

Technical Appendix

Health Status Reporting Series Nine

Maternal and Child Health

Saskatoon Health Region

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Description of Data

Data Sources

A number of data sources are used for this report. The Discharge Abstract Database (DAD), which tracks inpatient hospital discharges was used for examining hospital discharges for children under six years. The Saskatchewan Ministry of Health provides year end hospital files for all residents living within Saskatoon Health Region boundaries. Hospital discharges include all acute care inpatient and psychiatric inpatient discharges for Region residents. The data is based on total number of hospital discharges; irrespective of how many times the same individual is discharged. For example, one person could present to hospital five times in a fiscal year for an injury, and it would be counted as five discharges. A patient may be admitted to one hospital and be transferred to another hospital, which would count as two discharges, even though the individual was hospitalized for the same event.

All acute care inpatient and psychiatric inpatient hospital discharges are included for Region residents no matter where the hospital discharge took place (i.e. all provincial hospitals and out of province hospitals are included). Hospital discharges are reported by fiscal year, which runs from April 1 through to March 31.

Another data source is the In Hospital Birth Questionnaire (IHBQ), which is a survey of the Early Childhood Development and Integrated Services branch of the Government of Saskatchewan. Each time a mother gives birth in hospital, the IHBQ is administered. Response rates vary but are close to 90% of all births to mother's living in the Region. Following the birth of a baby in hospital, and following the mother's consent, a nurse administers the questionnaire. The information collected is obtained directly from the mother and/or from her hospital record. The survey contains questions about demographics, health challenges of the baby, as well as developmental and social factors.

The Early Years Evaluation Tool (EYE) is another data source supplied by the Ministry of Education, Early Years Branch. Kindergarten teachers assess five aspects of early child development upon students' entry into kindergarten. The EYE has replaced the Early Years Development Instrument which had previously been implemented in Saskatchewan starting in 2008/9.

Main Stratifiers Used in the Analysis

Sex

Male or female are the only two choices allowed in hospital discharge data.

Age Group

For most of the indicators, 5 year age groupings were used.

Deprivation Index

This index is based on six questions from the 2006 census. Click [here](#) for more information on how the deprivation index was derived for Saskatoon. Patient's postal code was converted to Dissemination Area and then to a deprivation index area in order to complete the socio-economic analysis.

Rural/Urban

Patients are considered urban if they lived within the boundary of the city of Saskatoon. Anyone living outside this boundary but within the Saskatoon Health Region boundary was considered a rural SHR resident.

Rural Planning Zones

Saskatoon Health Region is divided into four rural planning zones, each with a population of approximately 15,000 (Figure 1).

Type of Analysis

Most analysis in this release utilizes age-sex standardization. Age-sex standardization helps to control for the influence of age and sex on the condition of interest, making comparisons between sub-groups more accurate. The direct method of age sex standardization is utilized with the 1991 Canadian Census as the reference population. Where graphs or tables do not state age-sex standardization, crude rates are presented. Most rates are presented per 100,000 population for ease of readability.

In some cases small numbers (less than six in a cell) are present. An asterisk (*) is presented to depict that numbers are too small to report in order to protect privacy.

Figure 1: Saskatoon Health Region Rural Planning Zones

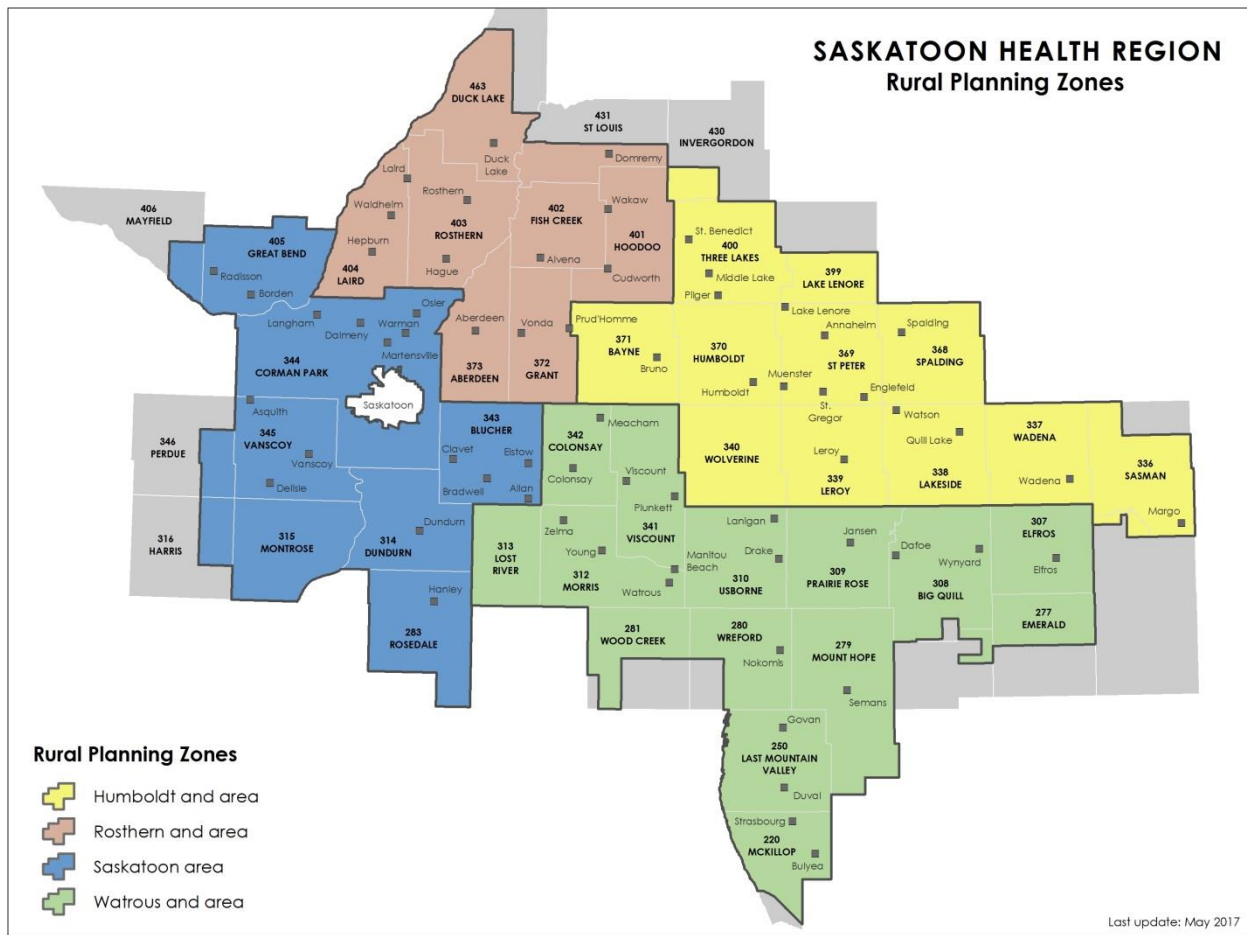
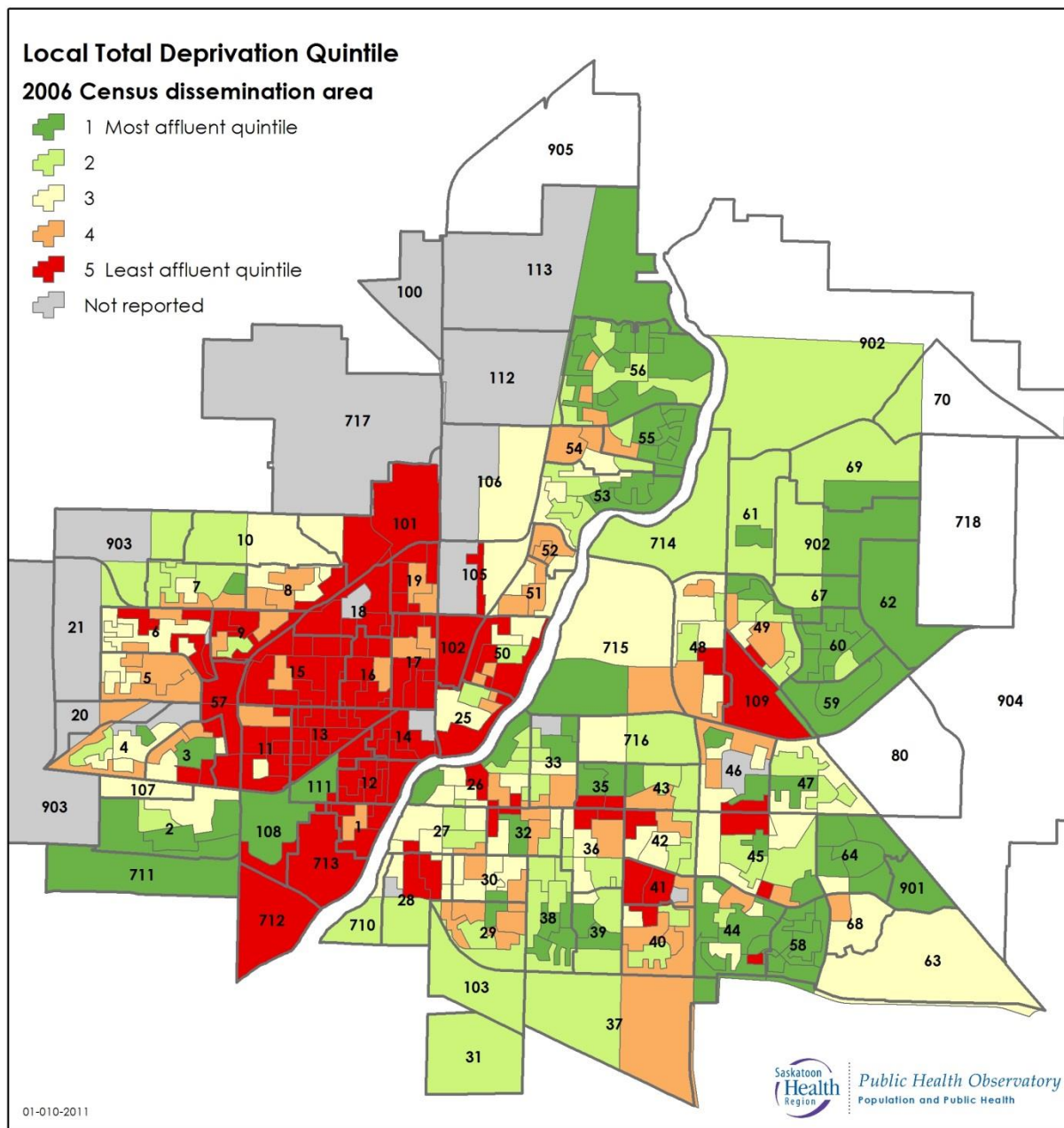


Figure 2: Areas of Advantage, City of Saskatoon, 2006



- | | | | | |
|----------------------|------------------------------|-----------------------|---------------------------|---------------------------|
| 1 Holiday Park | 19 Mayfair | 41 Nutana SC | 59 Arbor Creek | 108 South West Industrial |
| 2 Montgomery Place | 20 Blairmore SC | 42 Brevoort Park | 60 Erindale | 109 Sutherland Industrial |
| 3 Fairhaven | 21 Kensington | 43 Greystone Heights | 61 Silverspring | 111 West Industrial |
| 4 Parkridge | 25 Central Business District | 44 Lakeview | 62 Willowgrove | 112 Hudson Bay Industrial |
| 5 Pacific Heights | 26 Nutana | 45 Wildwood | 63 Rosewood | 113 Marquis Industrial |
| 6 Confederation Park | 27 Buena Vista | 46 College Park | 64 Briarwood | 710 Diefenbaker MA |
| 7 Dundonald | 28 Exhibition | 47 College Park East | 67 University Heights SC | 711 CN Yards MA |
| 8 Westview | 29 Avalon | 48 Sutherland | 68 Lakewood SC | 712 SaskPower MA |
| 9 Massey Place | 30 Queen Elizabeth | 49 Forest Grove | 69 Evergreen | 713 Gordie Howe MA |
| 10 Hampton Village | 31 The Willows | 50 City Park | 70 Aspen Ridge | 714 U of S Lands North MA |
| 11 Meadowgreen | 32 Haultain | 51 North Park | 80 Brighton | 715 U of S MA |
| 12 King George | 33 Varsity View | 52 Richmond Heights | 100 Agriplace | 716 U of S Lands South MA |
| 13 Pleasant Hill | 35 Grosvenor Park | 53 River Heights | 101 Airport Business Area | 717 Airport MA |
| 14 Riversdale | 36 Holliston | 54 Lawson Heights SC | 102 Central Industrial | 718 U of S Lands East MA |
| 15 Mount Royal | 37 Stonebridge | 55 Lawson Heights | 103 CN Industrial | 901 S.E. DA |
| 16 Westmount | 38 Adelaide/Churchill | 56 Silverwood Heights | 105 Kelsey - Woodlawn | 902 University Heights DA |
| 17 Caswell Hill | 39 Nutana Park | 57 Confederation SC | 106 North Industrial | 903 Blairmore DA |
| 18 Hudson Bay Park | 40 Eastview | 58 Lakeridge | 107 Agpro Industrial | 904 Holmwood DA |
| | | | | 905 North DA |

Birth Rates

Definition

The number of live births divided by the total population.

Calculation

The number of live births divided by the total population * 1,000.

Source

Live birth information comes from Vital Statistics. The Covered Population is used for the total population.

References

Association of Public Health Epidemiologists of Ontario. Core Indicators: 6B Crude birth rate. Available from: <http://core.apheo.ca/index.php?pid=135#description>

Statistics Canada. Crude birth rate, age-specific and total fertility rates (live births), Canada, provinces and territories. CANSIM Table 102-4505. <http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=1024505&&pattern=&stByVal=1&p1=1&p2=-1&tabMode=dataTable&csid>

Teen Pregnancy

Definition

An indicator of the number of teen pregnancies per 1,000 females age 15 to 19 years.

Calculation

Total number of live births plus still births plus therapeutic abortions divided by the female population 15-19 years of age. This product is multiplied by 1,000 to give a rate per 1,000.

Source

The source of live births and still births come from Vital Statistics, Government of Saskatchewan. Therapeutic abortions come from hospital discharge data from the Ministry of Health.

References

Chen XK, Wen SW, Fleming N, Demissie K, Rhoads GG, Walker M. Teenage pregnancy and adverse birth outcomes: a large population based retrospective cohort study. *Int J Epidemiol.* 2007 Apr;36(2):368-73.

Luong, M. Life after teenage motherhood. *Perspectives on Labour and Income.* 2008; 6-13. Retrieved April 15, 2009 from: <http://www.statcan.gc.ca/pub/75-001-x/2008105/pdf/10577-eng.pdf>.

Ministry of Health and Long-Term Care Ontario. Initial report on public health: Teen pregnancy[Internet]. Author; 2016 [cited 2016 Nov 1]; Available from http://www.health.gov.on.ca/en/public/publications/pubhealth/init_report/tp.html

Paranjothy S, Broughton H, Adappa R, Fone D. Teenage pregnancy: who suffers? Arch Dis Child. 2009;94(3):239-45.

Statistics Canada. Crude birth rate, age-specific and total fertility rates (live births), Canada, provinces and territories. CANSIM Table 102-4505.

<http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=1024505&&pattern=&stByVal=1&p1=1&p2=-1&tabMode=dataTable&csid>

Birth Weights

Definition

Low birth weight is the number of live births less than 2,500 grams (five pounds). Some jurisdictions (Ontario) report only those live births between 500 grams and less than 2,500 grams for low birth weight. However, to align with World Health Organization definition and numerous other agencies, any infant less than 2,500 grams is considered low birth weight.

High birth weight is the number of live births more than 4,500 grams.

Calculation

Low birth weight:

The number of live births less than 2,500 grams divided by the total number of live births with a known birthweight *100.

High birth weight:

The number of live births greater than 4,500 grams divided by the total number of live births with a known birthweight *100.

Source

Live birth information comes from Vital Statistics, eHealth Saskatchewan.

References

Low birth weight:

Ohlsson A, Shah P. (2008). Determinants and prevention of low birth weight: A synopsis of the evidence. Institute for Health Economics. <http://www.ihe.ca/advanced-search/determinants-and-prevention-of-low-birth-weight-a-synopsis-of-the-evidence>

Ontario Ministry of Health and Long Term Care. (2016). Low birth weight. http://www.health.gov.on.ca/en/public/publications/pubhealth/init_report/lbw.html

Thanh NX, Toye J, Savu A, Kumar M, Kaul P. (2015). Health service use and costs associated with low birth weight - A population level analysis. *Journal of Pediatrics*, 167(3):551-556.

World Health Organization. (2004). Low birthweight. Country, regional and global estimates. Available from: <http://apps.who.int/iris/bitstream/10665/43184/1/9280638327.pdf>

High birth weight:

Statistics Canada. (2008). Births. Catalogue no. 84F0210X. <http://www.statcan.gc.ca/pub/84f0210x/84f0210x2008000-eng.pdf>

Johnsson IW, Haglund B, Ahlsson F, Gustafsson J. (2015). A high birth weight is associated with increased risk of type 2 diabetes and obesity. *Pediatric Obesity*, 10(2):77-83.

Vulnerable Births Identified Through In-Hospital Birth Questionnaire

Definition

A series of questions are asked of mothers at the time of baby's birth related to socio-economic status, family history and demographics. Any mother-baby pair who received a score of 9 or greater on the in-hospital birth questionnaire (IHBQ) is deemed vulnerable with the baby being at potentially higher risk for developmental challenges.

Calculation

Number of mother-baby pairs scoring 9 or more on IHBQ/total number of mother-baby pairs in a given time period. Note that for 2015, the total sample of IHBQ's for Saskatoon Health Region was 3,869.

Source

Early Childhood Development and Integrated Services branch of the Government of Saskatchewan fund the IHBQ. It is administered in the Saskatoon Health Region by Labour and Delivery and data is entered by KidsFirst staff.

References

Human Resources and Skills Development Canada, the Public Health Agency of Canada and Indian and Northern Affairs Canada. *The well-being of Canada's Young Children*. Government of Canada Report. Ottawa: 2011.

Infant Mortality

Definition

The number of deaths in newborns during their first year of life per 1,000 live births in a given time period.

Calculation

Infant mortality is the number of infant deaths (less than one year of age) in a specific year /number of live births * 1,000.

Source

Vital Statistics. Saskatchewan Ministry of Health.

References

Public Health Agency of Canada. Canadian perinatal health report, 2008 edition. Ottawa: Her Majesty the Queen in Right of Canada; 2008.

Opondo J, Marko J. Reducing infant mortality in Saskatoon Health Region: Medical Health Officer report. Saskatoon Health Region 2012 [cited 2016 Oct 40]; Available from: URL:

Early Years Evaluation

Definition

Any child that meets developmental tasks through kindergarten teachers assessment upon entry into kindergarten is deemed to be achieving developmental tasks. These children have the skills they need to learn to read and are generally well served by quality, universal strategies and instruction. The developmental tasks are assessed through the Early Years Evaluation tool which includes five aspects of early child development: awareness of self and the environment, social skills and approaches to learning, cognitive skills, language and communication, and physical development.

Calculation

Teachers assess students in each of five domains. Teachers' ratings are average for each child for each domain and children with an average score greater than or equal to 2.0 are considered developmentally appropriate and scored green. Children with a green score are able to consistently do most tasks in a domain.

Source

Saskatchewan Ministry of Education, Early Years Branch.

References

<https://earlyyearevaluation.com>

Neudorf C., Muhajarine N, Marko J., Murphy L., Macqueen Smith F., Clarke A., Ugolini C. (2012). Healthy children, healthy families, healthy communities: A report of the Chief Medical Health Officer on the health status and development of young children in Saskatoon Health Region.

The Learning Bar. <http://thelearningbar.com/>

Prenatal Care and Course Attendance

Definition

The percentage of mothers who indicated no prenatal care before the sixth month of pregnancy. A second question is asked of mothers as to whether they had ever attended a prenatal course.

Calculation

Total number of women indicating no prenatal care before six months divided by the total population filling out the In Hospital Birth Questionnaire. For the second question, the total number of women indicating attended a prenatal course divided by the total population filling out the In Hospital Birth Questionnaire.

Source

In Hospital Birth Questionnaire, Kids First.

Limitations

There is no way to know how many prenatal visits a woman has had given the way the question is worded. Therefore, stating that a woman has had prenatal care before 6 months is not a measure of adequacy of those visits. See 1 page fact sheet or below references for recommended frequency of prenatal visits.

In addition, there is no way to know what type of prenatal course attendance a mother engaged in given the question.

References

Canadian Institute for Health Information. Giving birth in Canada: The costs[Internet]. Author; 2006 [cited 2016 Dec 11]; Available from https://secure.cihi.ca/free_products/Costs_Report_06_Eng.pdf

Schuermans N., and Lalonde A. Healthy beginnings: Guidelines for care during pregnancy and childbirth. [Internet]. Society for Obstetricians and Gynaecologists of Canada; 1998 [cited 2017 Jul 26]; Available from <https://sogc.org/wp-content/uploads/2013/12/gui71EPS9812.pdf>

World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience. [Internet]. WHO; 2016 [cited 2017 Jul 31]; Available from <http://www.who.int/mediacentre/news/releases/2016/antenatal-care-guidelines/en/>

Oral Health

Definition

The percentage of six year olds that are cavity free. Cavity Free is based on deft + DMFT. These are indexes used to measure disease experience. It is the count of the number of decayed, extracted (due to caries), and filled primary teeth of an individual and the number of decayed, missing and filled (due to caries) permanent teeth of an individual.

Calculation

Total number of six year old students with no cavities divided by the total population of six year olds.

Source

Oral Health Program, Saskatoon Health Region. Dental assistants/therapists in urban areas, and public health nurses in rural communities, assessed the oral health status of 0-6 year old children by visual examination in fluoride varnish clinics in the Region.

For this report, neighbourhoods were broken out into low income and non-low income in Saskatoon. According to Statistics Canada, a neighborhood is defined as Low Income when more than 30% of the families in the neighborhood meet the definition of Low Income Measure (LIM).

References

- World Health Organization. Oral Health: Fact sheet No. 318 [Internet]. Author; 2012 [cited 2016 Dec 12]; Available from <http://www.who.int/mediacentre/factsheets/fs318/en/>
- Ontario's Chief Medical Officer of Health. Oral Health: More than just cavities [Internet]. Author; 2012 [cited 2016 Dec 12]; Available from http://www.health.gov.on.ca/en/common/ministry/publications/reports/oral_health/oral_health.pdf
- Reisine S, Douglas JM. Psychosocial and behavioural issues in early childhood caries. *Community Dent Oral Epidemiol* 1998;26(1 Suppl):32-44.
- US Department of Health and Human Services. Oral health in America: A report of the Surgeon General-- executive summary [Internet]. US Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health; 2000 [cited 2016 Dec 12]. Available from: <http://www.nidcr.nih.gov/DataStatistics/SurgeonGeneral/Report/ExecutiveSummary.htm>
- Yost J, Li Y. Promoting oral health from birth through childhood: prevention of early childhood caries. *MCN Am J Matern Child Nurs* 2008 Jan;33(1):17-23.

Leading Causes of Hospitalization

Definition

The number of hospital discharges experienced by children up to six years of age. This excludes hospital discharges in Chapter 21 of the International Classification of Disease 10th edition as the majority of these discharges relate to the birth of the child themselves.

Calculation

Total number of hospital discharges experienced by 0 to 6 year olds divided by the total population of six year olds in the Region.

Source

eHealth Saskatchewan.

References

- Public Health Agency of Canada. 2013. Leading causes of hospitalizations, Canada, 2009/10. [cited 2017 Mar 30]; Available from <http://www.phac-aspc.gc.ca/publicat/lcd-pcd97/pdf/lcd-pcd-t2-eng.pdf>

Postnatal Depression

Definition

The percentage of mothers who are considered at risk for post-partum depression, based on the score received from the Edinburgh Postnatal Depression Screen (EPDS). The screen was given to mother's within the first two weeks of the baby's birth at Public Health Child Health Clinics. Nurses administered the EPDS only to those mothers who they thought could benefit

from the screen, therefore prevalence estimates of at risk depression will likely be overestimated compared to figures found in the literature.

Starting in Sept 2015, all mothers who come into Public Health Child Health Clinics are screened for postpartum depression within the first two weeks, at two and six months of age. Note that other health care providers such as physicians and nurse practitioners can also administer the EPDS to new mothers.

Calculation

Total number of women scoring a 12 or greater on the EPDS or answering “sometimes” or “yes” to question 10 divided by the total sample of mothers completing the EPDS.

Source

Population and Public Health.

References

MotherFirst. Maternal mental health strategy: Building capacity in Saskatchewan[Internet]. Author; 2010 [cited 2017 Apr 12]; Available from <http://www.feelingsinpregnancy.ca/MotherFirst.pdf>

Substance Use

Definition

The percentage of mothers who reported alcohol and drug use while in hospital after delivery of their child. The In-Hospital Birth Questionnaire (IHBQ) is administered to all mothers who gave birth in hospital. Mothers are asked if they had used alcohol or drugs that may damage the fetus.

Calculation

Total number of women answering “yes” to question above divided by the total sample of mothers completing the IHBQ.

Source

In-Hospital Birth Questionnaire, Kids First.

References

Parker K, Bradshaw A, Khan S, Acreman M, Peters R. (2010). Early primary school outcomes associated with maternal use of alcohol and tobacco during pregnancy and with exposure to parent alcohol and tobacco use postnatally. Ottawa: Public Health Agency of Canada. <http://www.phac-aspc.gc.ca/hp-ps/dca-dea/prog-ini/fasd-etcaf/publications/epso-edp/pdf/epso-edp-eng.pdf>

Saskatchewan Prevention Institute. Alcohol and pregnancy. <http://skprevention.ca/alcohol/#alcohol-and-pregnancy>

Tobacco Use

Definition

The percentage of mothers who reported smoking while in hospital after delivery of their child. The In-Hospital Birth Questionnaire (IHBQ) is administered to all mothers who gave birth in hospital. Mothers are asked if they smoke 1-10 cigarettes or 11 or more cigarettes per day.

Calculation

Total number of women answering "yes" to either 1-10 or 11 or more cigarettes per day are categorized as smoking history. The total number of mothers with a smoking history are divided by the total sample of mothers completing the IHBQ.

Source

In-Hospital Birth Questionnaire, Kids First.

References

Health Canada. (2007). Smoking and your Body: Pregnancy. <http://www.hc-sc.gc.ca/hc-ps/tobac-tabac/body-corps/preg-gros-eng.php>

Saskatchewan Prevention Institute. (2012). Environmental Tobacco Smoke. http://skprevention.ca/wp-content/uploads/2016/07/3-306_Tobacco_Smoke_Booklet.pdf