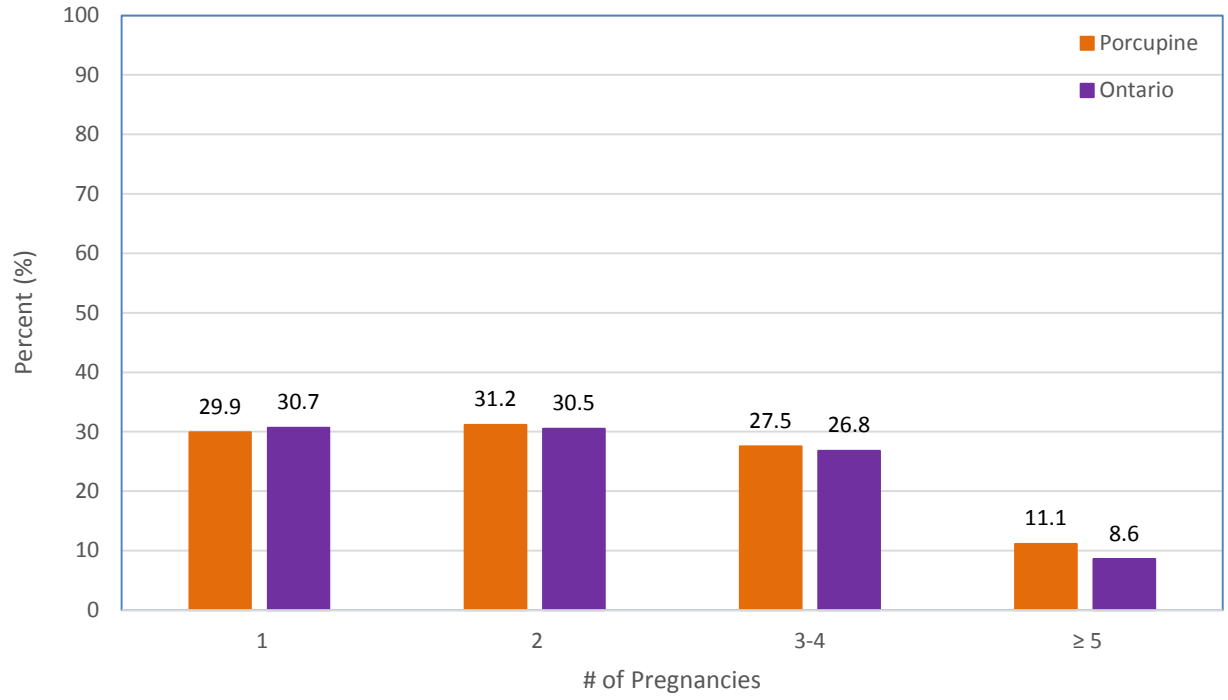
Gravida and Parity

Definition

- *Gravida and parity are related concepts. Gravida indicates the number of times a woman has been pregnant, regardless of whether these pregnancies were carried to term. A current pregnancy, if any, is included in this count.*
- *Parity indicates the number of births at greater than 20 weeks gestation (including stillbirths). Pregnancies consisting of multiples, such as twins or triplets, count as one birth for the purpose of this definition.*

Both first-time mothers and mothers with 4 or more pregnancies are at increased risk of adverse health outcomes including obstetric complications, neonatal morbidity, and perinatal mortality (17). The risks for first-time mothers is related to not having fully developed uterine and vascular structures and the risk for higher parity mothers is related to uterine depletion and postpartum stress (18).

Figure 6: Gravida, Porcupine Health Unit & Ontario, 2014

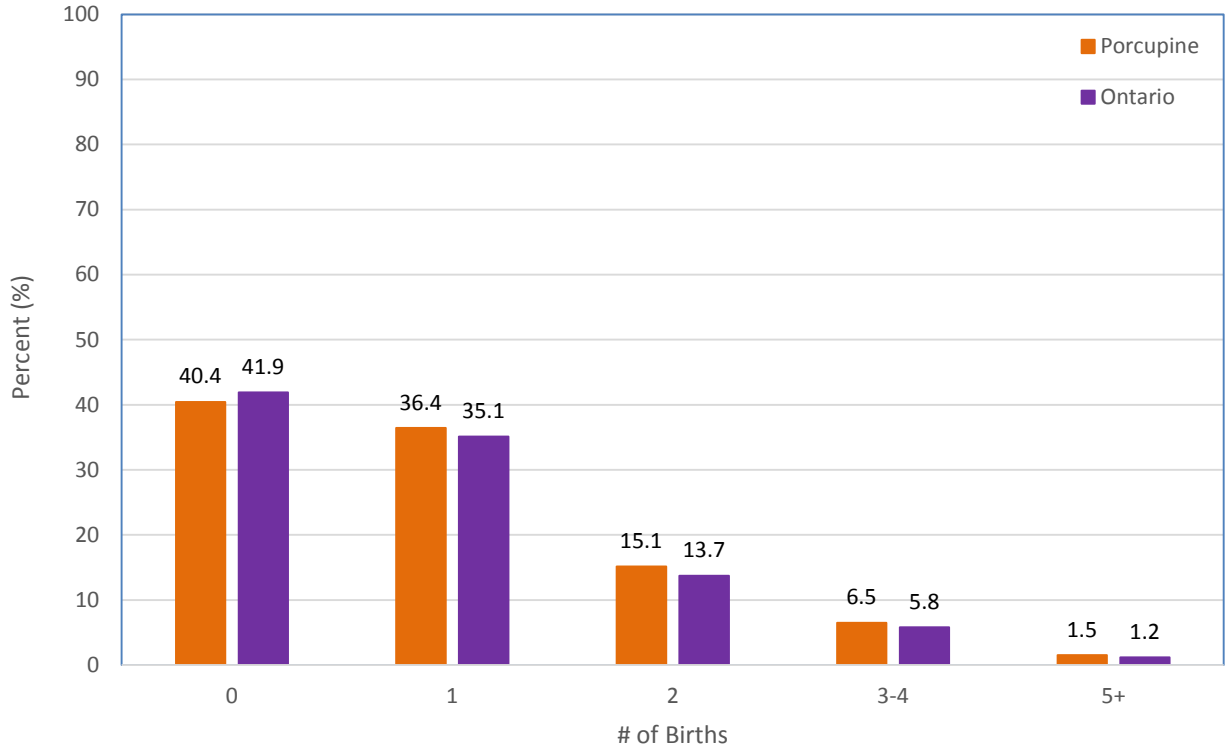


Source: BORN Information System, BORN Ontario, extracted October 28, 2015

The number of pregnancies experienced by women in the PHU area is similar to the number experienced by women in Ontario (Figure 6). However, there is a slightly higher percentage of women in the PHU area with 5 or more pregnancies (11.1%) compared to Ontario (8.6%).

Compared to Ontario, a smaller percentage of women in the PHU area are first-time mothers (40.4% vs. 41.9%) and a greater percentage of them have had one or more births (59.5%), see Figure 7.

Figure 7: Parity, Porcupine Health Unit & Ontario, 2014



Source: BORN Information System, BORN Ontario, extracted October 28, 2015

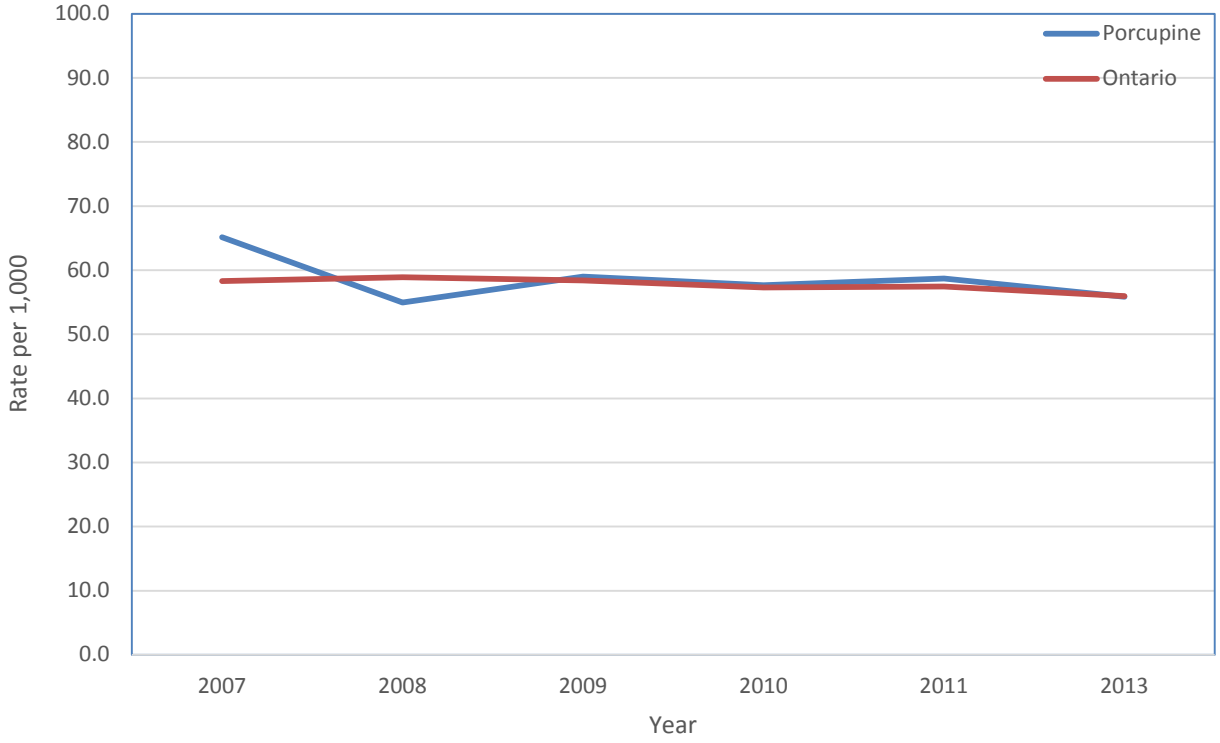
Pregnancies

Definition

The pregnancy rate is the total number of pregnancies per 1,000 women of reproductive age (15 to 49 years). Pregnancies include live births, stillbirths, and therapeutic abortions.

Women all over the world are delaying child-bearing into their 30s and, in some cases, their 40s. The average age of women giving birth in Canada has increased from 27 to 29.3 over the last 20 years (19). Ovarian function declines as women approach their later reproductive years until menopause, and increasing age is associated with lower fertility. Women experience a decline in natural fertility that begins in the mid-30s, and will often reach sterility before the complete cessation of menses (20). In addition, complications of pregnancy increase for both the mother and baby with advanced maternal age (21).

Figure 8: Pregnancy rate, by year, Porcupine Health Unit & Ontario, 2007-2013*

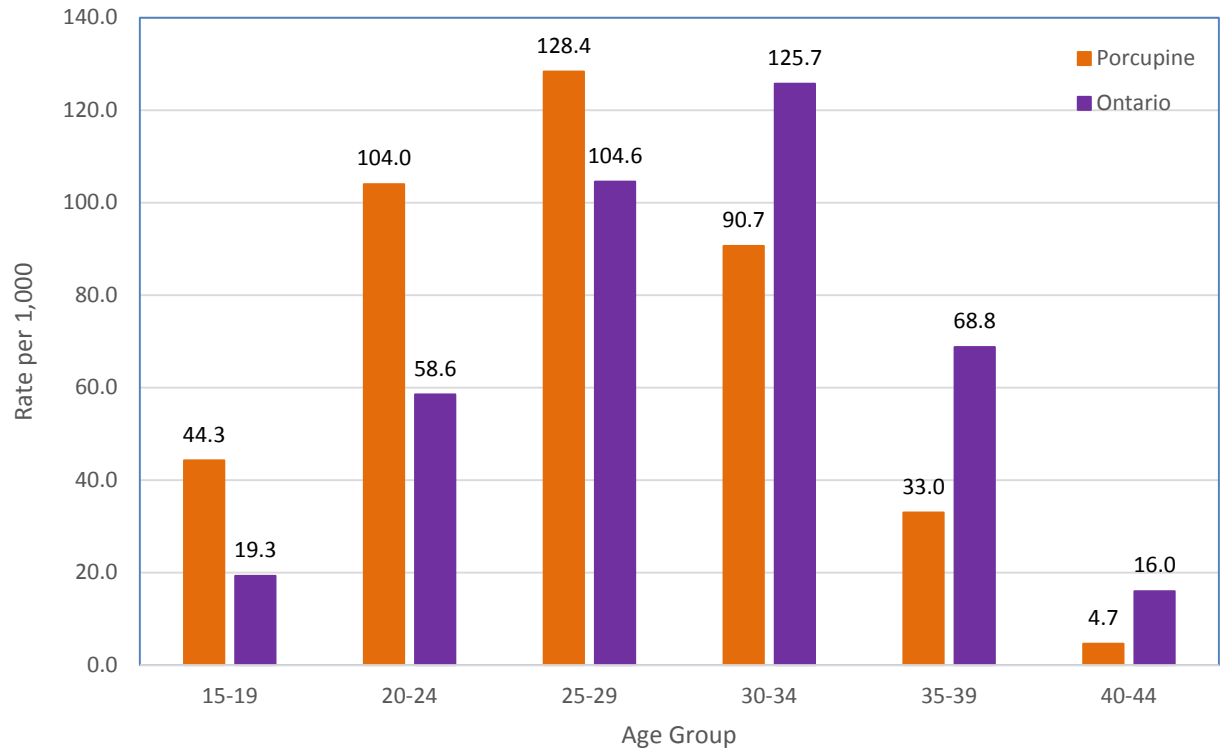


Source: IntelliHealth, 2007-2011, Ministry of Health & Long-Term Care, extracted October 29, 2015; BORN Information System, BORN Ontario, 2013, extracted October 29, 2015
** Due to the change from IntelliHealth to BORN between 2011 and 2013, data for 2012 was not available*

The pregnancy rate for the PHU has been similar to the Ontario rate between 2007 and 2013 (Figure 8). The two rates also decreased slightly over this time frame, from about 60 pregnancies per 1,000 women to about 56 pregnancies per 1,000 women.

In 2013, the highest pregnancy rates were for women 25 to 29 years of age locally and decreased with increasing age, (Figure 9). In general, pregnant women in the PHU area were younger than pregnant women in Ontario, with higher rates of pregnancy amongst those younger than 30 years of age. For the 15 to 19 year age group, in particular, the Porcupine Health Unit had more than twice the rate of teenage pregnancies (44.3 pregnancies per 1,000 women) compared to Ontario (19.3 pregnancies per 1,000 women). For women 30 years of age and older, provincial pregnancy rates were higher than local rates.

Figure 9: Pregnancy rate, by age group of mother, Porcupine Health Unit & Ontario, 2013



Source: BORN Information System, BORN Ontario, extracted October 29, 2015 and May, 2016

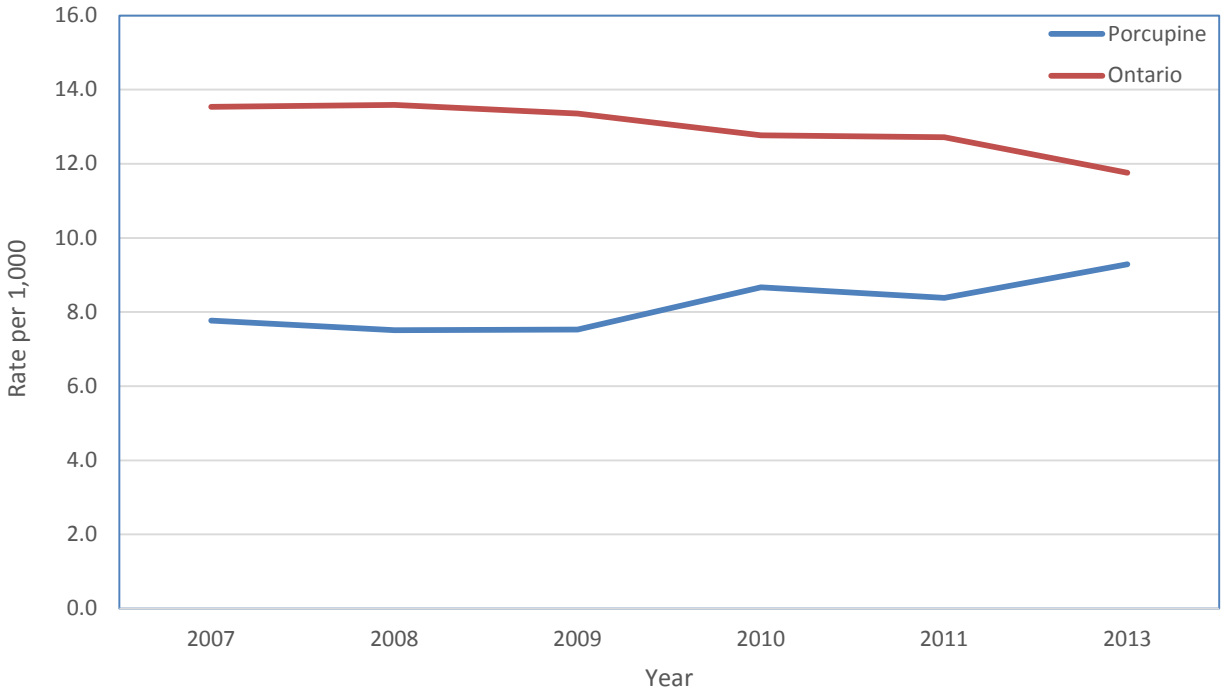
Abortions

Definition

The therapeutic abortion rate is measured as the number of induced abortions per 1,000 women of reproductive age (15 to 49 years).

Therapeutic or induced abortion is the medical termination of a pregnancy (22). Most abortions take place at a gestational age of 12 weeks or less, or in the first trimester of pregnancy (22). Commonly available statistics on abortion may be an underestimate of the true rate since they include abortions done in hospitals and funded clinics, but exclude those done in non-funded clinics and at doctor's offices. In 2010, it is estimated that about 18,000 abortions in Ontario (5.1 per 1,000 population) were unreported (23).

Figure 10: Therapeutic abortion rate, by year, Porcupine Health Unit & Ontario, 2007-2013

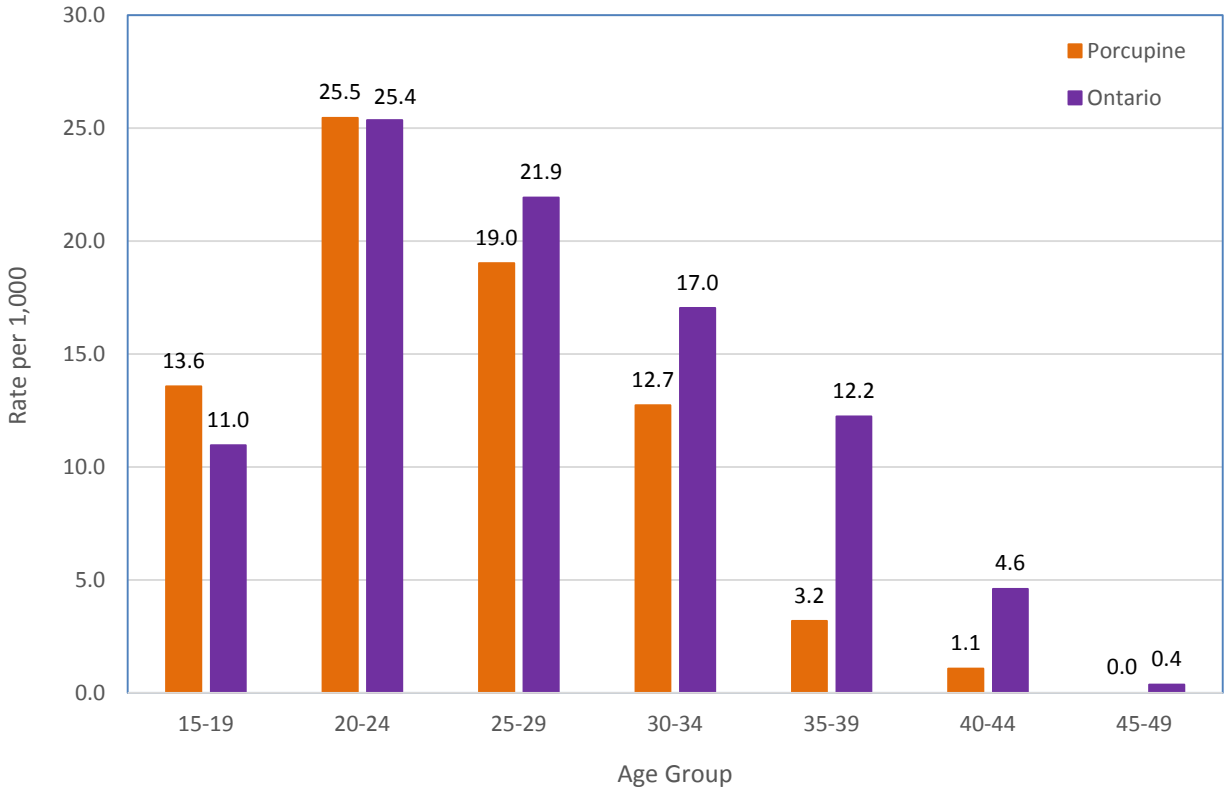


Source: IntelliHealth, 2007-2013, Ministry of Health & Long-Term Care, extracted October 29, 2015

Between 2007 and 2013, the abortion rate in the PHU area increased by about 19%, mostly since 2009, but remained lower than the Ontario rate (Figure 10). During this time, the Ontario rate has decreased by 12.6%.

Both in the PHU and in Ontario, abortion rates were highest for mothers 20 to 24 years of age, and decreased with increasing age (Figure 11). For all age groups, 20 years and older, the PHU abortion rate was similar to or lower than the Ontario rate. However, for teenage mothers, 15 to 19 years of age, the PHU rate (13.6 abortions per 1,000 women) was higher than the Ontario rate (11.0 abortions per 1,000 women).

Figure 11: Therapeutic abortion rate, by age group of mother, Porcupine Health Unit & Ontario, 2013



Source: IntelliHealth, Ministry of Health & Long-Term Care, extracted October 29, 2015

Births

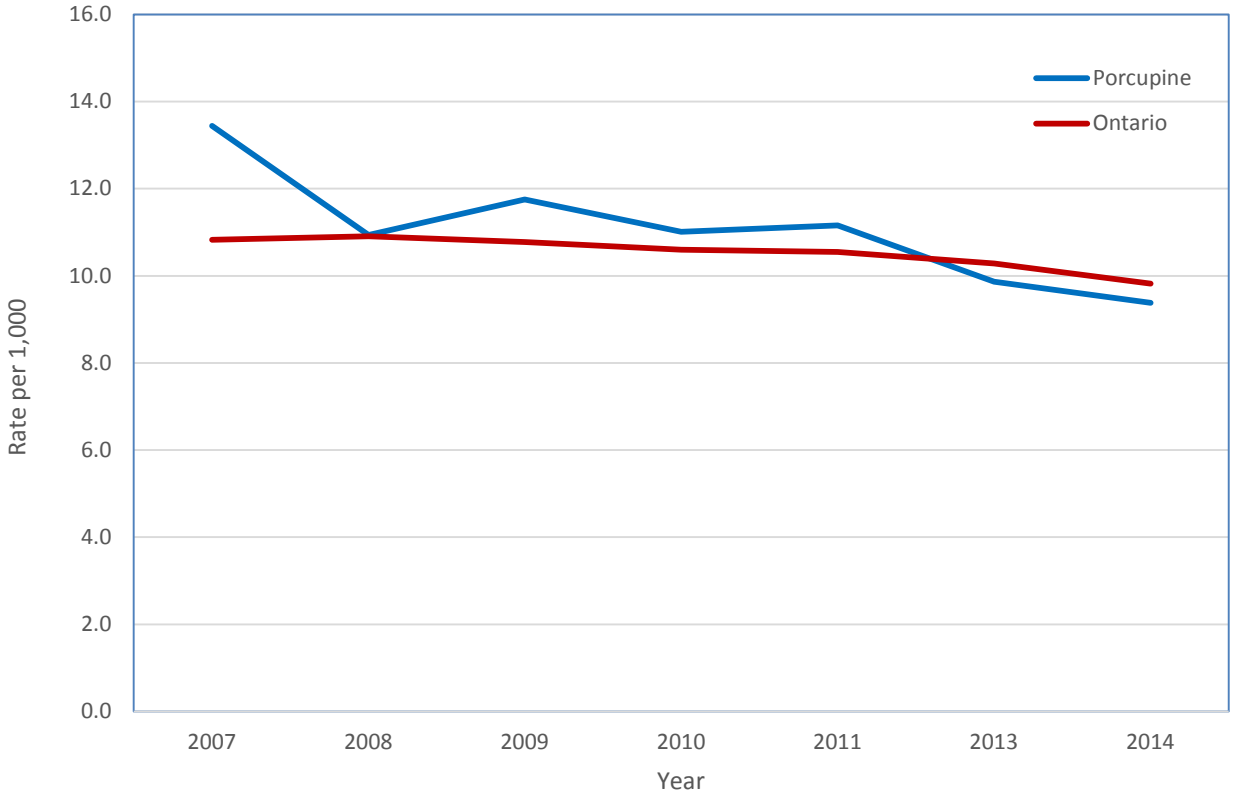
Definition

- *Crude birth rate is the total number of live births per 1,000 population.*
- *Fertility rate is the number of live births per 1,000 female population aged 15-49. The fertility rate can be calculated by age group as well.*

The crude birth rate is a basic measure of reproduction in a population. It does not take into account the age of the population or factors such as immigration, which can affect the rate.

For example, an area with a higher number of women of reproductive age will have a higher crude birth rate. As a result, caution should be used in comparing data between two different populations.

Figure 12: Crude birth rate, by year, Porcupine Health Unit & Ontario, 2007-2014*

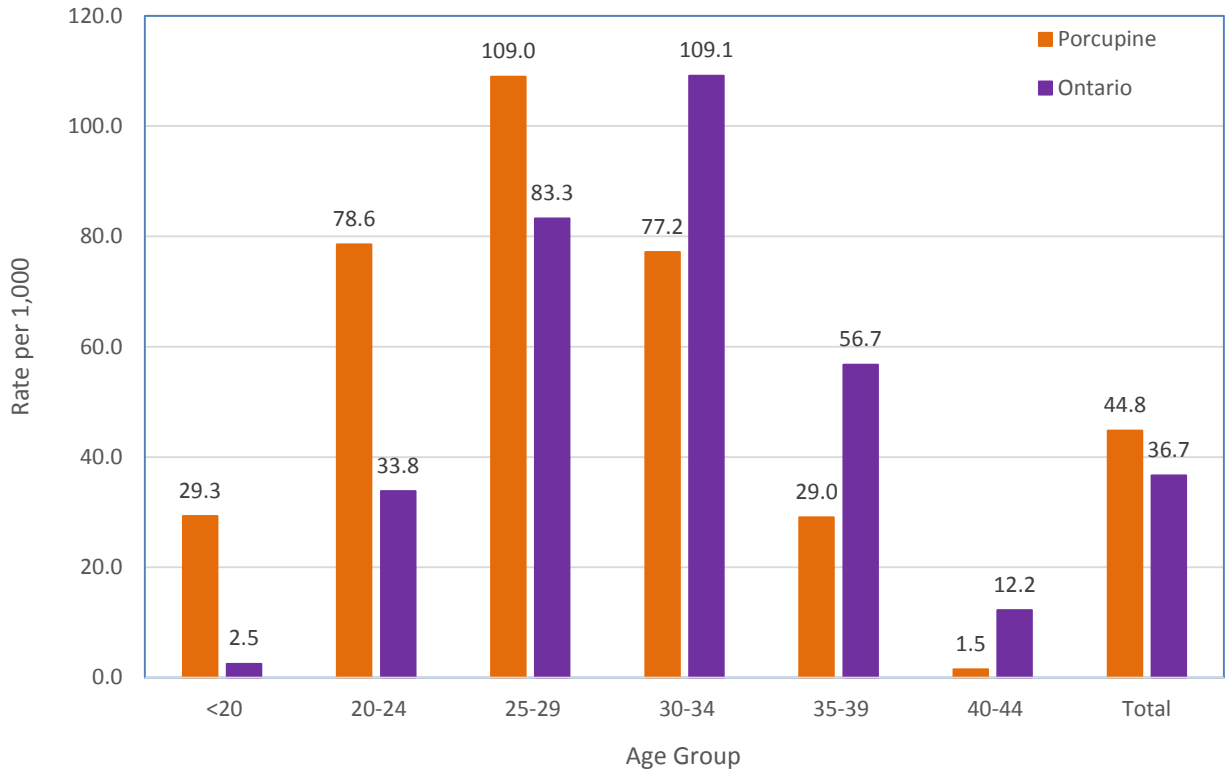


Source: IntelliHealth, 2007-2011, Ministry of Health & Long-Term Care, extracted October 28, 2015; BORN Information System, BORN Ontario, 2013-2014, extracted October 28, 2015
** Due to the change from IntelliHealth to BORN between 2011 and 2013, data for 2012 was not available*

There were 812 live births in the PHU area in 2014, down from 1,204 live births in 2007. The crude birth rate for women in the PHU area was similar to or higher than the Ontario rate between 2007 and 2011 and then was lower than the provincial rate in 2013 and 2014 (Figure 12). Over the eight year period shown, the rate has decreased both locally (29.8%) and provincially (9.3%).

The total fertility rate for females in the PHU area was higher than the comparable rate for females in Ontario in 2013 (44.8 per 1,000 vs. 36.7 per 1,000), Figure 13. The highest fertility rates in the PHU area were for women under the age of 30, while the highest rates for Ontario were for women 30 years of age and older. For women under the age of 20, the PHU fertility rate was more than 10 times greater than the fertility rate for Ontario.

Figure 13: Fertility rate, by age group of mother, Porcupine Health Unit & Ontario, 2013



Source: BORN Information System, BORN Ontario, 2013-2014, extracted October 28, 2015 and May, 2016

Multiple Births

Multiple gestation births have been increasing due to delayed child-bearing and the resulting use of fertility treatments (24). Multiple gestation pregnancies are almost always deemed higher-risk and therefore are associated with pre-term labour, anemia, C-sections, maternal morbidity and mortality, low birthweight, preterm birth, and perinatal death (25).

The majority of births in both the PHU area (96.4%) and Ontario (96.7%) were singletons (one baby born per pregnancy). About 3.3% of pregnancies locally resulted in 2 or more fetuses (multiple births).

By age group, the highest percentage of multiple births (6.7%) occurred for women 30 to 34 years of age in the PHU area. There were no multiple births in the PHU area in 2014 for women less than 20 or greater than 39 years of age.

MATERNAL BEHAVIOURS AND RISK FACTORS

Healthy Weight

Definition

Body Mass Index (BMI) is a ratio of weight to height and is calculated as the weight (in kilograms) divided by the height squared (in centimeters).
BMI categories include:

- *Underweight = < 18.5 BMI*
- *Normal weight = 18.5-24.9 BMI*
- *Overweight = 25.0-29.9 BMI*
- *Obese = > 30.0 BMI*

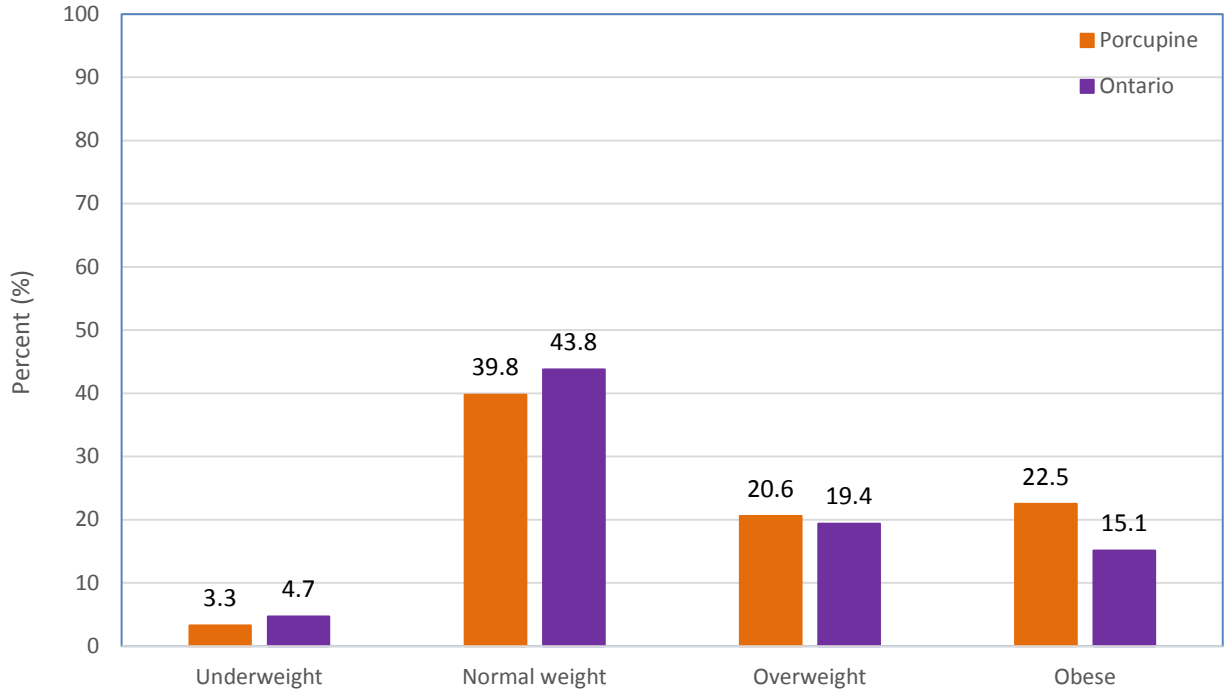
Women of reproductive age are heavier now than in the past and one-third of Canadian women are overweight or obese when they become pregnant (26). Similar to underweight women, overweight or obese women are more likely to have poor pregnancy outcomes such as gestational diabetes, a large for gestational age baby, high birthweight baby, preterm birth, and interventions such as caesarean section (26). The babies of these mothers are also at higher risk for fetal death, stillbirth, infant death, and being overweight in childhood (26, 27). Mothers who are overweight are also more likely to have breastfeeding difficulties and a shorter duration of breastfeeding (28).

Similar to overweight women, mothers who are underweight prior to their pregnancy are at risk for poor pregnancy outcomes such as having a preterm birth, low birthweight baby, and a baby that is small for gestational age (26, 29).

Regular physical activity during pregnancy can not only ensure proper weight gain, but also improve mood and self-image, reduce stress, promote better sleep, and increase muscle tone, strength and endurance to assist with labour and delivery (30).

Healthy eating from a variety of sources also aids in appropriate weight gain during pregnancy and ensures that the mother and developing baby are getting all of the vitamins, minerals, and nutrients that are required for healthy growth and development. Eating well also helps the mother feel better and provides more energy (30).

Figure 14: Body Mass Index (BMI) of women giving birth, Porcupine Health Unit & Ontario, 2014

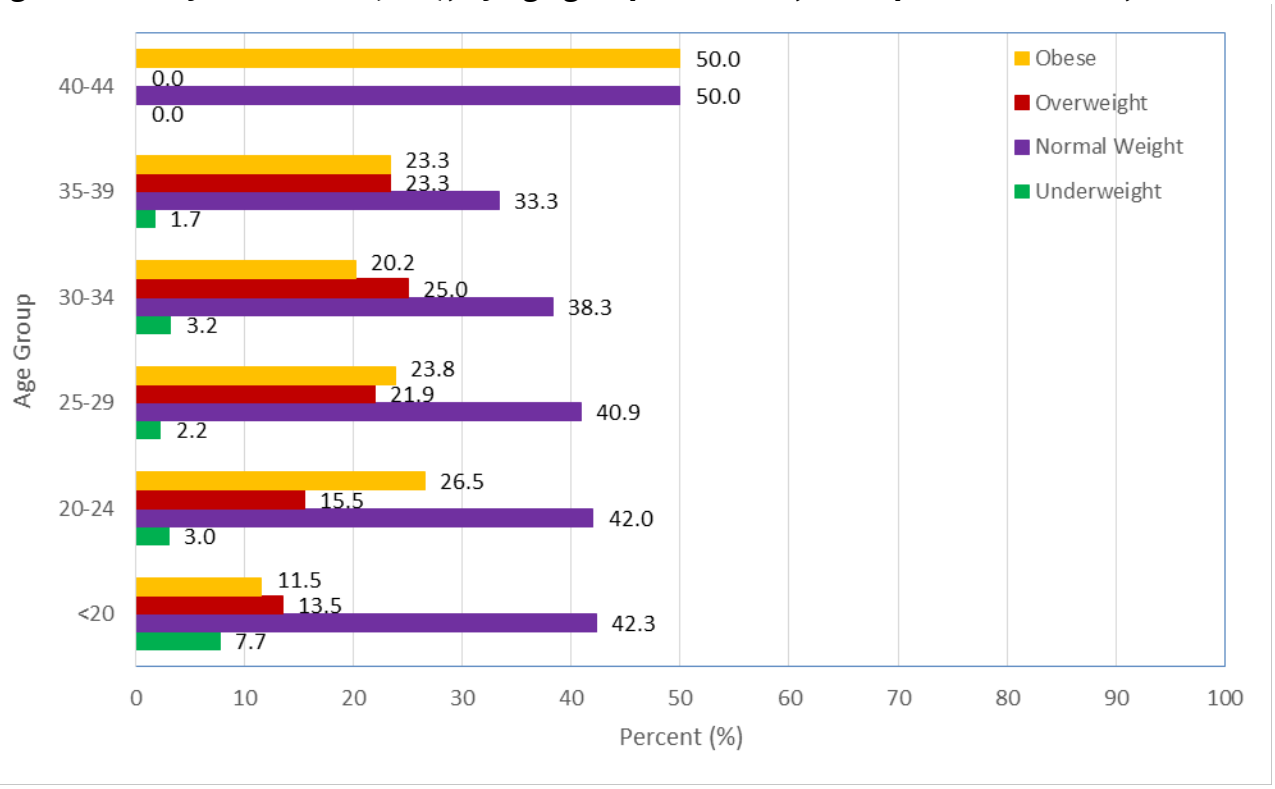


Source: BORN Information System, BORN Ontario, extracted October 28-29, 2015

In 2014, 43.1% of mothers giving birth in the PHU area were overweight or obese (BMI greater than 25). This is higher than the percentage for mothers giving birth in Ontario (34.5%). Consequently, a lower proportion of PHU mothers were of normal weight (BMI of 18.5-24.9) compared to Ontario mothers (Figure 14).

As the age of the mother increased, the proportion that were overweight or obese also increased in the PHU area (Figure 15). Similarly, the proportion that were normal weight decreased with increasing age.

Figure 15: Body Mass Index (BMI), by age group of mother, Porcupine Health Unit, 2014

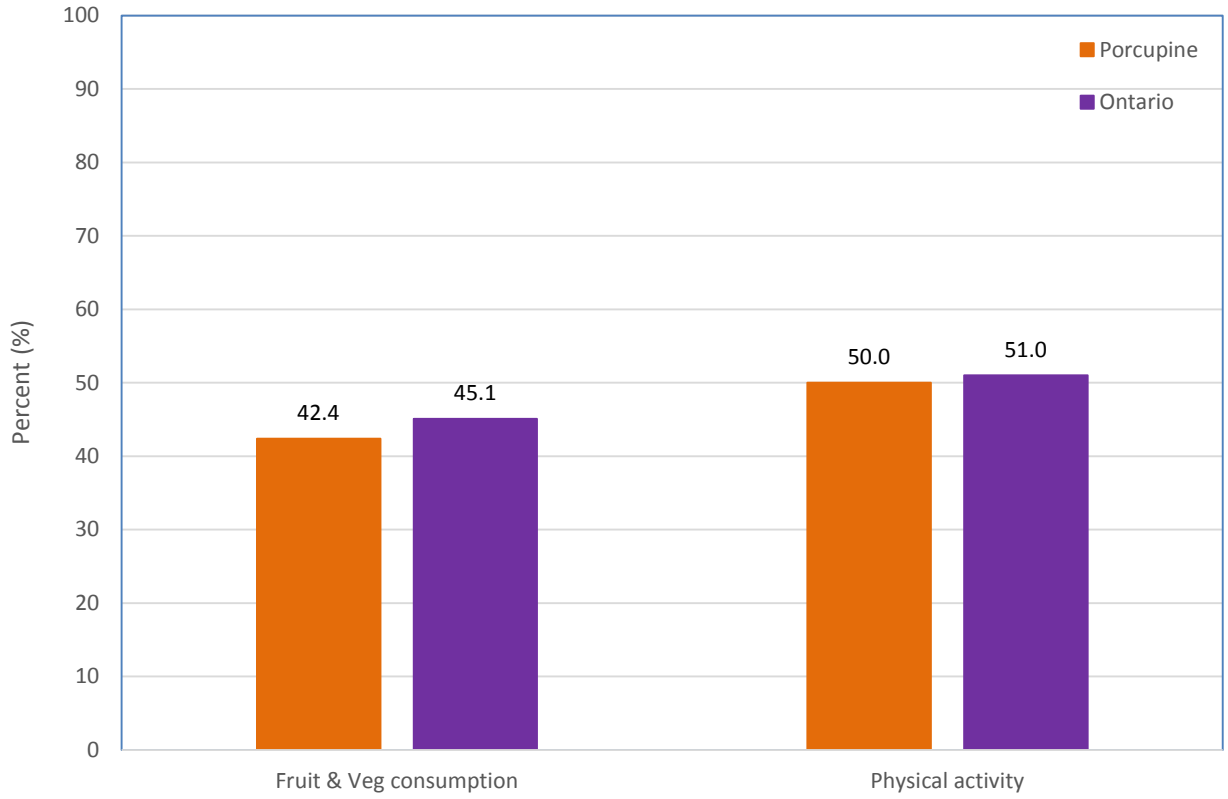


Source: BORN Information System, BORN Ontario, extracted October 28-29, 2015

Definition

- *Fruit and vegetable consumption is measured as the percentage of the population who report eating 5 or more fruits and/or vegetables per day.*
- *Physical activity is a measure of the percentage of the population who indicate that they are active or moderately active.*

Figure 16: Nutrition and physical activity among females, Porcupine Health Unit & Ontario, 2013-2014



Source: Canadian Community Health Survey (CCHS), 2013-2014, Statistics Canada, extracted from Snapshots, Public Health Ontario, February 11, 2016

In 2013-2014, fewer women in the PHU area reported consuming fruit and/or vegetables five or more times per day (42.4%), compared to women in Ontario (45.1%). However, women in the PHU area (50%) are similarly active compared to women in Ontario (51%), Figure 16.

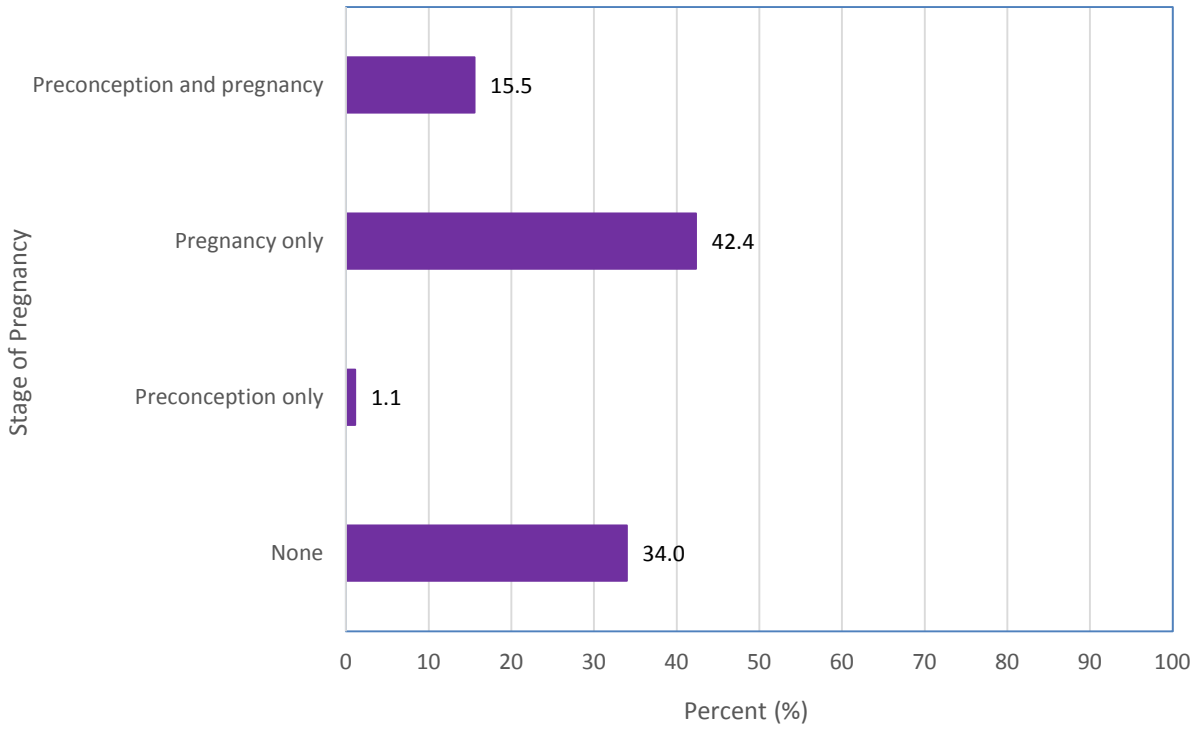
Folic Acid

Definition

Folic acid usage is measured as the percentage of pregnant women who report taking folic acid before and/or during their pregnancy.

Folic acid is a B vitamin that is essential to the normal development of a baby's spine, brain and skull, especially during the first four weeks of pregnancy (30). As such, women who are planning to become pregnant or suspect they are pregnant should supplement their diet with folic acid to prevent neural tube defects. Studies have found that supplementation with a multivitamin which includes folate is not only essential during preconception and in the first trimester, but if taken throughout pregnancy can also decrease the risk of other congenital anomalies (31), decrease the risk of small for gestational age babies, and infant mortality (32).

Figure 17: Folic acid usage, Porcupine Health Unit, 2014

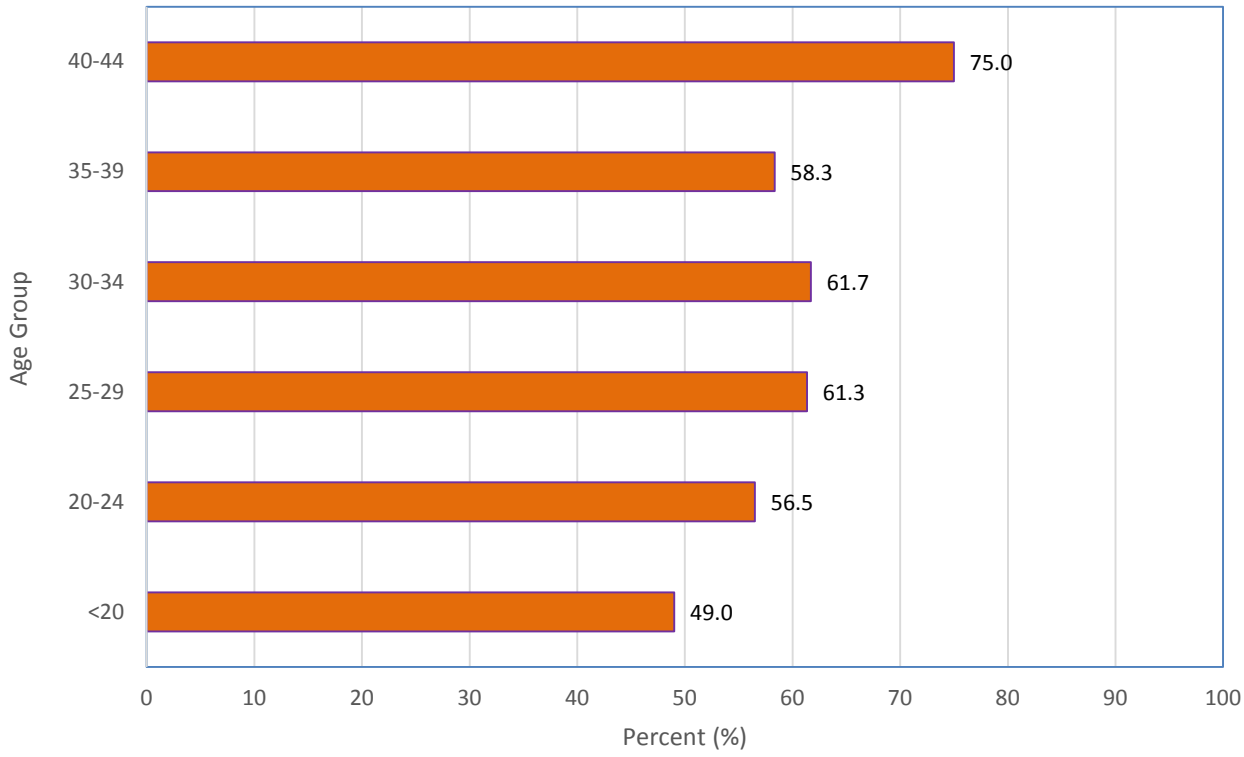


Source: BORN Information System, BORN Ontario, extracted November 2, 2015

More than one-third of mothers that gave birth in the PHU area in 2014 did not take folic acid at any point before or during their pregnancy (Figure 17). Just over 42% took folic acid during their pregnancy only, and 15.5% took folic acid both before and during their pregnancy.

Mothers 40 to 44 years of age took folic acid most often (75%) followed by mothers aged 25 to 34 (about 61%). Mothers under the age of 20 were the least likely to take folic acid supplementation (49%) (Figure 18).

Figure 18: Folic acid usage, by age group of mother, Porcupine Health Unit, 2014



Source: BORN Information System, BORN Ontario, extracted November 2, 2015

Substance Abuse

Definition

- *Alcohol exposure is measured as the percentage of pregnant women who report consuming alcohol during their pregnancy.*
- *Drug exposure is measured as the percentage of pregnant women who report using recreational drugs during their pregnancy.*

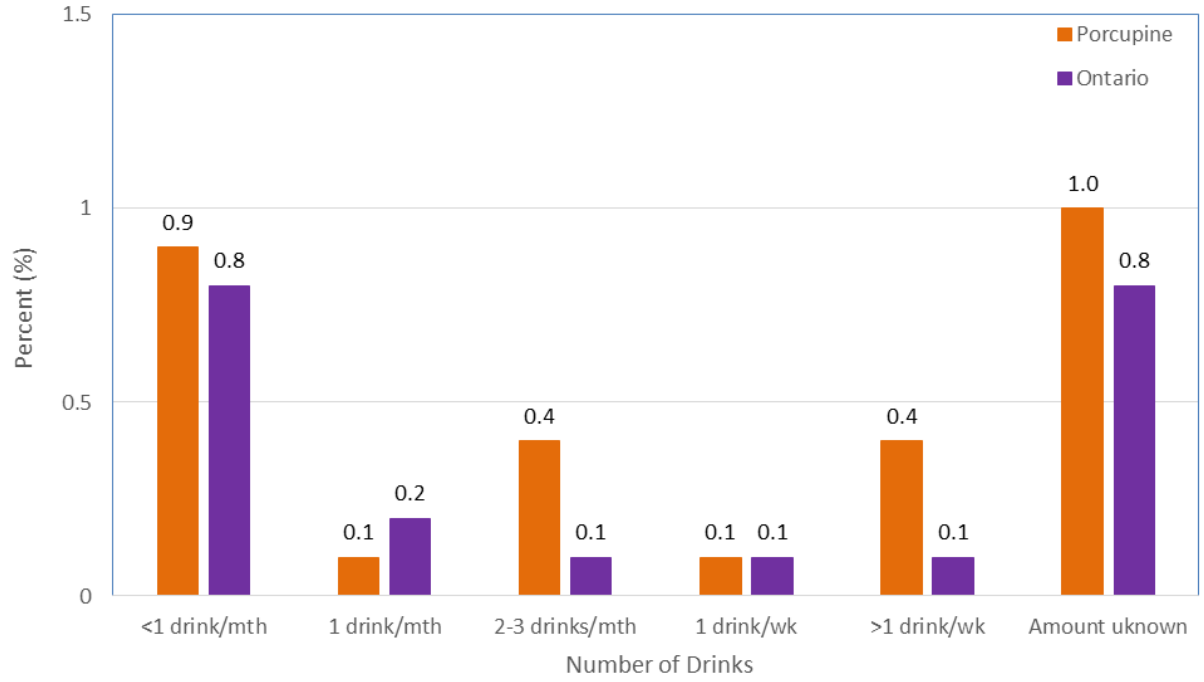
Tobacco and alcohol are the most common substances used by pregnant women in Canada (33). However, the use of illicit drugs by pregnant women still represents a significant percentage of use and the substances used tend to vary by race and ethnicity of women (33).

There is no safe level of alcohol consumption during pregnancy and abstinence is recommended for women who are or might become pregnant (34). Alcohol exposure during pregnancy has been linked to an increased risk of Fetal Alcohol Spectrum Disorder (FASD), which includes a range of physical, social, mental and emotional disabilities for the children (30). Studies have also found that low to moderate level of drinking or binge drinking are associated with low birthweight and neonatal death (35).

In general, drugs should not be used during pregnancy unless absolutely necessary (prescription drugs) because many can harm the fetus. Drugs taken by a pregnant woman cross the placenta and reach the fetus, just like oxygen and nutrients. Adverse birth effects of maternal drug use include birth defects, infant mortality, low birthweight, small for gestational age, and preterm birth (36). Children of parents with untreated substance abuse disorders are at greater risk of developing their own substance-related problems later in life (33).

Smoking is associated with numerous adverse outcomes for both the mother and child. For mothers, it is associated with cancers of the ovaries and cervix (33), affecting reproductive health. For babies, maternal smoking is associated with low birth weight and Sudden Infant Death Syndrome (SIDS). Later on in life, children of mothers who smoked during pregnancy, are at higher risk for behavioural disorders such as Attention Deficit Hyperactive Disorder (ADHD) and conduct disorder (33). Even second-hand smoke has been found to increase the risk of preterm birth, low birthweight, stillbirth, and SIDS (37).

Figure 19: Alcohol exposure, by number of drinks, Porcupine Health Unit & Ontario, 2014

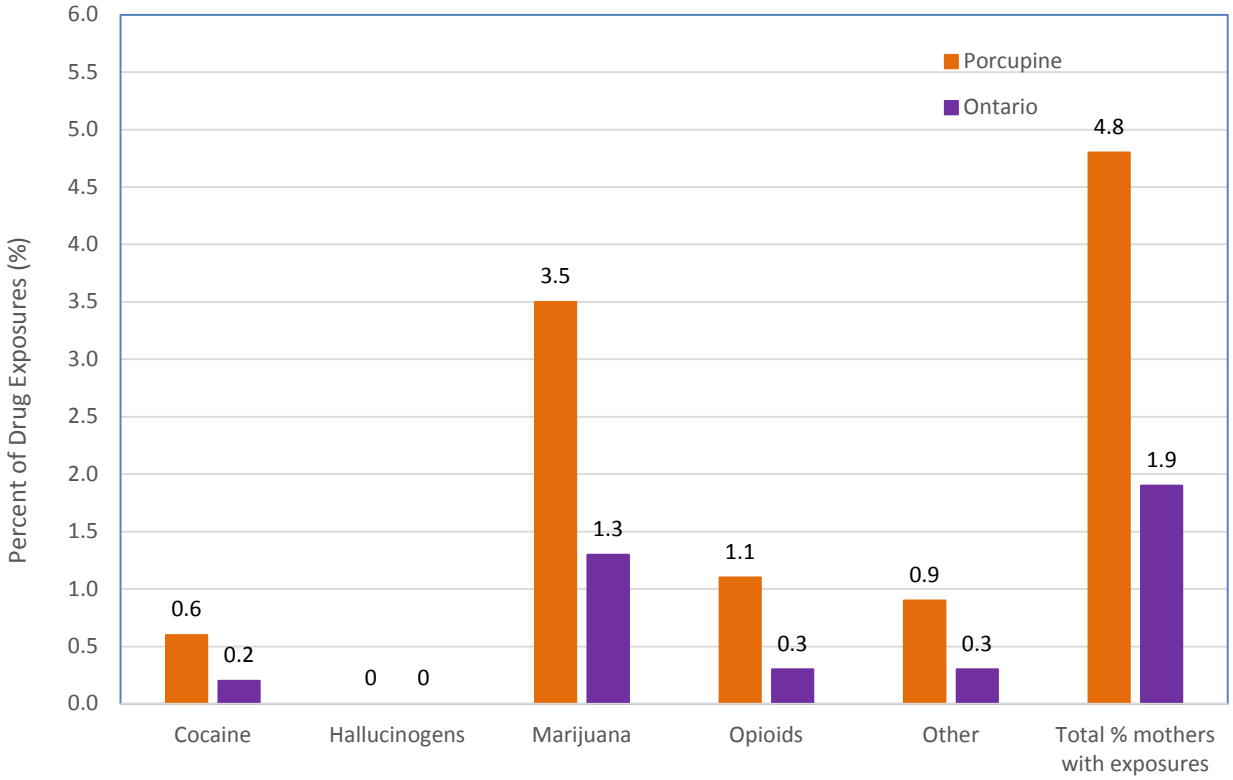


Source: BORN Information System, BORN Ontario, extracted November 3, 2015

The vast majority of mothers giving birth in 2014 did not have any exposure to alcohol during their pregnancy, both in the PHU area (95%) and in Ontario (93.7%). In the PHU area, 2.9% of mothers reported consuming alcohol during pregnancy, while in Ontario 2.1% of mothers reported doing so. Of those who did report consuming alcohol, the majority did not know the amount. Of those who did know, the majority reported consuming less than one alcoholic drink per month (Figure 19).

By age group, mothers who were less than 20 years of age had the highest proportion of alcohol exposure during pregnancy (7.7%). Alcohol exposure decreased with increasing age of the mother (data not shown).

Figure 20: Drug exposure, by type of drug, Porcupine Health Unit & Ontario, 2014

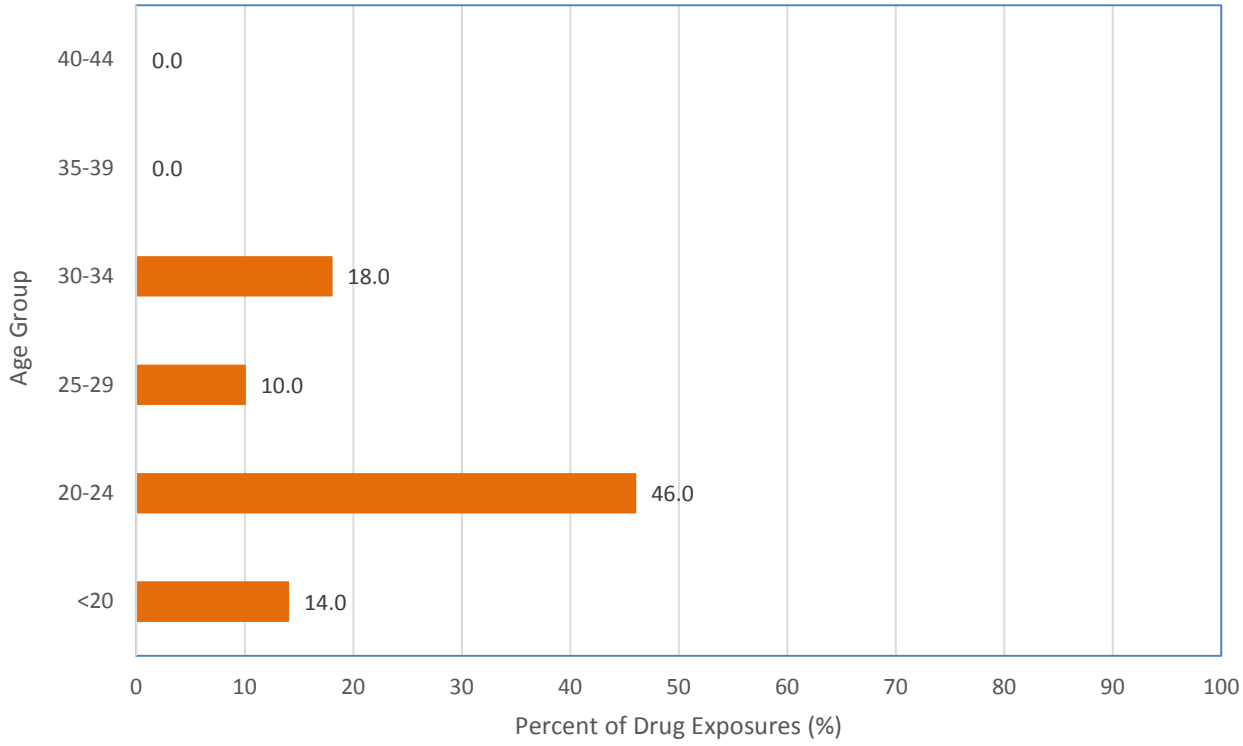


Source: BORN Information System, BORN Ontario, extracted November 3, 2015

The proportion of mothers who had one or more exposures to drugs, was two and half times higher for mothers giving birth in the PHU area (4.8%) compared to mothers giving birth in Ontario (1.9%), Figure 20. For all drugs reported, a higher proportion of mothers in the PHU area had exposures compared to mothers in Ontario. Marijuana seemed to be the drug of choice for mothers giving birth both locally (3.5%) and provincially (1.3%).

By age group, almost half of mothers 20 to 24 years of age had at least one drug exposure during their pregnancy (Figure 21). For those 24 years of age and younger, 60% of mothers in the PHU area had drug exposure during pregnancy. Drug exposure decreased for mothers 25 years of age and above.

Figure 21: Drug exposure, by age group of mother, Porcupine Health Unit, 2014

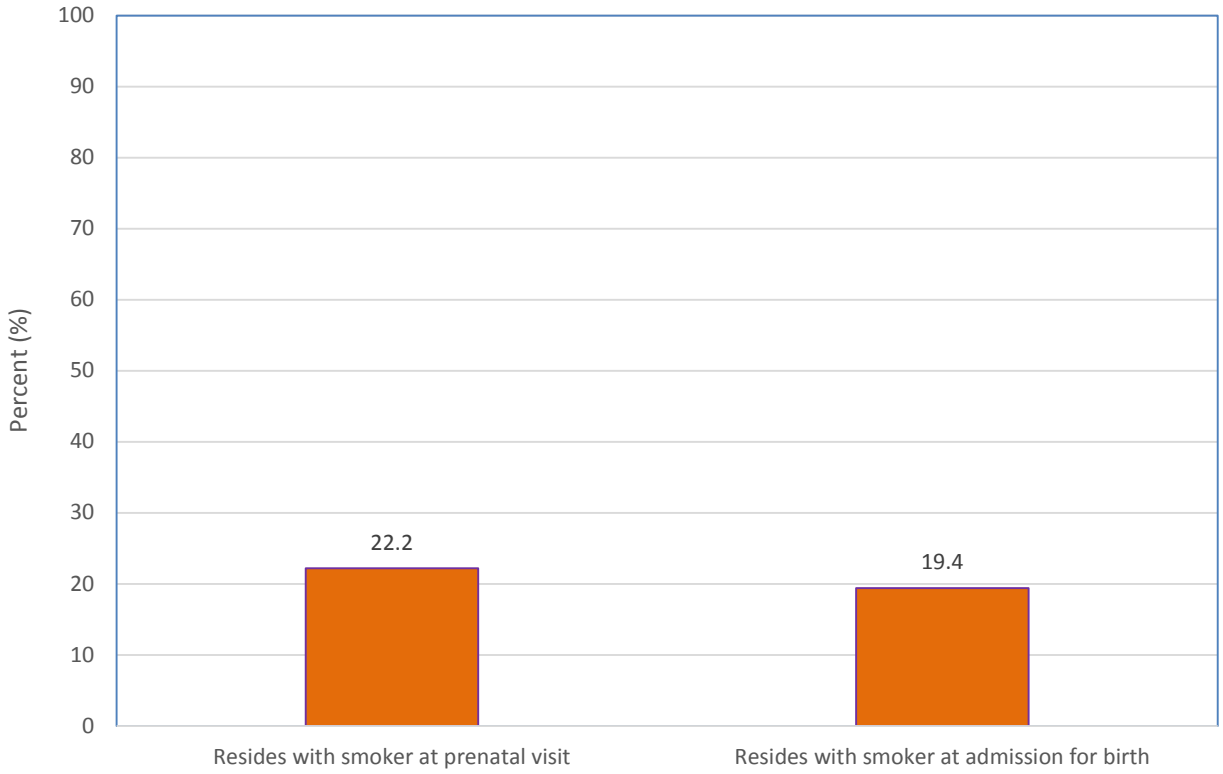


Source: BORN Information System, BORN Ontario, extracted November 3, 2015

Definition

Residing with a smoker is composed of two measures: 1) the percentage of pregnant women who report residing with a smoker at the time of their prenatal visit; and, 2) the percentage of pregnant women who report residing with a smoker at the time of hospital admission for the birth of their baby.

Figure 22: Pregnant women who reside with a smoker, Porcupine Health Unit, 2014



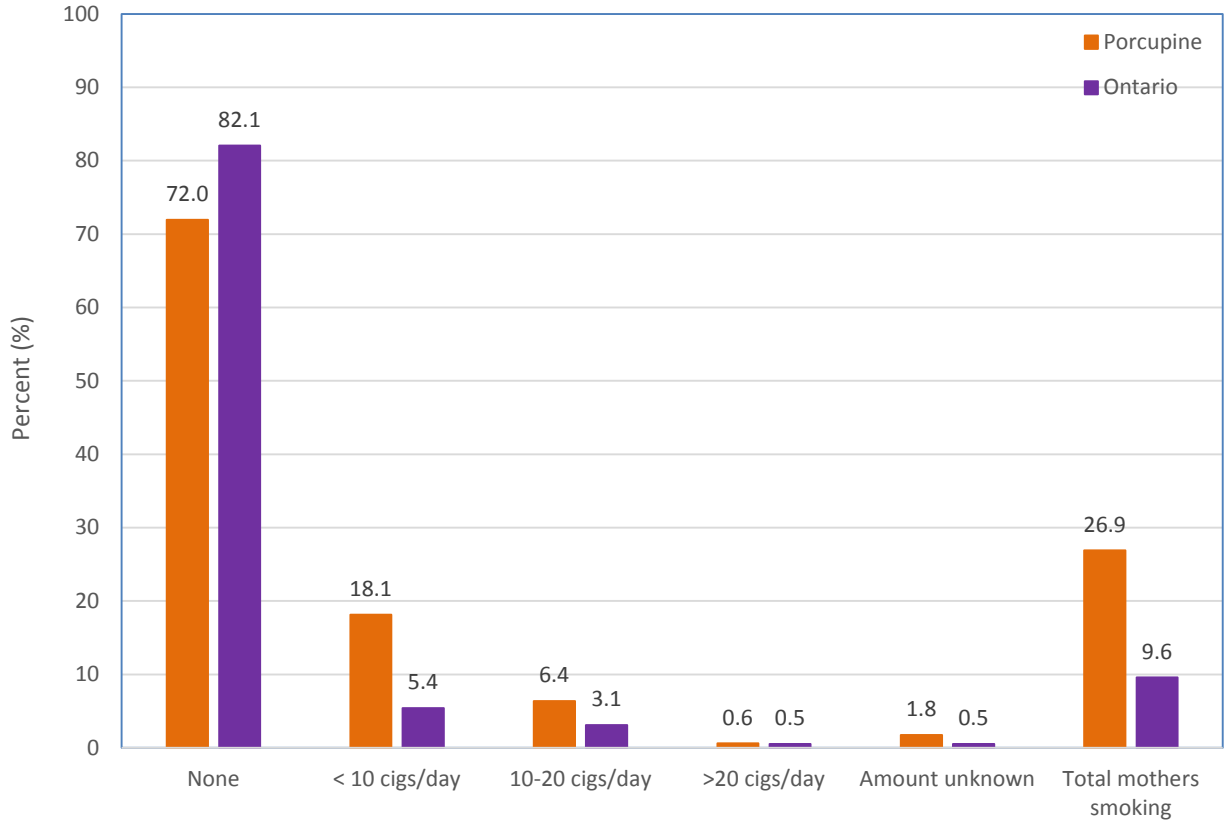
Source: BORN Information System, BORN Ontario, extracted November 3, 2015

More than one-fifth (22.2%) of mothers giving birth in the PHU area in 2014 reported that they resided with a smoker at the time of their first prenatal visit (Figure 22). Upon admission for birth, the proportion of mothers residing with a smoker had decreased slightly to 19.4%. Although it cannot be assumed that the prenatal visit itself decreased the proportion of mothers exposed to smoke, perhaps what mothers learned at the prenatal visit about the dangers of smoke exposure to the fetus and the newborn, contributed to the decrease.

Definition

- *Smoking at first prenatal visit is measured as the percentage of pregnant women who report smoking at the time of their first prenatal visit.*
- *Smoking at admission for birth is measured as the percentage of pregnant women who report smoking at the time of hospital admission for the birth of their baby.*

Figure 23: Smoking at first prenatal visit, Porcupine Health Unit & Ontario, 2014

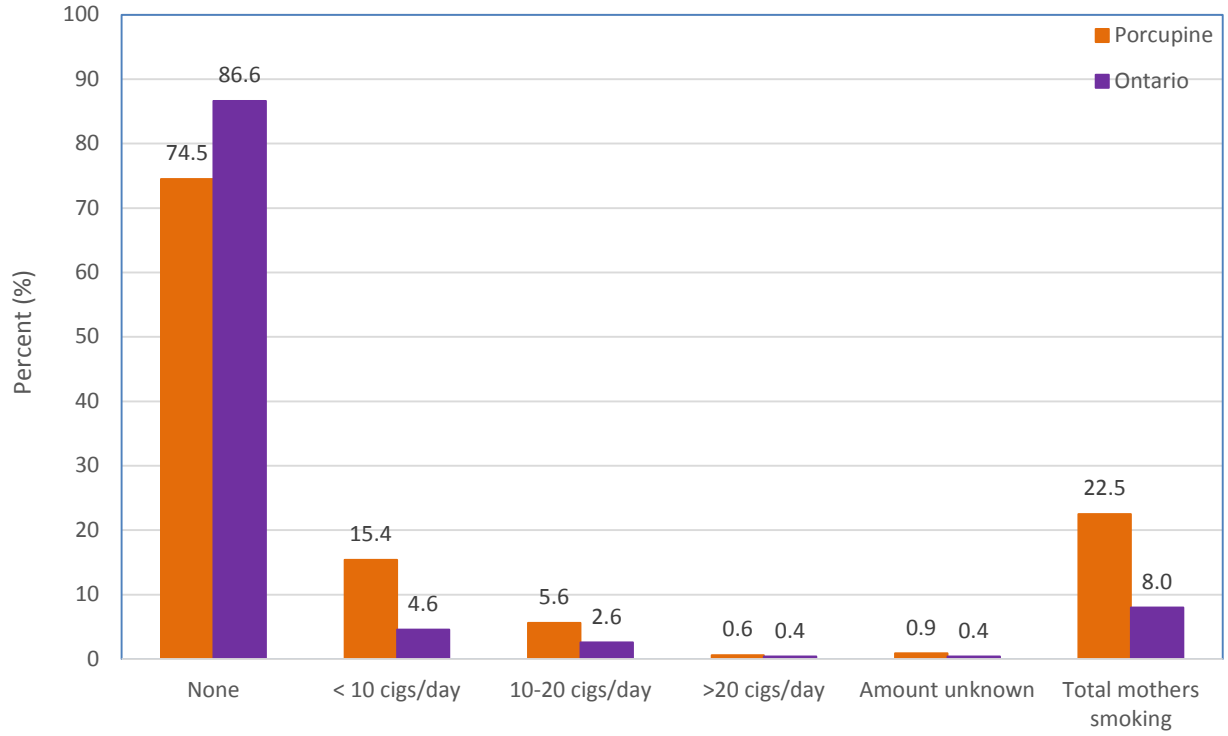


Source: BORN Information System, BORN Ontario, extracted November 3, 2015

In 2014, the proportion of pregnant women in the PHU area who reported smoking at their first prenatal visit (26.9%) was almost three times the proportion for Ontario (9.6%). Of those who smoked, the majority both locally and provincially, reported smoking less than 10 cigarettes per day (Figure 23).

By the time the women were admitted for birth, the rate of smoking had gone down both locally and provincially, but more than one-fifth of the women in the PHU area still reported smoking (22.5%), see Figure 24**.**

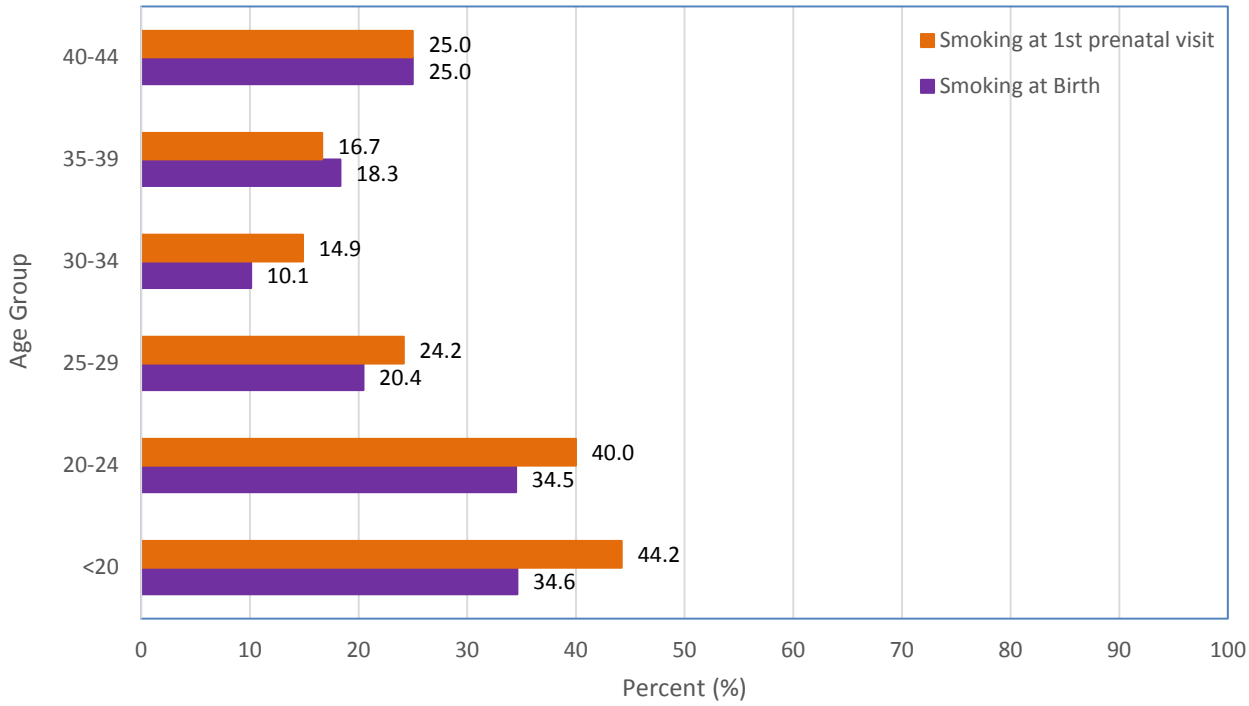
Figure 24: Smoking at admission for birth, Porcupine Health Unit & Ontario, 2014



Source: BORN Information System, BORN Ontario, extracted November 3, 2015

By age group, pregnant women under the age of 20, were most likely to report smoking both at the first prenatal visit (44.2%) and at admission for birth (34.6%), see Figure 25. Smoking decreased with age, both at the first prenatal visit and at birth, until the age of 34, and then increased again for mothers between 35 and 44 years of age. Also, for mothers up to 34 years of age, smoking decreased between the time of their first prenatal visit and admission for birth; however, for mothers 35 to 44 years of age, smoking stayed the same or increased.

Figure 25: Smoking at first prenatal visit and at admission for birth, by age group of mother, Porcupine Health Unit, 2014



Source: BORN Information System, BORN Ontario, extracted November 3, 2015

Prenatal Care

Definition

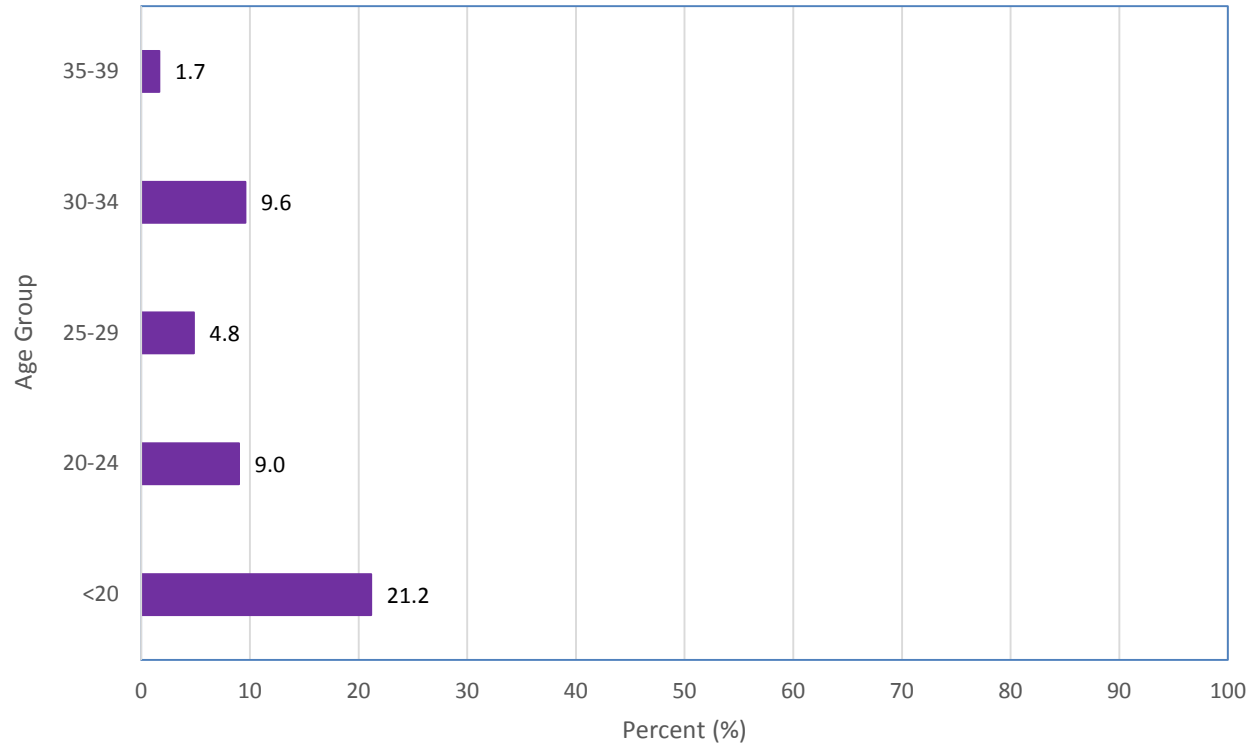
- *Mothers with no first trimester visit is measured as the percentage of pregnant women who report that they did not visit a healthcare provider during the first trimester of their pregnancy.*
- *Mothers who did not attend a prenatal class is measured as the percentage of pregnant women who report that they did not attend a prenatal class at any time during their pregnancy.*

Early and regular prenatal care is important to prevent birth complications and improve the health of the mother and baby (38). This is particularly important in vulnerable populations. Studies have shown that prenatal home visits to low income pregnant women by nurses can reduce the blood pressure of pregnant women and also positively contribute to other outcomes such as decreasing childhood injuries, child abuse and neglect (39).

Indigenous women, especially, do not access prenatal health services due to barriers such as lack of transportation, lack of child care, fear of being judged for lifestyle choices, and negative experiences in the mainstream health care system (40). This puts them at increased risk for negative maternal and birth outcomes. However, there are examples in Canada of prenatal wellness programs for indigenous women that have shown successes (40).

In 2014, the majority of pregnant women visited a healthcare provider in their first trimester, 89.5% in the PHU area and 84.4% in Ontario. Of those who did not visit a healthcare provider in their first trimester, the majority were women less than 20 years of age (Figure 26). More than one-fifth of pregnant women of this age did not have such a visit (21.2%).

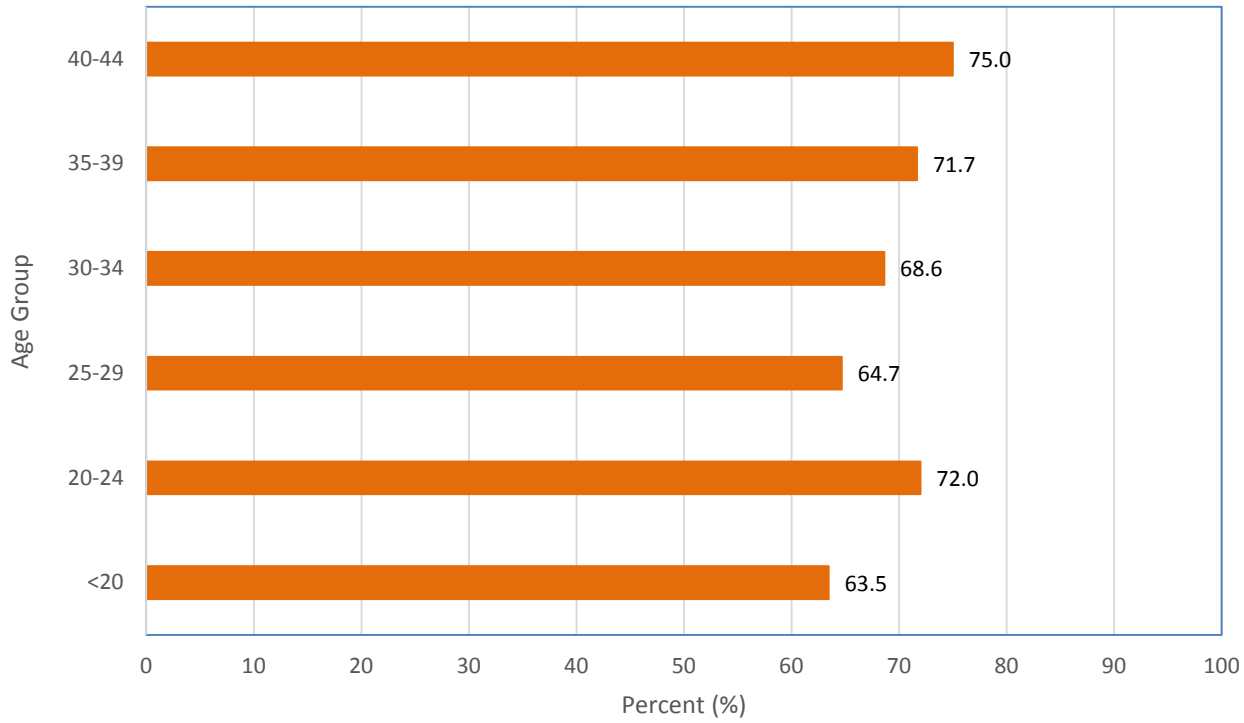
Figure 26: Mothers with no first trimester visit, by age group of mother, Porcupine Health Unit, 2014



Source: BORN Information System, BORN Ontario, extracted October 29, 2015

In 2014, the majority of pregnant women did not attend a prenatal class in both the PHU area (68.4%) and in Ontario (68.5%). Of those who did not attend a prenatal class, the majority were women 40 to 44 years of age (Figure 27). This may be due to the fact that these women have had previous pregnancies and births and did not feel the need to attend a prenatal class. However, even for women under the age of 25, who may be first time mothers, 70.2% did not attend a prenatal class. Prenatal classes were attended mostly by mothers 25 to 29 years of age.

Figure 27: Mothers who did not attend a prenatal class, by age group of mother, Porcupine Health Unit, 2014



Source: BORN Information System, BORN Ontario, extracted October 29, 2015

BIRTH OUTCOMES

Preterm Births and Birth Weight

Babies are considered preterm if they are born at a gestational age of less than 37 completed weeks or less than 259 days. Numerous and varied risk factors are associated with preterm births including single marital status, maternal stress, younger or older maternal age, infection, smoking, multiple gestation, inadequate prenatal care, previous preterm birth, and low pre-pregnancy BMI (5). Babies born preterm are at risk for several adverse outcomes such as infant mortality, congenital anomalies, acute respiratory failure, deficient immune systems, and longer term visual, behavioural, cognitive, and growth problems (5).

Nationally, the preterm birth rate increased steadily from about 6% in the early 1980s to about 8% in 2006-2007 (18). This increase is due to a number of factors including delayed child-bearing and fertility treatments leading to multiple births.

Almost 92% of babies born in the PHU area in 2014 were full term (37-41 weeks). The percentage was similar for Ontario (91.7%). The preterm birth rate, was 7.4% of all live births in the PHU area and 7.5% of all live births in Ontario. Less than 1% of babies both locally and provincially were born at greater than 42 weeks.

Locally, women less than 20 years of age had the highest percentage of full term births at 94.9%. Women 35 to 39 years of age had the highest percentage of preterm births (14.3%).

Definition

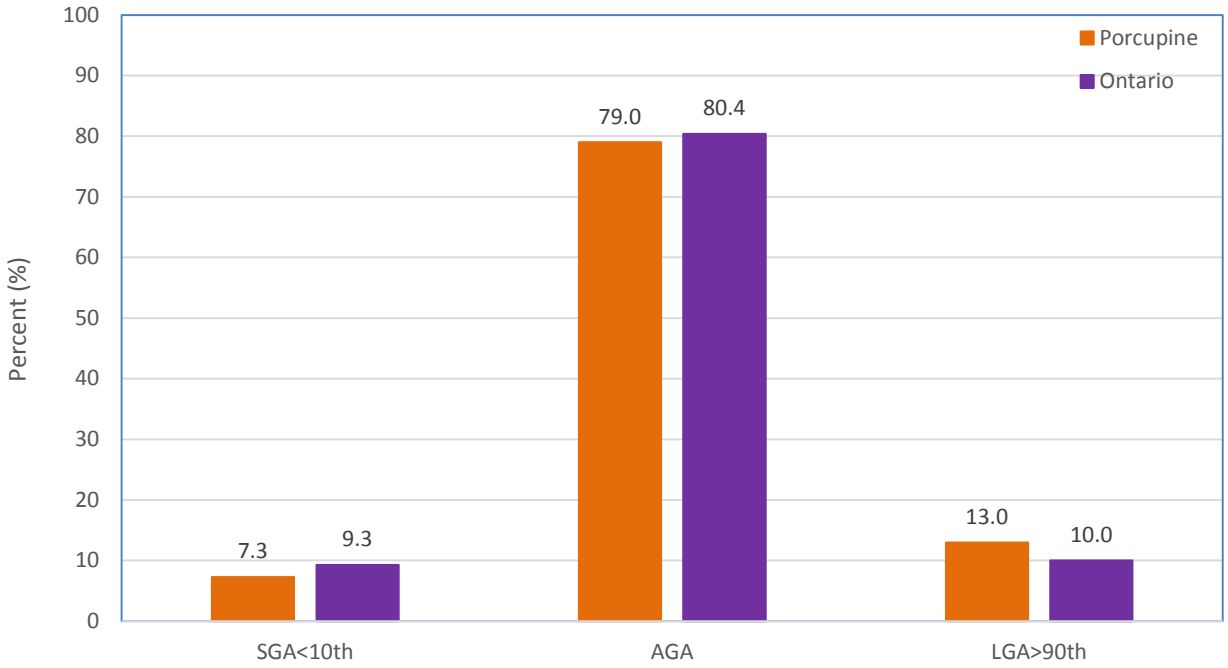
- *Small for gestational age (SGA) is measured as the number of singleton live births with a birth weight below the 10th percentile.*
- *Large for gestational age (LGA) is measured as the number of singleton live births with a birth weight above the 90th percentile.*
- *Average for gestational age (AGA) is measured as the number of singleton live births with a birth weight between the 10th and 90th percentile.*
- *Each of SGA, LGA, and AGA are measures of the sex-specific birth weight distribution for gestational age, expressed as a percentage of the total number of singleton live births.*

A small for gestational age (SGA) baby is one whose birth weight is below what would be expected for the baby's gestational age. In developed countries, a number of risk factors are associated with having an SGA baby including maternal smoking during pregnancy, race,

short maternal stature, poor nutrition, parity, and general maternal health problems (5). Babies that are SGA have increased risks such as infant morbidity and mortality, later risk of type 2 diabetes, and coronary heart disease (5).

Maternal diabetes, genetics, and maternal diet are risk factors for having babies that are large for gestational age (LGA). High birth weight also increases the risk of type 2 diabetes later in the child's life (5). Babies that are LGA are more common among First Nations women, partly due to the higher rate of diabetes in this population (5).

Figure 28: Birth weight, by gestational age, Porcupine Health Unit & Ontario, 2014

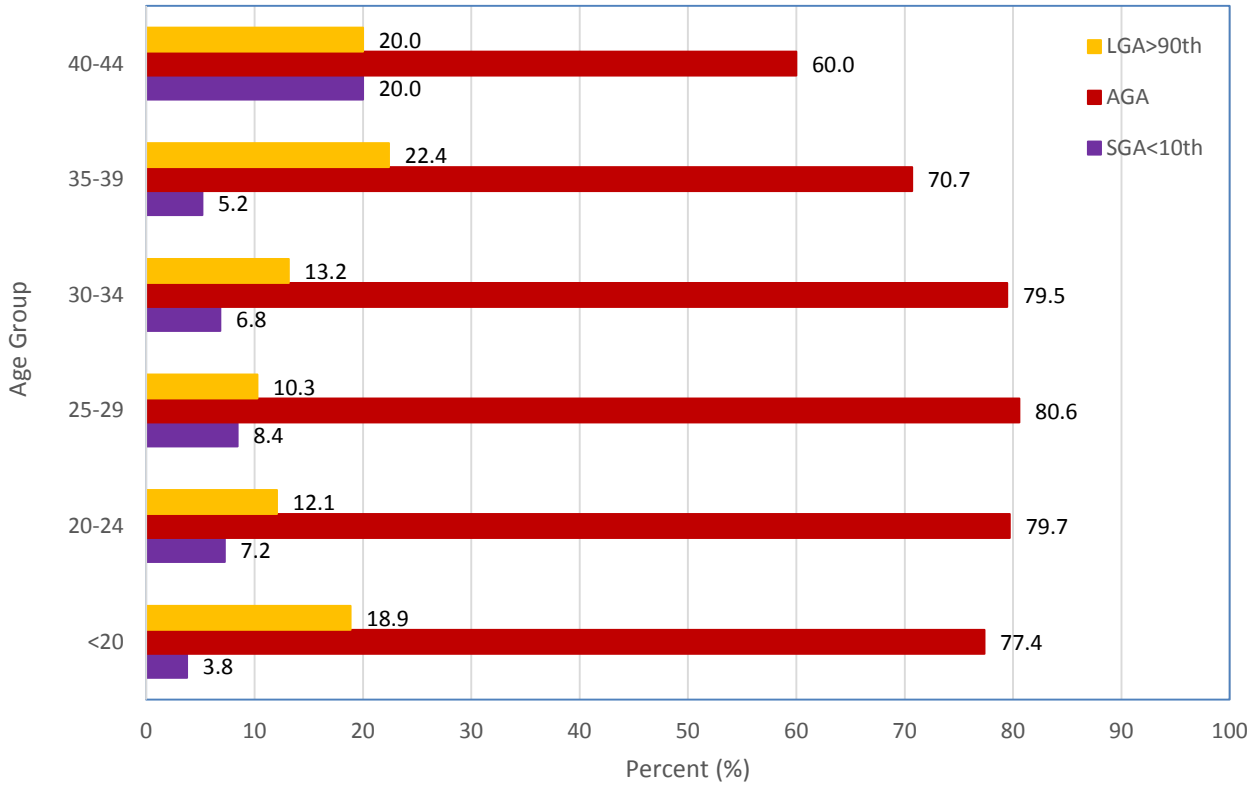


Source: BORN Information System, BORN Ontario, extracted February 12, 2016

In 2014, a slightly smaller percentage of babies born in the PHU area (79%) had a birth weight which was at the average gestational age (AGA), compared to babies born in Ontario (80.4%), see Figure 28. A higher percentage of babies born in the PHU area that year (13%) were LGA compared to babies born in Ontario (10.0%). The PHU area had fewer (7.3%) SGA babies compared to Ontario (9.3%).

Women 40 to 44 years of age had the lowest percentage of babies whose birth weight was average for gestational age (Figure 29). Mothers of this age group more often gave birth to large and small for gestational age babies.

Figure 29: Birth weight by gestational age, by age group of mother, Porcupine Health Unit, 2014



Source: BORN Information System, BORN Ontario, extracted February 12, 2016

Caesarean Section

Definition

Caesarean section, also called c-section, is a surgical procedure performed on a pregnant woman in order to deliver the baby. Vaginal births occur without a surgical procedure, but can be aided by other methods such as vacuum or forceps.

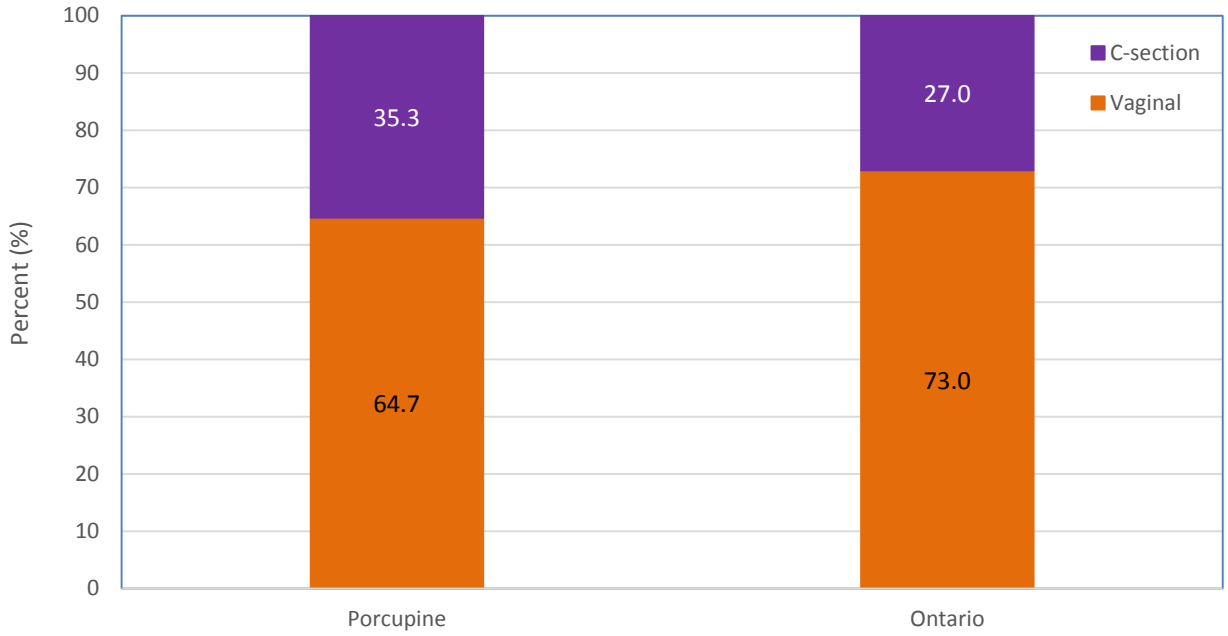
Caesarean sections are among the most common surgical procedures performed on women of reproductive age. C-section rates in all developed countries and in Canada in particular, have increased dramatically in the past two decades. The national C-section rate increased from 17% of all births in 1995 to nearly 27% in 2010 (24). In high-risk pregnancies and

complicated deliveries, C-sections are often the best approach to ensure good outcomes for both the mother and the baby, but rates are also rising among women with low-risk pregnancies (24).

The causes for the rising C-section rate are multi-faceted and complex. They include demographic factors such as delayed child-bearing, increased maternal body mass, increased rate of chronic disease among pregnant women, a rise in birth weights, and more multiple births. These factors increase the likelihood of a higher-risk pregnancy (24).

In addition to these demographic factors, studies have shown that maternal request due to fear of birth, a previous caesarean, and negative delivery experiences also drive the C-section rate (40). The higher the socio-economic status and education levels of the mother, the more likely they are to have a spontaneous labour and birth without intervention (15).

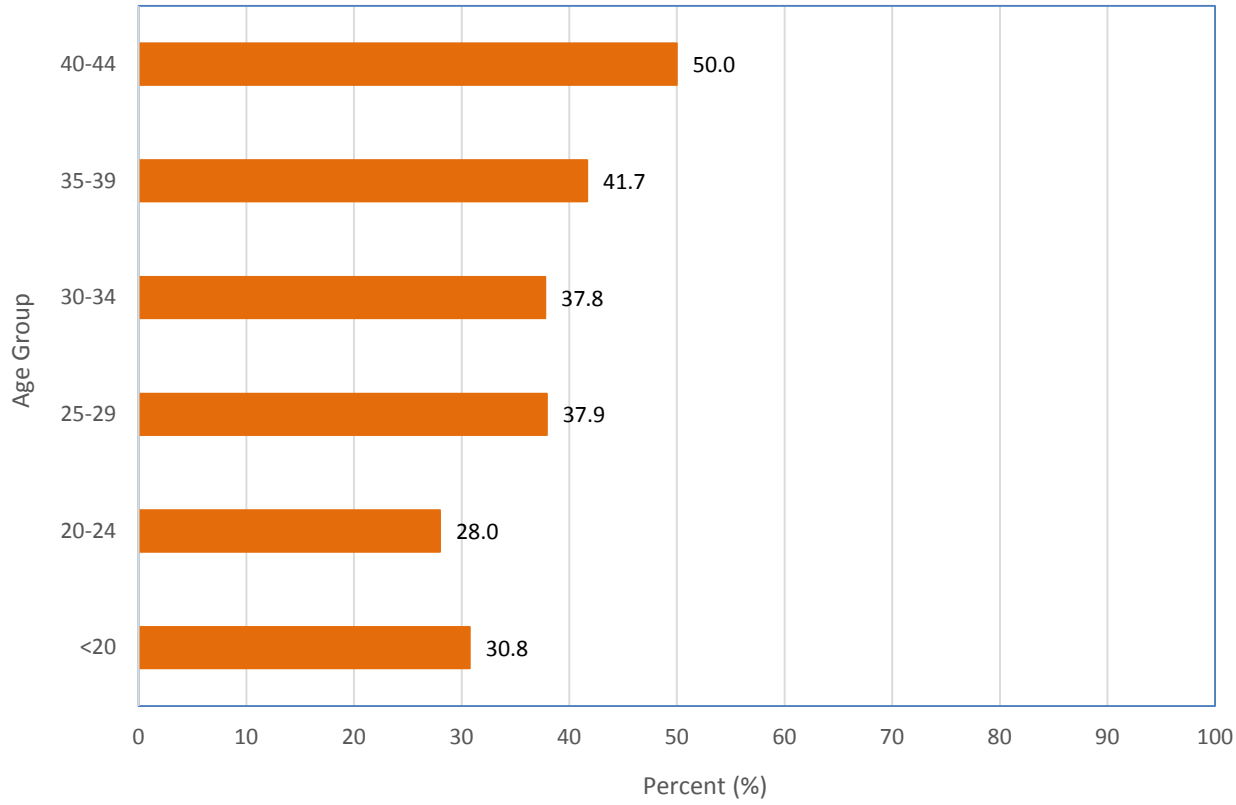
Figure 30: Births, by type, Porcupine Health Unit & Ontario, 2014



Source: BORN Information System, BORN Ontario, extracted October 28, 2015

In 2014, the caesarean section rate was higher amongst women giving birth in the PHU area (35.3%) compared to women giving birth in Ontario overall (27%), Figure 30. Older women had higher rates of caesarean sections compared to younger women (Figure 31). The highest rate was for women 40 to 44 years of age (50%) and the lowest rate was for women 20 to 24 years of age (28%). These findings are consistent with what is found in the literature, however, the significantly higher rate of caesareans amongst mothers in the PHU area is of concern and warrants further investigation.

Figure 31: Caesarean section births, by age group of mother, Porcupine Health Unit, 2014



Source: BORN Information System, BORN Ontario, extracted October 28, 2015

Of the 282 caesarean sections in the PHU area in 2014, 42.9% were repeat caesareans, similar to the Ontario percentage (42.8%). The most common indication for a caesarean section was a history of a previous caesarean section, for mothers both in the PHU area and in Ontario (Table 2). Other common indications for a caesarean section were: labour that was not progressing, atypical or abnormal fetal surveillance, and malposition of the fetus.

Table 2: Top three indications for C-section, Porcupine Health Unit & Ontario, 2014

Porcupine	Rank	Ontario
Previous c-section (33.7%)	1	Previous c-section (33.6%)
Non-progressive first stage of labour (14.2%)	2	Fetal atypical or Abnormal fetal surveillance (16.0%)
Fetal atypical or Abnormal fetal surveillance (12.4%)	3	Fetal malposition/malpresentation (12.0%)

Source: BORN Information System, BORN Ontario, extracted October 29, 2015

Mortality

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. The stillbirth rate is the total number of stillbirths per 1,000 total births (live and stillbirths).

Stillbirth rates have declined for decades, but increased in most developed countries in recent years. In Canada, the stillbirth rate increased from 6 per 1,000 total births in 2000 to 7.1 per 1,000 total births in 2009 (41). Much of this increase can be explained by pregnancy termination most often between 20 and 23 weeks' gestation (41). The increase in stillbirths is related to prenatal diagnosis of congenital anomalies, where pregnancies are being terminated in the place of infant death or late fetal death due to a congenital anomaly (41).

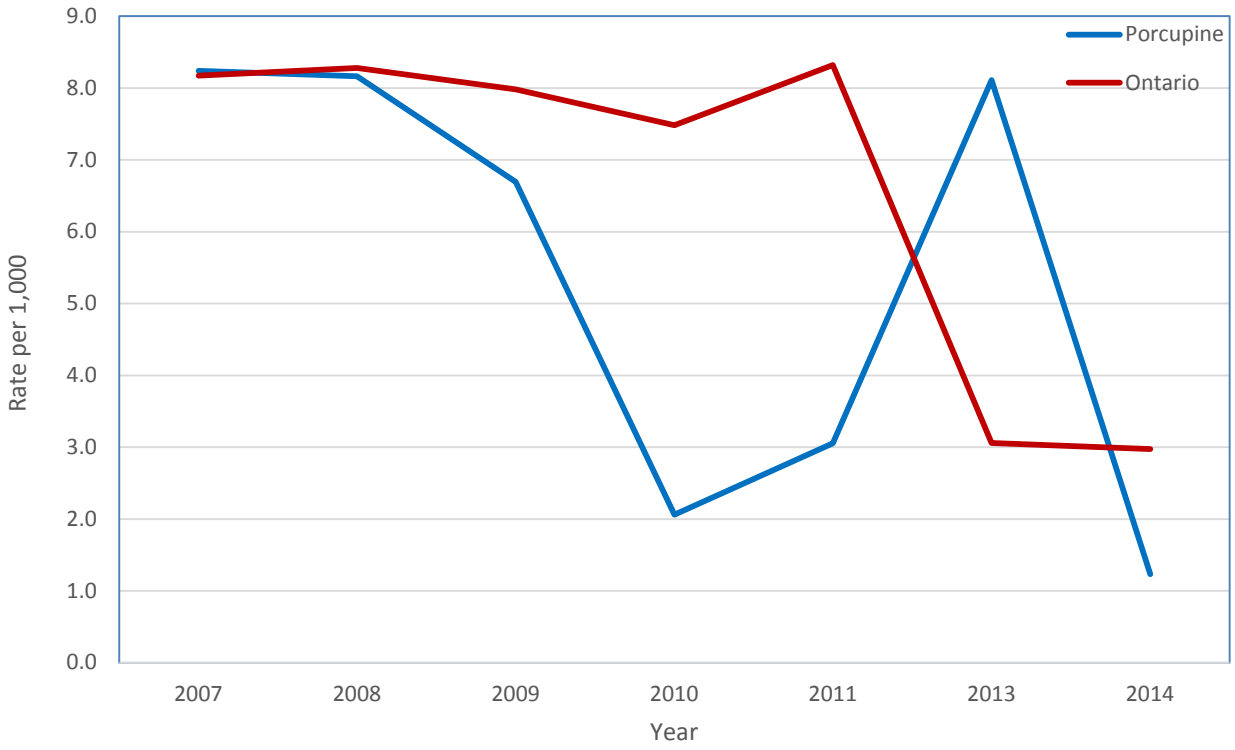
Despite this, more than 25% of stillbirths are due to unknown causes (5). Risk factors for stillbirth include prior stillbirths, low socio-economic status, advanced maternal age, smoking during pregnancy, and multiple gestation pregnancies, among others (5).

Infant mortality has been considered the single most comprehensive measure of health in a society (5). Infant mortality has decreased dramatically over the last century due primarily to improvements in sanitation, nutrition, infant feeding and maternal and child health care. In Canada in particular, the fortification of food with folic acid since 1998 and improvements in surgical treatments for congenital malformations have also decreased the infant mortality rate (5).

In 2014, there were 814 total births in the PHU area, 2 (0.2%) of which were stillbirths. The percentage of stillbirths in Ontario that year was 0.5%. The rate of stillbirths is lower among women of reproductive age (15-49) in the PHU area, 1.1 stillbirths per 10,000 compared to 1.9 stillbirths per 10,000 in Ontario.

The stillbirth rate for newborns in the PHU area decreased from a high of 8.2 to 1.2 stillbirths per 1,000 births between 2007 and 2014 (Figure 32). During this time, the Ontario rate decreased from 8.2 to 3.0 stillbirths per 1,000 births. In 2013, there was a spike in the stillbirth rate for PHU, but this is likely due to a change in databases between 2011 and 2013, and because of smaller numbers in the PHU area, rates are more sensitive to such changes. Therefore, this may not reflect an actual increase in rates.

Figure 32: Crude stillbirth rate, by year, Porcupine Health Unit & Ontario, 2007-2014



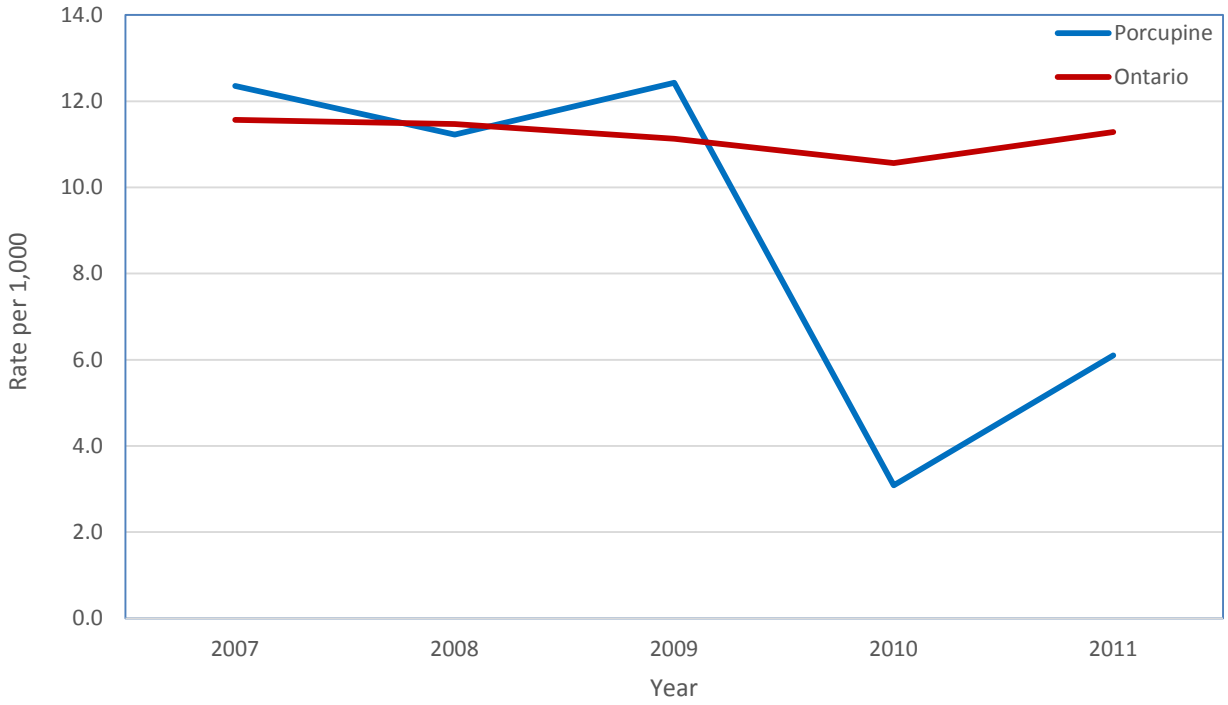
Source: IntelliHealth, 2007-2011, Ministry of Health & Long-Term Care, extracted October 19, 2015; BORN Information System, BORN Ontario, 2013-2014, extracted October 19, 2015
** Due to the change from IntelliHealth to BORN between 2011 and 2013, data for 2012 was not available*

Definition

The perinatal mortality rate is the total number of stillbirths and infant deaths occurring up to and including 6 days of age, per 1,000 total births (live and stillbirths).

Between 2007 and 2011, the PHU perinatal mortality rate decreased from 12.4 to 6.1 deaths per 1,000 births while the Ontario rate during this time remained steady at about 11.4 deaths per 1,000 births (Figure 33). During this time, the PHU rate has fluctuated but this is likely due to small numbers, and as a result this data should be interpreted with caution.

Figure 33: Perinatal mortality rate, by year, Porcupine Health Unit & Ontario, 2007-2011*

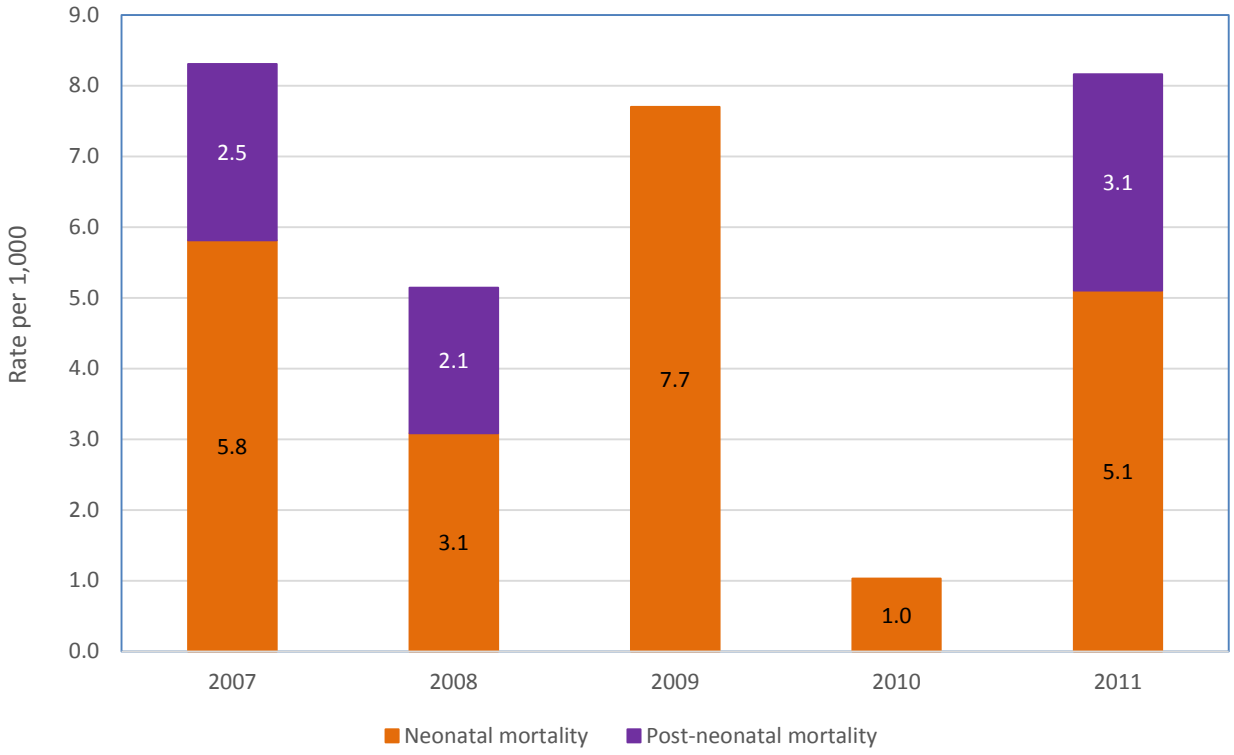


Source: IntelliHealth, 2007-2011, Ministry of Health & Long-Term Care, extracted October 19, 2015
** Death data was only available until 2011 at the time of this report*

Definition

The infant mortality rate is the total number of infant deaths occurring up to the age of 364 days, per 1,000 live births. It is a composite measure made up of both neonatal mortality which is death up to 27 days of age and post-neonatal mortality, which is death occurring between 28 and 364 days of age.

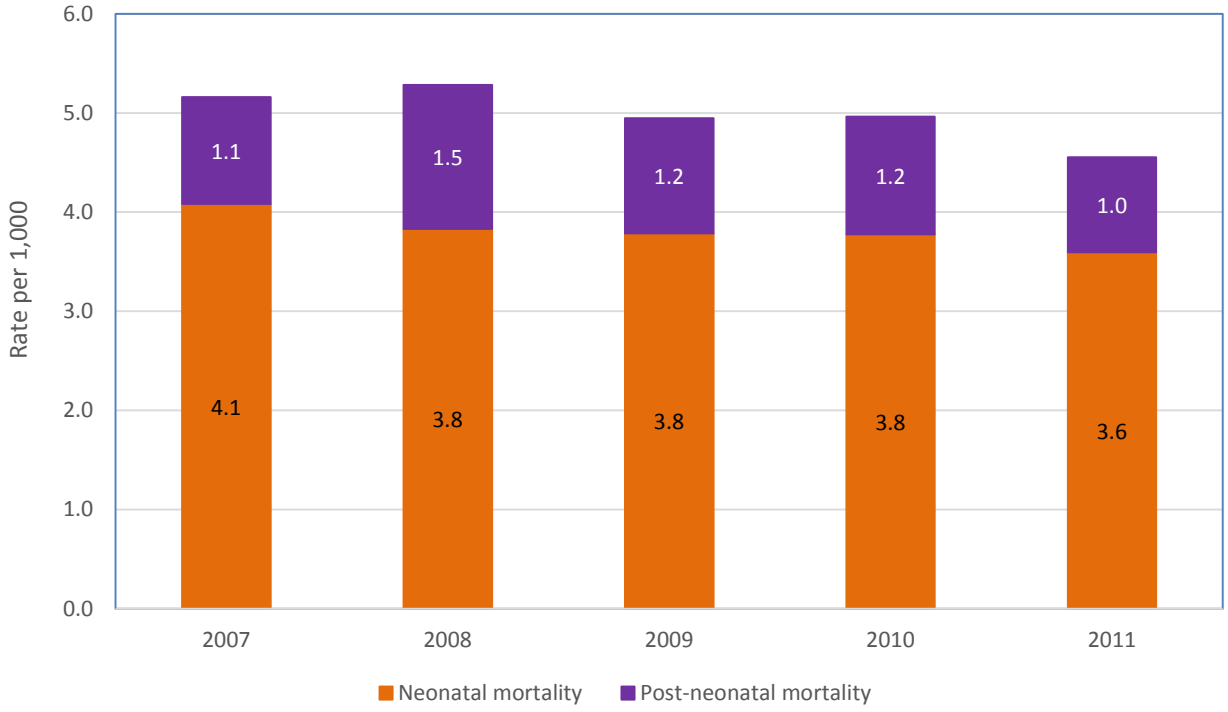
Figure 34: Infant mortality rate, by type and year, Porcupine Health Unit, 2007-2011



Source: IntelliHealth, 2007-2011, Ministry of Health & Long-Term Care, extracted October 21, 2015
** Death data was only available until 2011 at the time of this report*

Between 2007 and 2011, the overall infant mortality rate for the PHU fluctuated between a high of 8.3 to a low of 1.0 deaths per 1,000 live births (Figure 34). Overall, the PHU rates were higher than Ontario rates which varied between 4.6 and 5.3 deaths per 1,000 live births (Figure 35). Both locally and provincially, the majority of infant mortality was comprised of neonatal mortality.

Figure 35: Infant mortality rate, by type and year, Ontario, 2007-2011



Source: IntelliHealth, 2007-2011, Ministry of Health & Long-Term Care, extracted October 21, 2015
** Death data was only available until 2011 at the time of this report*

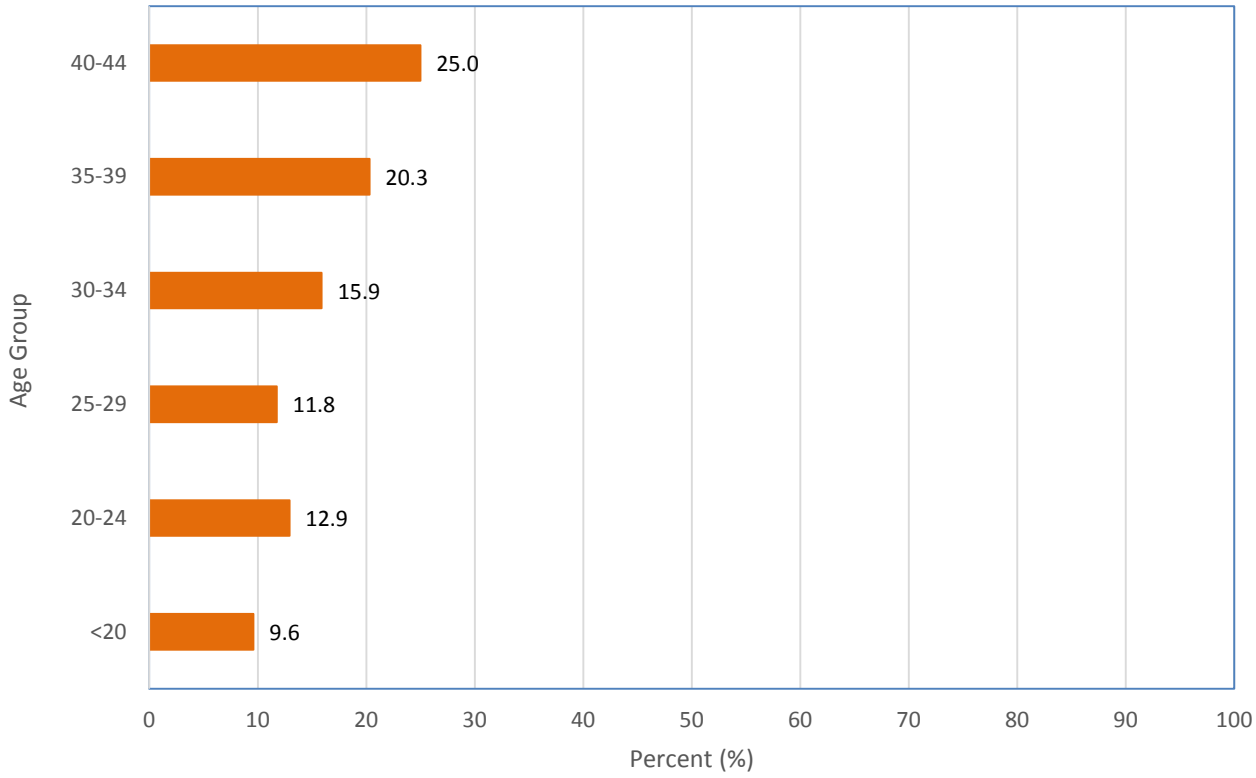
Birth Complications and Screening

Definition

The number of newborns who are admitted to the Neonatal Intensive Care Unit (NICU), expressed as a percentage of the total number of births.

The NICU is a specialized care unit in a hospital that provides a high level of intensive care for premature babies and those born with medical problems. The main reasons for admission to a NICU are low birthweight, preterm birth, and caesarean delivery (42). The average cost of a NICU admission in Canada is about 12 times the cost for a hospital stay for a term birth (42). Given the high social, medical, and behavioural costs related to preterm births and low birthweight, it is important to mitigate the number of such births.

Figure 36: Neonatal Intensive Care Unit (NICU) admission, by age group of mother, Porcupine Health Unit, 2014



Source: BORN Information System, BORN Ontario, extracted October 29, 2015

In 2014, 13.6% of newborns in the PHU area and 13.3% of newborns in Ontario were admitted to the Neonatal Intensive Care Unit (NICU). Newborns of mothers 40 to 44 years of age were most often admitted to the NICU (25.0%), see Figure 36. NICU admission decreased with the age of the mother, so that 9.6% of women less than 20 years of age had a newborn admitted to the NICU.

Definition

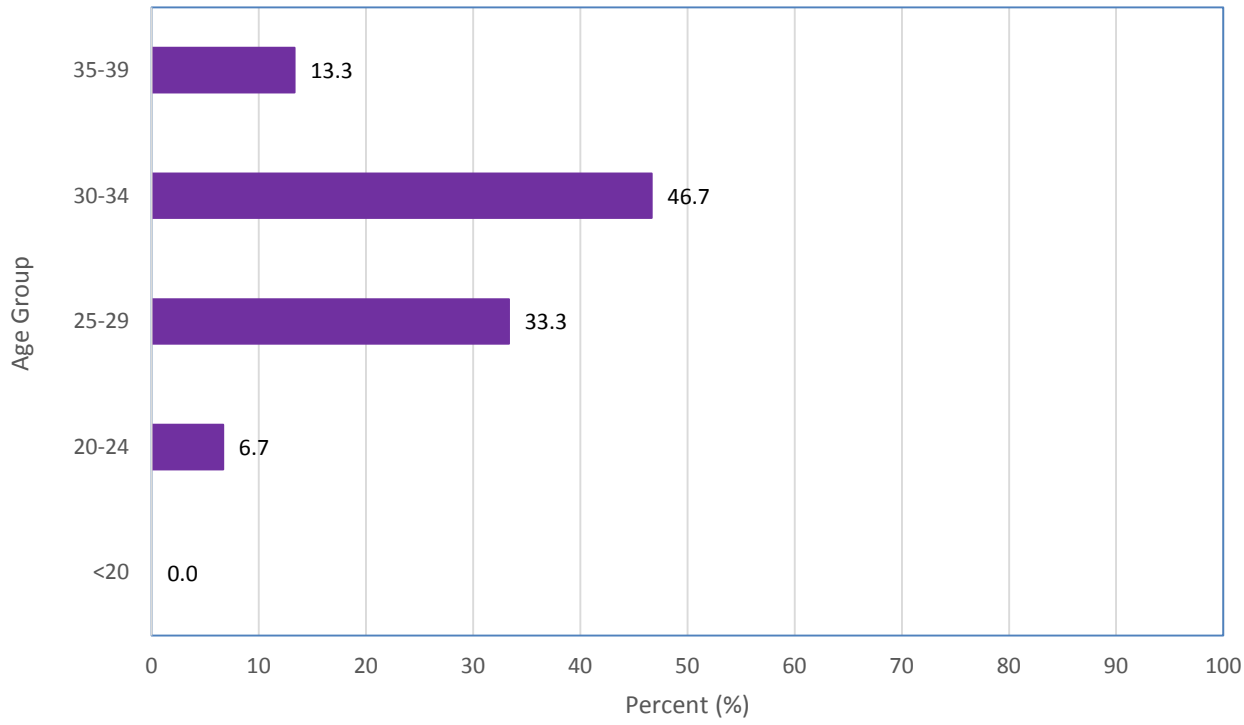
Congenital anomalies are also known as birth defects, congenital disorders or congenital malformations (43). They occur while the fetus is developing and can be identified prenatally, at birth or later in life. They are measured as the percentage of births that result in an identified congenital anomaly. There may be more than one congenital anomaly identified per birth.

Congenital anomalies are important causes of childhood death, chronic illness, and disability. Although the cause cannot be determined in about 50% of anomalies, known risk factors include low socioeconomic status, poor nutrition, infections such as syphilis, genetic factors, substance abuse, and low folic acid levels (43).

In 2014, 1.2% of births in the PHU area and 1.1% of Ontario births resulted in a congenital anomaly. For PHU, that equated to 10 births and a total of 15 different congenital anomalies identified. Cardiovascular anomalies were the most common type of anomaly identified in newborns both in the PHU area and Ontario.

Of the 15 anomalies identified in 2014, almost half (46.7%) occurred in babies born to mothers between 30 and 34 years of age (Figure 37). One-third of the anomalies occurred in babies born to women 25 to 29 years of age, and no anomalies were identified in babies born to women under the age of 20.

Figure 37: Newborn congenital anomalies, by age group of mother, Porcupine Health Unit, 2014



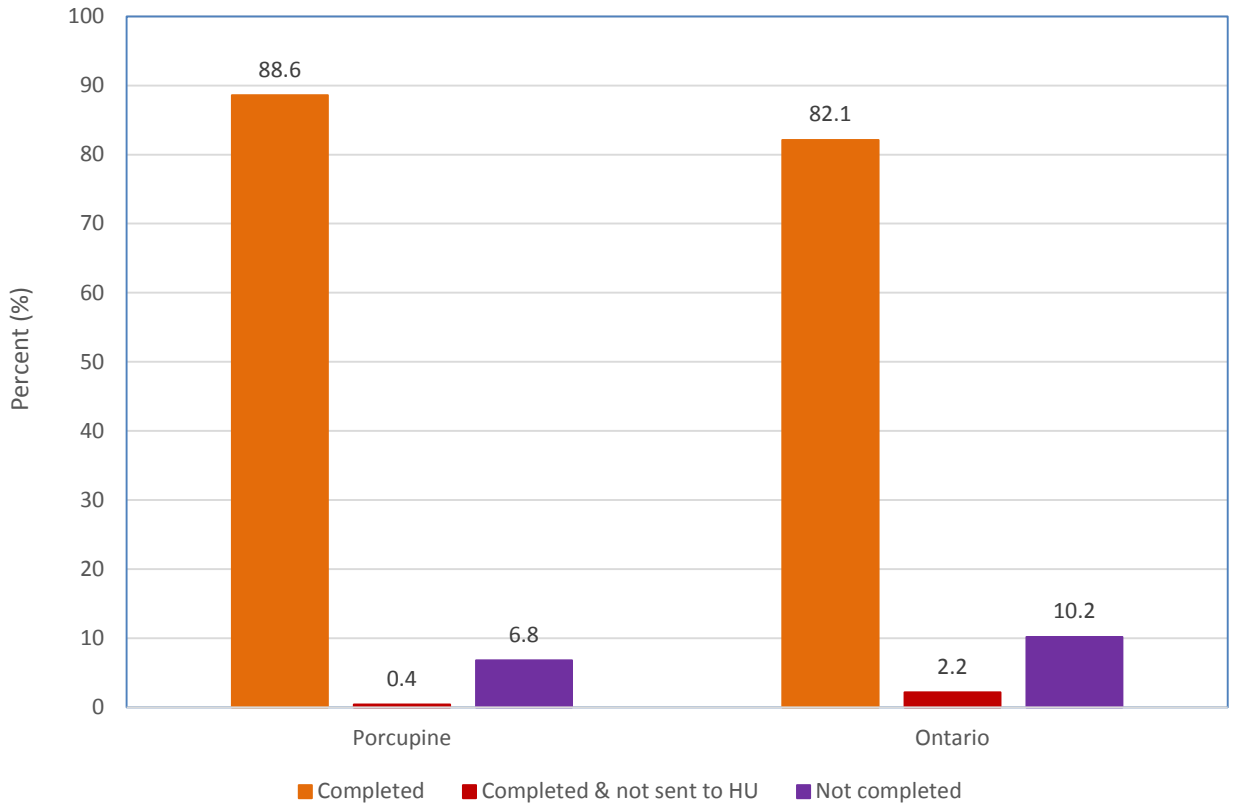
Source: BORN Information System, BORN Ontario, extracted November 2, 2015

Definition

The Healthy Babies Healthy Children (HBHC) screen completion rate is measured as the percentage of births where the HBHC screen was completed and results sent to the health unit; completed, but results not sent to the health unit; or, not completed.

The HBHC program is funded by the government of Ontario and is designed to help children get a healthy start in life. The HBHC is a screening tool that is completed with pregnant women and their families as well as with families with children from birth to their transition to school. It is used to identify risks to healthy child development including health risks during pregnancy, mother's socio-economic status, health of parents and child, as well as to identify family supports.

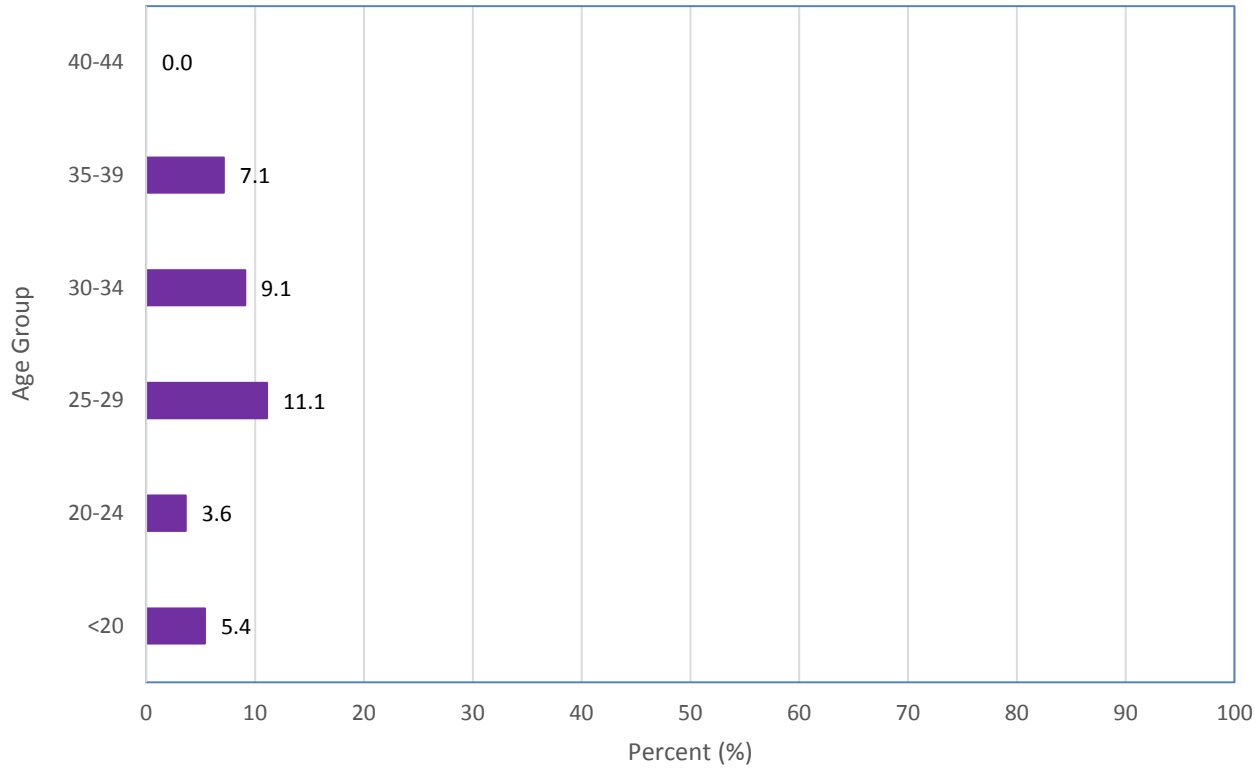
Figure 38: Healthy Babies Healthy Children (HBHC) screen completion, Porcupine Health Unit & Ontario, 2014



Source: BORN Information System, BORN Ontario, extracted October 29, 2015

In 2014, a greater percentage of mothers giving birth in the PHU area had an HBHC screen completed (88.6%) compared to mothers giving birth in Ontario (82.1%), see Figure 38. By age group, women who most often did not have the screen completed were 25 to 29 years of age (Figure 39). All mothers 40 to 44 years of age had a completed screen.

Figure 39: Mothers with Healthy Babies Healthy Children (HBHC) screen not completed, by age group of mother, Porcupine Health Unit, 2014



Source: BORN Information System, BORN Ontario, extracted October 29, 2015

Definition

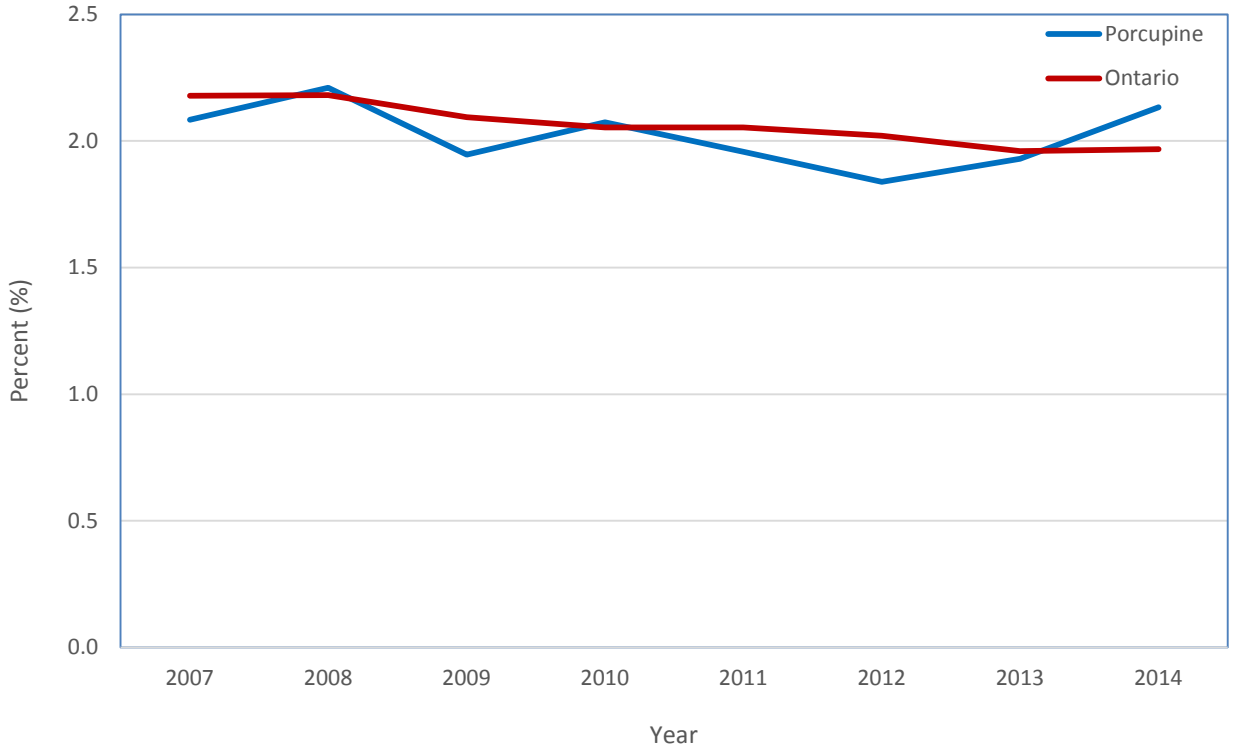
Emergency room (ER) visits for infants is measured as the number of ER visits for infants up to 364 days as a percentage of the total number of ER visits.

Over the past twenty years, a variety of health considerations, psychosocial factors, and increasing budgetary restraints have meant that new mothers stay in hospital for shorter periods of time after delivering. As a result, many of the health issues managed in the past in a newborn nursery are now being presented at emergency departments. The majority of babies that were less than eight days old and were brought to the ER by the mother were discharged with advice only (44). Mothers who are younger, single, first-time mothers, and those who have not attended prenatal classes most often brought their infant to the ER (44).

For older infants up to one year of age, ER visits may indicate serious illness requiring hospitalization.

Emergency room visits for infants less than one year of age in the PHU area fluctuated between 1.8% and 2.2% of all ER visits between 2007 and 2014 (Figure 40). ER visits for infants in Ontario were also in the same range of 2.0 to 2.2% of all ER visits.

Figure 40: Emergency room visits for infants, by year, Porcupine Health Unit & Ontario, 2007-2014



Source: IntelliHealth, 2007-2014, Ministry of Health & Long-Term Care, extracted October 23, 2015

The main reason for an ER visit for an infant in both the PHU area and Ontario were diseases of the respiratory system (Table 3). Factors influencing health status and contact with health services as well as symptoms and abnormal laboratory or clinical findings were also top reasons for infant ER visits in the PHU area. Additionally, in Ontario, infectious and parasitic diseases were one of the top causes of infant ER visits.

Table 3: Top three reasons for Emergency Room visits by infants, Porcupine Health Unit & Ontario, 2007-2014 combined

Porcupine	Rank	Ontario
Diseases of respiratory system	1	Diseases of respiratory system
Factors influencing health status & contacts with health services*	2	Symptoms, signs & abnormal clinical and lab findings
Symptoms, signs & abnormal clinical and lab findings	3	Certain infectious and parasitic diseases

Source: IntelliHealth, 2007-2014, Ministry of Health & Long-Term Care, extracted October 23, 2015

** Factors influencing health status and contact with health services include circumstances when a person who may or may not be sick encounters health services for some specific purpose, such as to receive limited care for a current condition, vaccination, or to discuss a problem which influences the person's health, but itself is not a disease or injury.*

BREASTFEEDING

Breastfeeding is internationally recognized as the optimal method of infant feeding (45, 46). There are numerous benefits of breastfeeding to both the infant and the mother. For the infant, breastmilk provides all of the energy and nutrients required by the infant to grow and develop optimally as well as protection from infectious diseases and allergies (5). Babies who are not breastfed are at higher risk for childhood asthma, obesity, type 2 diabetes, respiratory tract infections, and sudden infant death syndrome (47). For mothers, the benefits include reduced postpartum bleeding, improved bone remineralization, and delayed resumption of ovulation (5).

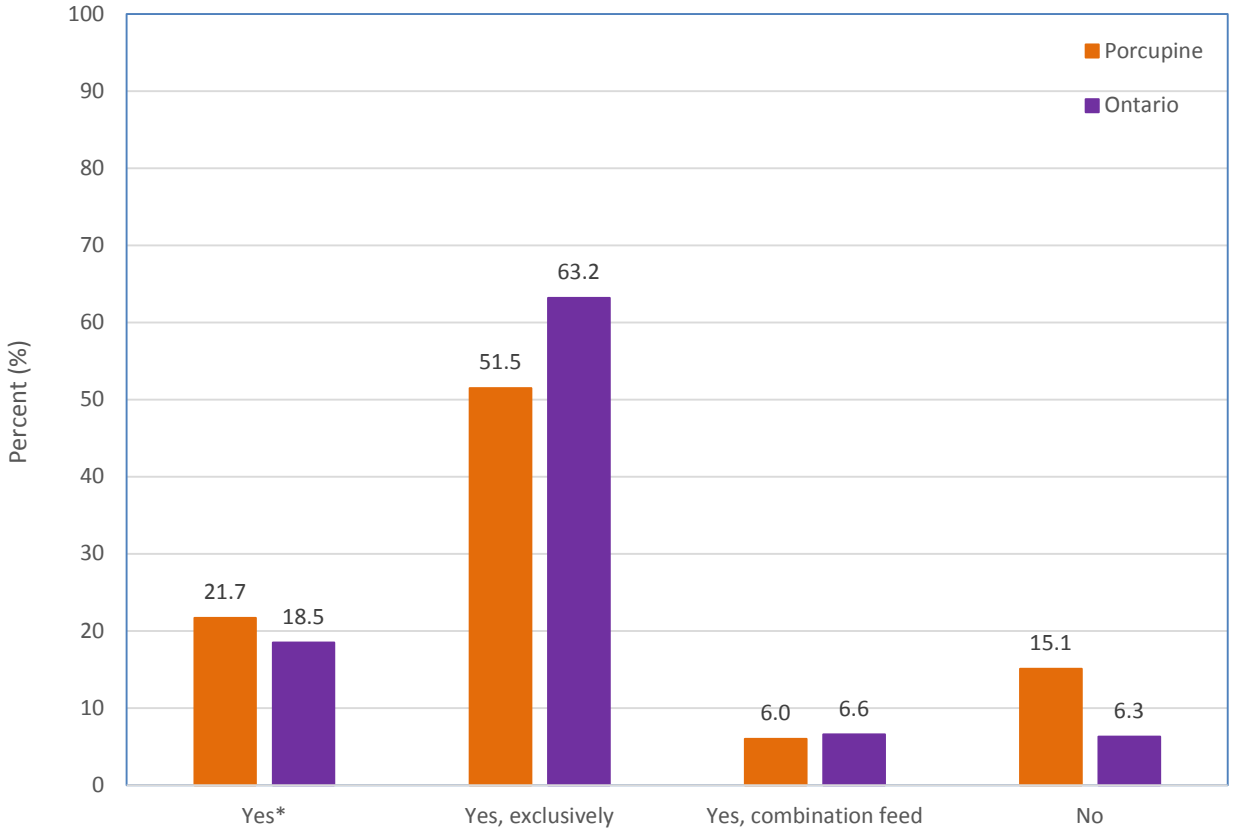
International and national public health recommendations suggest feeding an infant exclusively breastmilk during the first six months of life with the introduction of complimentary foods and continued breastfeeding until two years of age or longer (45, 46). In Canada, hospitals and community health organizations strive to achieve Baby Friendly designation under the Baby-Friendly Initiative (BFI) as outlined by the World Health Organization (48). The initiative is a global effort to implement practices that protect, promote, and support breastfeeding (48). The Porcupine Health Unit has achieved BFI designation in 2014.

Despite global recommendations, breastfeeding rates vary among countries and even among high income countries. Studies have found that factors associated with lower breastfeeding rates include low educational level, young age of mother, and being a single mother (49). These factors as well as social isolation and lack of access to prenatal classes are particular risk factors for First Nations pregnant mothers, who have low rates of breastfeeding initiation and early cessation (50). Breastfeeding education and support has been shown to increase exclusive breastfeeding rates in combination with individual and group counseling sessions (51).

Definition

Breastfeeding intent is measured as the percentage of women who intended to breastfeed expressed a percentage of the total number of women who had a livebirth or a stillbirth.

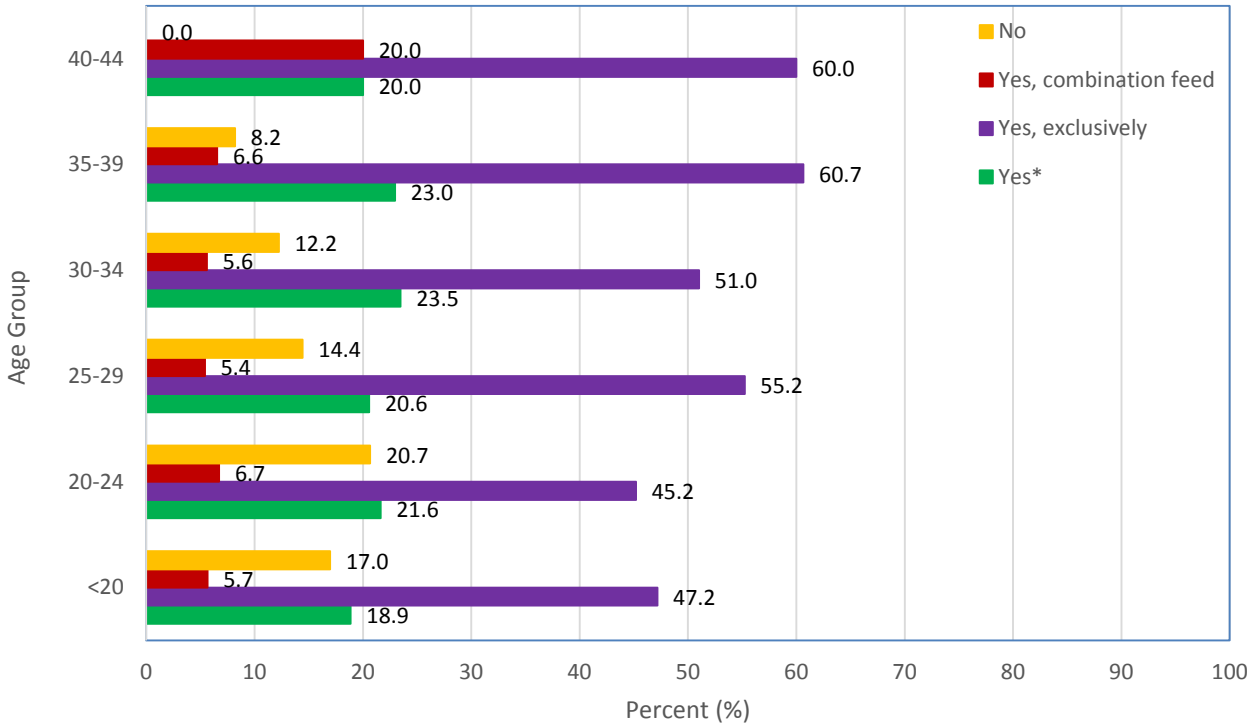
Figure 41: Breastfeeding intent, Porcupine Health Unit & Ontario, 2014



Source: BORN Information System, BORN Ontario, extracted October 30, 2015
** Prior to April 2014, there was only one category for the 'Yes' response*

In 2014, almost three-quarters of pregnant mothers in the PHU area intended to breastfeed their newborn, with slightly over half (51.5%) intending to exclusively breastfeed (Figure 41). This is lower than provincial levels where 81.7% of expectant mothers intended to breastfeed and 63.2% to do so exclusively. More than twice the mothers giving birth in the PHU area (15.1%) compared to mothers giving birth in Ontario overall (6.3%), indicated that they did not intend to breastfeed their babies (Figure 41).

Figure 42: Breastfeeding intent, by age group of mother, Porcupine Health Unit, 2014



Source: BORN Information System, BORN Ontario, extracted October 30, 2015
***** *Prior to April 2014, there was only one category for the 'Yes' response*

Locally, mothers under the age of 25 most often indicated that they did not intend to breastfeed their babies (19.9%), see Figure 42. The highest intention for breastfeeding, exclusively and in combination with formula, was for mothers 35 years of age and older (90.9%).

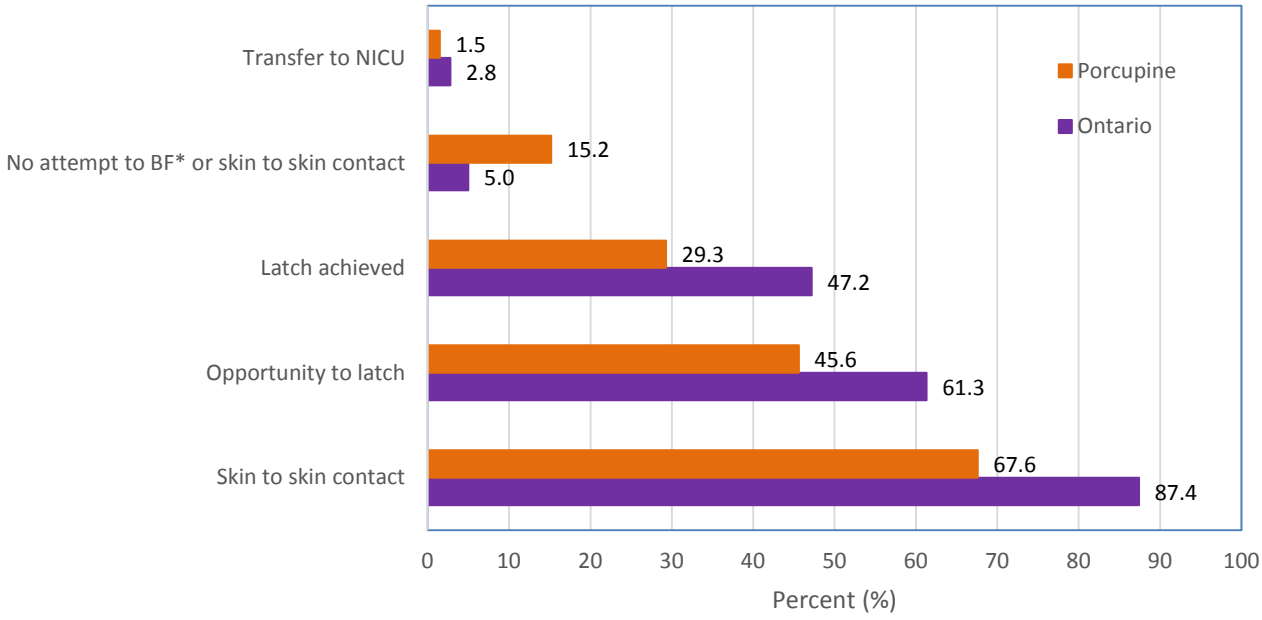
Definition

Breastfeeding initiation is measured as the percentage of births where there was skin to skin contact, there was an opportunity to latch, latch was achieved, or the newborn was transferred to the Neonatal Intensive Care Unit, expressed as a percentage of the total number of hospital births discharged home as well as home births.

In 2014, mothers in the PHU area were more than three times more likely (15.2%) than mothers in Ontario overall (5%) to make no attempt to breastfeed their newborn or have skin to skin contact with them within the first two hours post-birth (Figure 43). Slightly more

than two-thirds of mothers locally made skin to skin contact with their newborn upon birth (67.6%), whereas 87.4% of mother in Ontario made skin to skin contact with their newborn. Latch was achieved in only 29.3% of newborns locally compared with 47.2% of newborns in the province.

Figure 43: Breastfeeding initiation, Porcupine Health Unit & Ontario, 2014



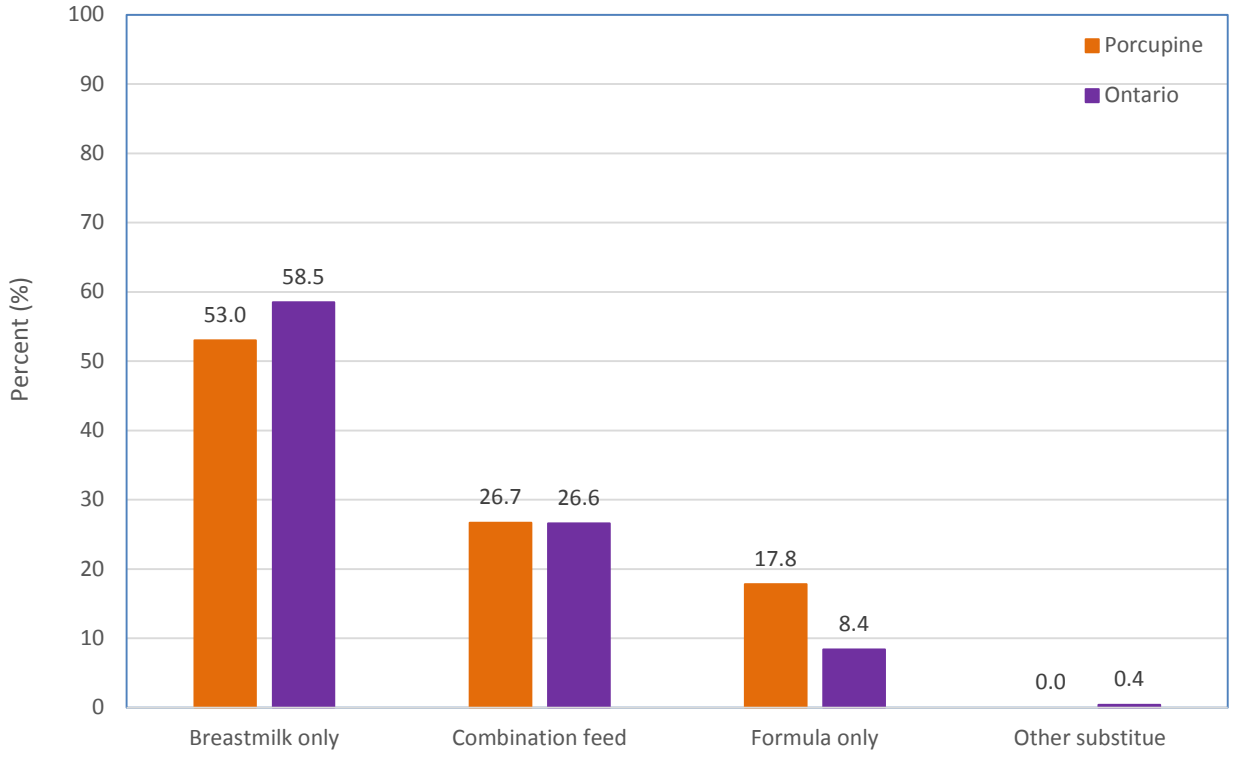
Source: BORN Information System, BORN Ontario, extracted December 16, 2015
** BF stands for Breastfeed*
Note: More than one category can be chosen, so percentages will add up to more than 100%

Definition

Infant feeding from birth to discharge from hospital or birth centre is expressed as a percentage of all live births. This includes live births discharged home from a hospital maternal newborn unit as well as home births. For hospital births, feeding is determined at discharge and for home births infant feeding is measured at 3 days post-birth.

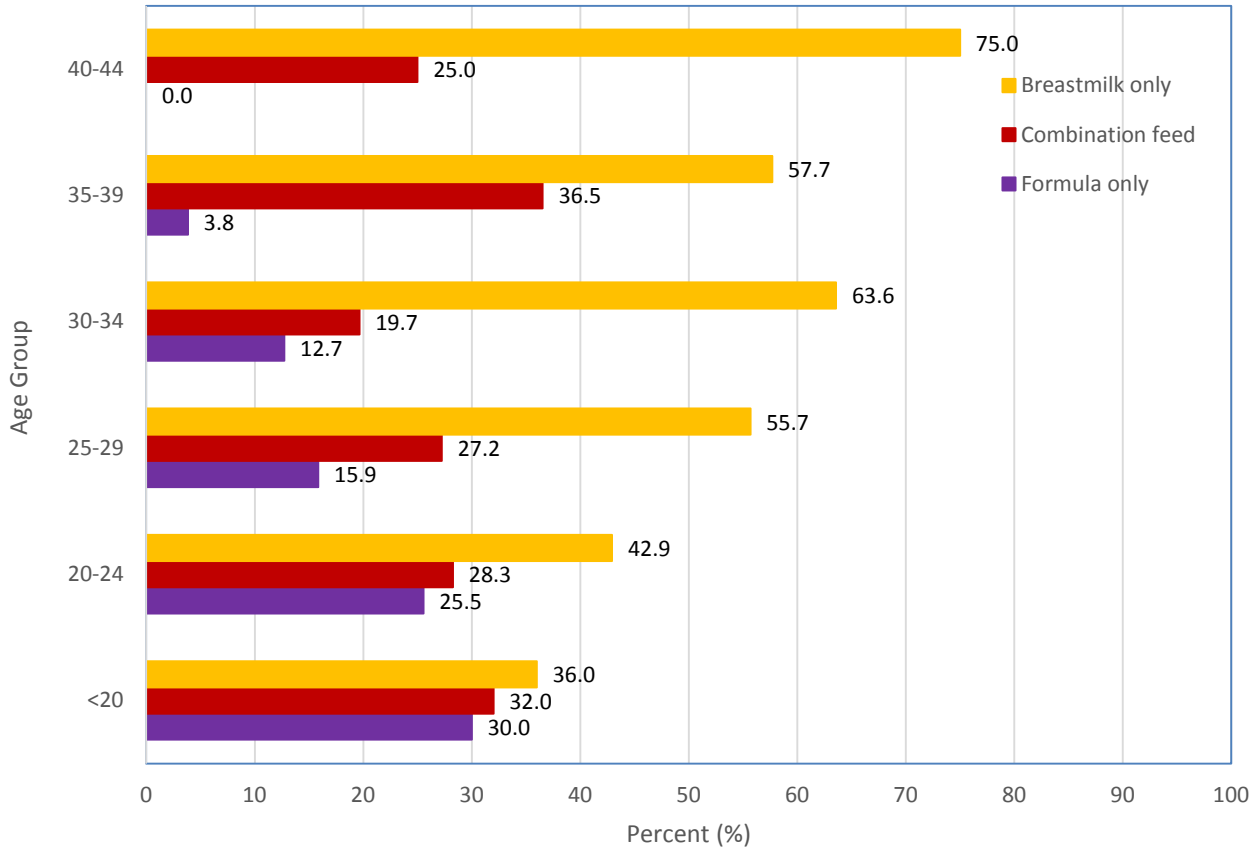
In 2014, slightly over half of mothers (53%) giving birth in the PHU area were feeding their baby breastmilk only upon discharge from hospital (Figure 44). This was lower than the percentage of mothers in Ontario overall, 58.5%. A similar proportion of mothers locally and provincially were feeding their babies a combination of breastmilk and other substitutes (26.7%). However, more than double the mothers in the PHU area were feeding their babies formula only upon discharge (17.8%) compared to mothers in Ontario overall (8.4%).

Figure 44: Infant feeding at discharge, Porcupine Health Unit & Ontario, 2014



Source: BORN Information System, BORN Ontario, extracted October 30, 2015
Note: Combination feed includes breastmilk and other substitutes

Figure 45: Infant feeding at discharge, by age group of mother, Porcupine Health Unit, 2014



Source: BORN Information System, BORN Ontario, extracted October 30, 2015
Note: Combination feed includes breastmilk and other substitutes

The highest incidence of formula only feeding of newborns at discharge was amongst mothers under 20 years of age (30%), see Figure 45. Formula only feeding of newborns decreased with increasing age of the mother. Conversely, breastmilk only feeding increased with age, with the highest levels among mothers 40 to 44 years of age (75%).

CONCLUSIONS

The first Maternal Health Status report provides public health and community partners with an understanding of the health status of women and newborns living in the Porcupine Health Unit catchment area. It assists in identifying areas of focus for program development and service delivery to enhance and support maternal and child health throughout the district.

Three main opportunities emerge from the findings to improve and support the following:

1. The maternal health of young mothers under the age of 20 by:
    a. Decreasing pregnancies
    b. Decreasing substance use (smoking, drugs, alcohol)
    c. Improving healthy weight and nutrition
    d. Improving prenatal care including visits to physicians, prenatal classes, folic acid usage
2. The maternal health of First Nations' women by:
    a. Improving access to prenatal care
    b. Providing culturally sensitive care
    c. Improving healthy weight and nutrition
    d. Decreasing substance use
    e. Using prenatal care as an opportunity to address other comorbidities (accompanying chronic conditions)
3. Breastfeeding amongst all mothers

The Porcupine Health Unit will utilize the results of the report to inform planning, development and implementation of health promotion strategies and program delivery for women giving birth in the health unit area.

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APPENDIX A: Methodology

Indicators

The Association of Public Health Epidemiologists in Ontario (APHEO) have developed standardized definitions for many indicators of public health importance, including reproductive health. Where possible, indicators in this report were calculated based on these standard definitions. Also where possible, indicators were stratified by age group of mother as follows: <20. 20-24, 25-29, 30-34, 35-39, 40+. In some cases, where there was no data for a particular age group, that age group was excluded from the respective figure. Data was reported for the most recent year available and varied according to database.

Data Sources

BORN

Ontario's Better Outcomes Registry & Network (BORN) was established in 2009 to collect, interpret, and share data about pregnancy, birth, and childhood in the province. It is funded by the Ministry of Health and Long Term Care and is administered by the Children's Hospital of Eastern Ontario. BORN Ontario is a Prescribed Registry under Ontario's *Personal Health Information Protection Act, 2004* (PHIPA). This allows BORN to collect, use and disclose Personal Health Information (PHI) for purposes of facilitating or improving the provision of healthcare.

Since April 2012, data has been collected from a number of sources including fertility clinics, hospitals, and midwifery groups. Data is collected through a number of mechanisms including manual data entry and automated extraction and uploads from health record systems, where available. Note that BORN does not collect data for families or children living in First Nation communities.

Data for this report was retrieved from the BORN Information System (BIS), a web-based portal that went live in April, 2012. Data was extracted both from the BIS aggregate reports for birth, newborn, and pregnancy as well as from the Porcupine Health Units specific data cubes. Data in the BIS is available from April 1, 2012 to present. BORN data completion and quality have improved over time and at the time of data extraction for this report, almost all hospitals were reporting births in BORN.

For some variables, the number of missing or unknown responses can be high. Similarly, for some indicators such as smoking or substance abuse, there may be social desirability bias in the responses to avoid perceived negative consequences or feelings of being judged by the health care provider. As well, there are only a limited number of demographic variables available within BORN to look at socio-demographics. For example, information related to income, education, or First Nations status is not included. Finally, changes in availability or definition of some variables over time, makes it difficult to comment on trends.

IntelliHealth

Incidence rates were calculated using population estimates and projections obtained from the Ontario Ministry of Health and Long Term Care (MOHLTC) via an online portal called IntelliHealth. Public health unit population data in IntelliHealth are based on census subdivision (CSD) populations provided by Statistics Canada.

The population estimates in this report may differ from those presented elsewhere due to differences in methodology, or updating of population data by the MOHLTC. Population data used in this report was downloaded from IntelliHealth in the Fall of 2015 and reflects the latest population estimates and projections at the time of this report. These data were stratified by age to provide the appropriate denominators to calculate overall and age specific incidence rates.

IntelliHealth is also a repository for the Discharge Abstract Database (DAD), which was used in this report for a number of indicators related to paternal age and ER visits. IntelliHealth was also used for historical data which was not available in the newer BORN registry.

National Household Survey

The National Household Survey (NHS) Profile provides information collected from the 2011 National Household Survey. The voluntary survey provides social and economic information, covering such topics as: immigration, citizenship, place of birth, ethnic origin, visible minorities, religion, Aboriginal peoples, labour, education, place of work, commuting to work, mobility and migration, language of work, income, earnings, housing and shelter costs.

Data are provided for selected standard geographic areas including: Canada, provinces and territories, census divisions, census subdivisions, census metropolitan areas and census agglomerations, and federal electoral districts and are collected for private dwellings occupied by usual residents. A private dwelling is a dwelling in which a person or a group of persons permanently reside. Information is not included for collective dwellings such as a hotel, a hospital or a work camp.

To ensure confidentiality, the values, including totals are randomly rounded either up or down to a multiple of 5 or 10. As a result, when these data are summed or grouped, the total value may not match the individual values since totals and sub-totals are independently rounded. In addition to random rounding, area and data suppression has been adopted to further protect the confidentiality of individual respondents' personal information.

Area and data suppression results in the deletion of all information for geographic areas with populations below 40 persons. In addition to area suppression, information is suppressed if the global non-response rate to the survey was greater than 50% or greater than 25% for the Census of Population. Any income data collected from the National Household Survey are

suppressed if the population in the area is less than 250 or if the number of private households is less than 40. Data may also be suppressed due to poor data quality or for other technical reasons. Finally, because of social desirability bias, respondents may not answer truthfully to some sensitive questions such as income.

Canadian Community Health Survey (CCHS)

The CCHS is a cross-sectional survey that collects information related to health status, health care utilization and health determinants for the Canadian population. It relies upon a large sample of respondents and is designed to provide reliable estimates at the health region level. The primary use of the CCHS data is for health surveillance and population health research.

Responding to the CCHS is voluntary and data are collected directly from survey respondents 12 years of age and over via computer-assisted interviewing (CAI). Excluded from the survey are: persons living on reserves and other Aboriginal settlements in the provinces; full-time members of the Canadian Forces; the institutionalized population and persons living in the Quebec health regions of Région du Nunavik and Région des Terres-Cries-de-la-Baie-James. Altogether, these exclusions represent less than 3% of the Canadian population aged 12 and over.

Since 2007, data for the CCHS are collected yearly instead of every two years. The CCHS produces an annual microdata file and a file combining two years of data. The CCHS collection years can also be combined by users to examine populations or rare characteristics.

Since the data is collected by telephone, individuals or households without a landline are excluded from the survey. As well, because of social desirability bias, respondents may not answer truthfully to some sensitive questions (e.g., weight, physical activity). Due to small population numbers and resulting small sample size, especially in some parts of the PHU area, data analysis may become difficult. Changes in modules from one cycle to another or in variable definitions may make it difficult to comment on trends.

Finally, data presented in this report relate to data collected only on cases residing in PHU area. Therefore, caution should be used when attempting to generalize these results beyond this area.