

Alcohol and substance exposures during pregnancy

Description

Percentage of women with alcohol and/or drug and substance exposures during pregnancy

Specific Indicators

- Percentage of women with any alcohol exposure during pregnancy
- Percentage of women with any drug and substance exposure during pregnancy
- Percentage of women with any alcohol and/or drug and substance exposures during pregnancy

Ontario Public Health Standards

The Ontario Public Health Standards (OPHS) establish requirements for the fundamental public health programs and services carried out by boards of health, which include assessment and surveillance, health promotion and policy development, disease and injury prevention, and health protection. The OPHS consist of one Foundational Standard and 13 Program Standards that articulate broad societal goals that result from the activities undertaken by boards of health and many others, including community partners, non-governmental organizations, and governmental bodies. These results have been expressed in terms of two levels of outcomes: societal outcomes and board of health outcomes. Societal outcomes entail changes in health status, organizations, systems, norms, policies, environments, and practices and result from the work of many sectors of society, including boards of health, for the improvement of the overall health of the population. Board of health outcomes are the results of endeavours by boards of health and often focus on changes in awareness, knowledge, attitudes, skills, practices, environments, and policies. Boards of health are accountable for these outcomes. The standards also outline the requirements that boards of health must implement to achieve the stated results.

Outcomes Related to this Indicator

- Board of Health Outcome (Reproductive Health): The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services for the promotion of reproductive health.
- Board of Health Outcome (Foundational Standard): The public, community partners, and health care providers are aware of relevant and current population health information.
- Board of Health Outcome (Prevention of Injury and Substance Misuse): The board of health is aware of and uses epidemiology to influence the development of healthy public policy and its programs and services for the prevention of injury and substance misuse.

Available at: <http://www.ontario.ca/publichealthstandards>

Assessment and Surveillance Requirements Related to this Indicator:

- Reproductive Health: The board of health shall conduct epidemiological analysis of surveillance data... in the area of healthy pregnancies; reproductive health outcomes.
- Prevention of Injury and Substance Misuse: The board of health shall conduct epidemiological analysis of surveillance data... in the areas of: alcohol and other substances.

Corresponding Indicators in Public Health Practice

Corresponding Health Indicators from Statistics Canada and CIHI

- None

Corresponding Indicator(s) from Other Sources

- The Maternal Experiences Survey (MES), 2006-2007: Proportion of women who reported drinking alcohol during pregnancy; proportion of women who reported using street drugs during pregnancy. The MES was a national self-reported telephone survey of Canadian women's experiences, perceptions, knowledge and practices before conception, during pregnancy and birth, and the early months of parenthood. Available at: <http://www.phac-aspc.gc.ca/rhs-ssg/survey-eng.php>
- The Canadian Community Health Survey asks questions on this topic to females age 15-55 years who gave birth in the preceding 5 years (1). The dataset for this question has a very small sample size at the local level and this question has not been asked since 2007/08. As a result, it may be of limited use.

Data Source	Module	Survey questions	Response Categories	Notes
CCHS	Maternal Experience – Alcohol during Pregnancy	Did you drink any alcohol during your last pregnancy?	1 Yes 2 No 6 Not Applicable 7 Don't Know 8 Refusal 9 Not Stated	Included in Share File: - 2003 (MEXC_30 and MEXC_31) - 2005 (MEXE_30 and MEXE_31)
		How often did you drink?	1 Less than once a month 2 Once a month 3 2 To 3 Times a Month 4 Once a Week 5 2 To 3 Times a Week 6 4 To 6 Times a Week 7 Every Day 96 Not Applicable 99 Not Stated	- 2007/08 (MXA_01 and MXA_02)

Data Source

Numerator & Denominator: [BORN Information System \(BIS\)](#)

Original Source: Better Outcomes Registry Network (BORN) Ontario

Distributed by: Better Outcomes Registry (BORN) Ontario

Suggested citation (see Data Citation Notes): BORN Information System [years], Date Extracted: [date].

Alternative Data Sources

- Healthy Babies Healthy Children Integrated Services for Children Information System (HBHC-ISCIS) using postpartum screening results:
 - Percentage of HBHC Clients with maternal alcohol use during pregnancy.
 - Percentage of HBHC Clients with maternal drug use during pregnancy (includes illegal drug use and prescription drugs that impact on activities of daily living or are teratogenic).
- The Healthy Babies Healthy Children (HBHC) screening tool was developed by the Ministry of Children and Youth Services and is a comprehensive tool for identifying families with potential risk of negative developmental outcomes for children. The screening tool asks a question regarding mental health which is collected in the Integrated Services for Children Information System (ISCIS).

NOTE: the ISCIS database only collects data on families that give consent for the HBHC program and thus does not represent all births within a geographical area. Also, the drug/substance data element is worded differently in the HBHC system and results may not be comparable to those collected in the BIS.

Data Elements in the BORN Information System (BIS) Public Health Data Cube

Dimension	Categories	Description
Pregnancy Exposure Alcohol (BORN ID – D0012)	<ul style="list-style-type: none"> • None • Less than one drink per month • One drink per month • 2-3 drinks per month • One drink per week • More than one drink per week • Episodic excessive drinking (binging) • Exposure prior to pregnancy confirmed, amount unknown (response chosen if mother drank in first trimester and/or until she learned of her pregnancy) • Exposure, amount unknown (prior to April 2015) • Missing data 	<p>Data Dictionary definition:</p> <p>Self-reported alcohol consumption during pregnancy. If the amount of drinking varied over the course of the pregnancy, estimate the total and average this number over the entire length of the pregnancy. Select the one that represents the highest exposure or impact. 'Episodic excessive drinking (binging)' is considered the greatest impact. If mother reported drinking 'More than one drink per week' and binge drinking, select 'Episodic excessive drinking (binging)'.</p> <p>Binge drinking corresponds to an average-size female consuming 4 or more drinks in about 2 hours. (2)</p>
Pregnancy Exposure Drug and Substance (BORN ID – D0014)	None, Cocaine, Gas/Glue, Hallucinogens, Marijuana, Opioids, Other, Unknown, Missing Data	<p>Data Dictionary definition:</p> <p>Indicate maternal self-reported drug and substance use during pregnancy. This refers to the use of street drugs (e.g., sniffing glue, gasoline, other solvents) and the inappropriate use of prescription and non-prescription drugs.</p>
Any Alcohol	Yes, No, Missing Data	Derived variable based on BORN ID – D0012. This variable is used in the Standard report.
Any Drug	Yes, No, Missing Data	Derived variable based on BORN ID – D0014. This variable is used in the Standard report.
Any Drug or Alcohol	Yes, No, Missing Data	Derived variable based on BORN IDs – D0012 and D0014. This variable is used in the Standard report.
Newborn DOB Calendar	2013, 2014, etc.	

Analysis Check List

- BORN data are available to PHUs by custom request and through the BORN Ontario reporting environment as Public Health Standard Reports and the Public Health Cube. All users are required to sign a data sharing agreement and adhere to strict privacy and security measures.
- Refer to the [BORN Information System \(BIS\)](#) resource for more information about the data and the [BORN Data Dictionary](#) for a list and description of data elements captured in the BIS.
- For key information used by the Reproductive Health Sub-Group (RHSG) in their revision of the reproductive health core indicators and accompanying resources, refer to the [Reproductive Health Core Indicators Document Report](#).
- Niday Perinatal Data (i.e., birth data prior to April 1, 2012) is available from BORN upon request; however, the alcohol and drug data elements were not defined the same way as the corresponding data elements in the BIS, and may not give consistent results over time.
- The BORN licensing agreement with health units does not require suppression of small cells; however, BORN recommends the suppression of cells less than 6, although zero counts may be presented. This practice decreases the risk of re-identifying individuals. In general, caution should be used when reporting data at a level that could identify individuals (e.g., reporting at the dissemination area by maternal age).
- Aggregation (combining years, age groups, geographic levels, categories or pick-list items) should be considered for small count sizes.
- In most cases, analyze by mother's residence, not place of infant's birth. The standard reports and cube are tabulated by maternal residence. Ontario births include only Ontario residents and exclude births to mothers that reside out-of-province.
- Data available represents all data that has been entered, submitted and acknowledged into the BIS as of the time of extraction and as such, the numbers are subject to change. The BIS is a live database. For any analysis of the BIS, ensure that all or a majority of hospitals and midwifery practice groups in your area have acknowledged their data.
 - Every PHU standard report starts with a month-end data acknowledgement summary that can be used to verify the proportion of hospitals/midwife practice groups that have acknowledged their data in your area.
- Caution should be taken when interpreting data, if the percentage of "missing data" is greater than 5%. BORN Ontario recommends not reporting data if the missing data represent 30% or more. See "Indicator Notes" below for more information.
- Although the BIS was launched in January 2012, data may not be complete for some elements and geographical areas in that first year. It is recommended that analysis begin for calendar year 2013.
 - In the Public Health Standard Reports, comparator data for Ontario or Peer Group is only available for six months prior to the date of extraction. Public Health Units are categorized into Peer Groups as per the 2011 classifications.
(<http://www.statcan.gc.ca/pub/82-221-x/2011002/regions/hrt3-eng.htm>).
- **If using the Public Health Standard Reports:**
 - Select the PHU-Pregnancy report under Clinical Reports
 - Specify the dates/years of analysis
 - Go to the link for 'Frequency of alcohol exposure in pregnancy' or 'Frequency of drug and substance exposure during pregnancy', by public health unit and province'
 - Calculate the percentages from the standard report or export the table to Excel
- **If using the Public Health Cube:**
 - Select Dimension of interest: "Any Alcohol", "Any Drug" or "Any Drug or Alcohol" (found under Dimensions > Pregnancy > Exposures)

- Select Measure: “# of Pregnancies – Women Who Gave Birth” (found under Measures > Pregnancy)
- Specify Filters by right clicking on each of the following dimensions and selecting the following categories:
 - Newborn DOB Calendar (found under Newborn DOB > Newborn DOB Calendar) = Deselect 2012 and others as appropriate for your analysis
- Calculate percentages within the Cube or export to Excel
- Calculate percentages within the Cube or export to Excel

Method of Calculation

Percentage of women with any alcohol exposure during pregnancy

[Number of women who gave birth (live or still) who reported any alcohol exposure during pregnancy/ Total number of women who gave birth (live or still)] x 100

Percentage of women with any drug and substance exposure during pregnancy

[Number of women who gave birth (live or still) who reported any drug and substance exposure during pregnancy /

Total number of women who gave birth (live or still)] x 100

Percentage of women with any alcohol and/or drug and substance exposures during pregnancy

[Number of women who gave birth (live or still) who reported any alcohol and/or drug and substance exposures during pregnancy/

Total number of women who gave birth (live or still)] x 100

Basic Categories

- Frequency of alcohol consumption during pregnancy, Type of drug/substance exposure during pregnancy, Geographic areas of maternal PHU of residence: Ontario, public health unit

Indicator Comments

- Taken from the BIS, this is a self-reported indicator. This indicator does not attempt to determine the number of women who were tested for alcohol or substance exposure and which exposure was detected. Neither does this indicator attempt to describe the proportion of women with appropriate use exposure to prescription and non-prescription drugs during pregnancy.
- Alcohol is a known teratogen (a factor causing malformation of an embryo or fetus). Prenatal exposure to alcohol can lead to a wide range of cognitive, behavioural, neurodevelopmental, physiological and physical impairments collectively referred to as Fetal Alcohol Spectrum Disorder (FASD).(3-5).
- While the risk from light consumption during pregnancy appears very low, there is no threshold of alcohol use in pregnancy that has been definitively proven to be safe. Even a small amount of alcohol during pregnancy has a negative impact on the developing fetal brain. (3,6-8). Canada’s low-risk alcohol drinking guidelines acknowledge that the

safest choice is to drink no alcohol at all if a woman is pregnant or planning to become pregnant.(9)

- A number of characteristics have been associated with alcohol drinking status during pregnancy, including marital status, smoking status, reaction to pregnancy and immigrant status. Data from the Canadian Maternity Experiences Survey (MES) found that being an immigrant to Canada has been found to have a protective effect, while having a partner, smoking during pregnancy, and being ambivalent or unhappy regarding the pregnancy has been found to be associated with increased risk of drinking alcohol during pregnancy.(10)
- Data from the National Longitudinal Survey of Children and Youth (NLSCY) estimated that the rate of maternal alcohol consumption during pregnancy remained stable between 1993–1996 and 2001–2004, but decreased in 2005–2008. The rate was 10.7% in 2005–2008.(11)
- Use of illicit substances, like cannabis and cocaine/crack, as well as some legal addictive drugs such as opioids during pregnancy is associated with a broad range of health issues from negative birth outcomes such as birth defects, restricted fetal growth, and premature birth, to neonatal health issues including substance withdrawal symptoms, to measurable neurodevelopmental and behavioural issues lasting into adolescence.(12-15) Co-usage of tobacco, alcohol and other substances is common.(12)
- Cannabis (marijuana) is the most commonly used illicit drug used by women during pregnancy, with an estimated 5.2% of pregnant women aged 15-44 in the US in 2012 reporting past-month cannabis use.(11) In 2008, 5% of women in Canada reported illicit drug use during pregnancy, although the percentage who used cannabis specifically was not specified.(13) In 2015, according to BORN 2.0% of women who gave birth in Ontario reported use of any substance (excluding tobacco or alcohol) (16).
- Alcohol, drug and substance exposure data elements from BORN are self-reported and thus subject to under-reporting and social desirability bias.
- It is important to understand the degree, as well as the distribution (i.e., random vs systematic), of missing data for alcohol, drug and substance exposure data from BORN for your health unit prior to reporting on it. Factors affecting missing data rates may include, but are not limited to, issues such as i) the designation of the data element within the BIS (i.e., mandatory, conditional, optional); ii) hospital resources to input these data into the BIS (e.g., as of February 2017, three Ontario neonatal intensive care units (ICU) do not yet enter data into the BIS); iii) certain questions on sensitive subjects may elicit stronger social desirability response bias or non-response.
 - The total missing for alcohol exposure for Ontario was 6.2% in 2013, 6.8% in 2014 and 5.3% in 2015. By Public Health Unit, the total missing ranged from 0.0-28.0% in 2013, 0.0-15.0% in 2014 and 0.0-16.0% in 2015 (17).
 - The total missing for drug and substance exposures for Ontario was 6.0% in 2013, 5.1% in 2014 and 5.3% in 2015. By Public Health Unit, the total missing ranged from 0.0-29.0% in 2013, 0.0-15.0% in 2014 and 0.0-16.0% in 2015 (17).

Cross-References to Other Indicators

Illicit Drug Use (Section 4C)

Drinking in Excess of the Low-Risk Alcohol Drinking Guidelines (Section 5B)

Heavy Drinking Episodes (Section 5B)

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Changes Made

Date	Type of Review	Changes Made By	Changes Made
June 2017	New indicator	Reproductive Health Sub-Group	New indicator

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