

About the Data: Mothers and Babies

Introduction

The following information was derived from these documents:

- Association of Public Health Epidemiologist of Ontario (APHEO) Core Indicators and Resource List (<http://www.apheo.ca/index.php?pid=55>)
- Draft of Health Status at a Glance prepared by Toronto Public Health, Metrics and Planning, 2010
- Ministry of Health and Long Term Care, Vital Statistics User's Guide version 1.3 and Inpatient Discharges User's Guide version 1.6.
- Health System Intelligence Project (HSIP), The Health Analyst's Toolkit.

The data for the following indicators were from the Canadian Institute for Health Information (CIHI) Discharge Abstract Database distributed by the Ministry of Health and Long Term Care (MOHLTC) accessed through Intellihealth Ontario:

- hospital births
- fertility rate
- teen birth rate
- teen pregnancy rate
- low birthweight rate – total births

An additional source of data for the teen pregnancy rate is the Therapeutic Abortions Database maintained by the MOHLTC and also accessible through Intellihealth.

The data for the following indicators were from the Office of the Registrar General of Ontario (ORG) Live Birth database. The Live Birth database is also distributed by the MOHLTC through Intellihealth Ontario:

- low birthweight rate – singleton births
- births by mother's country of birth

Data on the number of live births are based on the official registration files of the ORG. Data are based on birth registration and physician notice of birth or stillbirth forms. The Office of the Registrar General has its own geographic coding system. Mortality, live birth and stillbirth data use the ORG system. Data produced by the ORG are sent to Statistics Canada before being distributed by the MOHLTC to Public Health Units (PHUs). Statistics Canada reassigns records to census based geography based on the ORG code. The data file received by the MOHLTC contains the ORG code and the postal code.

Data were extracted from Intellihealth Ontario in December 2009 and January and May 2010.

Definitions and Limitations

Hospital Birth refers to the birth of a baby who breathes or shows other signs of life at the time of delivery in hospital, even if the infant dies shortly after birth.

Limitations: Data exclude births that occurred in a non-hospital location. Census tract allocation based on the mother's postal code of residence was done by the MOHLTC. Inpatient records that have missing/incomplete/invalid postal code are excluded from census tract analysis.

Fertility Rate refers to the total number of live births to women 15-49 divided by the total number of women 15-49 multiplied by 1,000.

Hospital delivery rates are generally good estimates for fertility rates. Deliveries include both live and still births and do not distinguish between singleton births and multiple births.

- Data are provided through mother's inpatient discharge records from IntelliHEALTH ONTARIO.
- Beginning in 2003, birth type (i.e. singleton, twins, triplets, quintuplets) and newborn's vital status (i.e. stillbirth or live birth) are made available for retrieval when accessing hospital delivery records. Given the number of deliveries, the birth type related to the delivery and vital status related to the babies delivered, it was possible to derive the number of live births for 2006 to 2008 (the latest year for which data are available).
- Number of live births is required for the calculation of fertility rate.
- When the fertility rate calculated using the derived numbers of live births were compared to the corresponding hospital delivery rates for 2003 to 2008, the maximum difference between these rates for any age group was less than 2%.

Limitations: Data exclude deliveries that took place in a non-hospital location. Census tract allocation based on the mother's postal code of residence was done by the MOHLTC. Inpatient records that have missing/incomplete/invalid postal code are excluded from census tract analysis.

Teen Birth Rate is number of live births to females age 15-19 per 1,000 females age 15-19.

Limitations:

Data exclude deliveries that took place in a non-hospital location. MOHLTC does census tract allocation based on the mother's postal code of residence. Inpatient records that have missing/incomplete/invalid postal code are excluded from census tract analysis.

Teen Pregnancy Rate is approximated by dividing the sum of live births, stillbirths and therapeutic abortions to females aged 15-19 by the female population aged 15-19.

Limitations: There is underestimation of the "true" pregnancy rate as abortions performed in clinics or in the United-States, pregnancies resulting in miscarriage, and possible unreported or late-reported live births or stillbirths, are missing from the numerator. Therapeutic abortion in Ontario can be performed at three different settings: Clinics, Hospitals and Private Physician Office (PPO). For the data presented in the profiles only TAs performed in clinics and hospitals were captured, missing the TAs performed in PPOs. As increasingly more TAs are performed in PPOs, the problem of undercounting worsens. The next update to the teen pregnancy data would reflect TAs performed in PPOs so therefore the rates would not be comparable.

Teenage pregnancy rates may be underestimated because there is no way of knowing the total number of miscarriages. Not all women who miscarry require medical attention, and those who do are frequently treated in outpatient settings and thus are not included in the Discharge Abstract Data Base. Pregnancies are counted at the time of termination of pregnancy, not conception. Therefore, the few women who became pregnant at age 14, but whose pregnancy did not end until they were 15, are included, but the larger number of 19-year-olds whose pregnancy ended at age 20 are not included.

Low Birthweight Rate – Total Births is the total number of live births weighing less than 2,500 grams divided by the total number of live births and multiplied by 100. Both singleton and multiple births are included in the calculation. Data for this indicator is from the Newborn Inpatient records.

- Low birth weight is a main determinant of infant morbidity and mortality. The consequences of low birth weight may be life long.
- Low birth weight may be associated with premature birth or slow growth of the fetus or both.
- Effects of premature birth and multiple gestation (twins) can be eliminated by using only full term singleton live births.
- High birth weight infants are at increased risk for low blood glucose, shoulder dystocia, childhood illnesses and chronic diseases in adulthood.

Limitation: Birth weight is affected by mother's age, type of birth (i.e. multiple), gestational age, parity, lifestyle factors (e.g. smoking), weight gain during pregnancy, physical and social environment (e.g. intrauterine infection, diabetes mellitus, or low SES), and genetic factors. Length of gestation is based on the first day of the mother's last menstrual period. Thus, it is subject to considerable error due to recall, post-conception bleeding, irregular or long/short menstrual cycles, delayed ovulation, and unrecognized fetal loss. Gestational age may be somewhat

more accurate in recent years due to ultrasounds. Fertility treatments may affect the multiple birth rate and thus the rate of low birth weights. Gestational age can be used to further refine low birth weight information. Many documents refer to small-for-gestational age rather than low birth weight. In developed countries, such as Canada, the majority of low birth weight infants are the result of prematurity rather than growth retardation so it is important to consider gestational age when examining birth weight.

Low Birthweight Rate – Singleton Births is the number of singleton live births weighing less than 2,500 grams divided by the total number of singleton live births and multiplied by 100. Data for this indicator is based on Vital Statistics - Live Birth Database from the Ontario Registrar General. Singleton LBW rate is considered to remove the effect of multiple gestations on birth weight.

Limitations: Registration fees initiated in some Census SubDivisions (CSDs) in 1996 may have reduced the number of infants registered, especially for low income and/or adolescent parents and/or multiple births. The number of births registered in some CSDs changed dramatically starting in 1991 when the Office of the Registrar General moved from Toronto to Thunder Bay. Aggregation may be necessary for reliability.

Births by mother's country of birth refer to the number of births by mother's birthplace which may be a country or a Canadian province/territory.

Limitations: The live birth database includes births to out-of-province mothers if the birth occurs in Ontario and excludes births to Ontario mothers that occur outside the province. Registration fees initiated in some CSDs in 1996 may have reduced the number of infants registered, especially for low income and/or adolescent parents. The number of births registered in some CSDs changed dramatically starting in 1991 when the Office of the Registrar General moved from Toronto to Thunder Bay. Aggregation may be necessary for reliability.