

Low-Risk Caesarean Sections

Name	Low-Risk Caesarean Sections
Short/Other Names	Not applicable
Description	<p>This indicator measures the rate of deliveries via Caesarean section (C-section) among singleton term cephalic pregnancies for low-risk nulliparous women in spontaneous labour.</p> <p>For further details, please see the General Methodology Notes.</p>
Interpretation	A lower rate for this indicator is desirable
HSP Framework Dimension	Health System Outputs: Appropriate and effective
Areas of Need	Getting Better
Geographic Coverage	All provinces/territories except Quebec
Reporting Level/Disaggregation	National, Province/Territory, Region, Facility
Indicator Results	Accessing Indicator Results on Your Health System: In Depth

Identifying Information

Name Low-Risk Caesarean Sections

Short/Other Names Not applicable

Indicator Description and Calculation

Description This indicator measures the rate of deliveries via Caesarean section (C-section) among singleton term cephalic pregnancies for low-risk nulliparous women in spontaneous labour.

For further details, please see the [General Methodology Notes](#).

The indicator is expressed as the rate of C-sections per 100 deliveries, where a singleton term cephalic delivery was recorded among low-risk nulliparous women in spontaneous labour.

Calculation:

Description $\text{Risk-adjusted rate} = \text{Observed cases} \div \text{Expected cases} \times \text{Canadian average}$

Unit of Analysis: Single admission

Calculation:

Geographic Place of service

Assignment

Calculation:

Type of Rate - per 100

Measurement

Calculation:

Adjustment The following covariates are used in risk adjustment:

Applied Age; For details, please refer to the [Model Specification](#) document.

Calculation:

Method of Logistic regression

Adjustment

Description:

Hospitalizations where a singleton term cephalic delivery was recorded among low-risk nulliparous women in spontaneous labour

Inclusions:

1. Admission to an acute care institution (Facility Type Code = 1)
2. Delivery code (ICD-10-CA: O10–O16, O21–O26, O28–O37, O40–O46, O48, O60–O75, O85–O92, O95 or O98–O99 with a sixth digit of 1 or 2 OR Z37 coded in any position)

Exclusions:

1. Newborn, stillbirth or cadaveric donor records (Admission Category Code = N, R or S)
2. Multiple gestations, multiple births, or stillbirth delivery (ICD-10-CA: O30.– or O31.– coded as type (1), (M), (W), (X) or (Y); Z37.1– to Z37.7– or Z37.90– coded as type (M) or (3))
3. Pre-term delivery (Gestational Age at Delivery <37 completed weeks)
4. Post-term delivery (Gestational Age at Delivery >41 completed weeks)
5. Breech presentation (ICD-10-CA: O32.101 or O64.101 coded as type (1), (M), (W), (X) or (Y))
6. Transverse/oblique lie (ICD-10-CA: O32.201 coded as type (1), (M), (W), (X) or (Y))

7. Multiparity or unknown parity (Number of Previous Term Deliveries + Number of Previous Pre-Term Deliveries >0 or invalid)
8. Induction of labour (includes artificial rupture of membranes, use of oxytocic agents or prostaglandins, and cervical ripening by balloon catheter or Laminaria) (CCI: 5.AC.30.^, 5.AC.24.CK-BD, 5.AC.24.CK-W6)
9. Planned C-section (CCI: 5.MD.60.^ with status attribute = PA or PC)

10. Pre-existing Maternal or Fetal Risks:

- Diabetes (pre-existing/gestational) (ICD-10-CA: O24.501, O24.601, O24.701 or O24.801 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Hypertension (pre-existing/gestational) (ICD-10-CA: O10.001, O10.101, O10.201, O10.301, O10.401, O10.901, O13.001 or O16.001 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Pre-eclampsia and eclampsia (ICD-10-CA: O11.001, O14.001, O14.101, O14.201, O14.901, O15.001 or O15.101 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Venous complications (includes deep/central venous thrombosis) (ICD-10-CA: O22.301, O22.501, O22.801 or O22.901 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Liver disorders (ICD-10-CA: O26.601 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Denominator • Other specified pregnancy-related conditions (includes specified renal diseases) (ICD-10-CA: O26.801 coded as (1) or [(M), (W), (X) or (Y) but not (2)])
- Complications of anaesthesia during pregnancy (ICD-10-CA: O29.– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Abnormality of pelvic organs (includes uterine scar from previous surgery) (ICD-10-CA: O34.– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Fetal abnormality and damage (ICD-10-CA: O35.– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Other fetal problems (includes isoimmunisation, alloimmunization, fetal asphyxia, intrauterine growth restriction, excessive fetal growth) (ICD-10-CA: O36.– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Polyhydramnios (ICD-10-CA: O40.– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Oligohydramnios and other amniotic fluid and membrane disorders (ICD-10-CA: O41.0–, O41.8– or O41.9– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Placental disorders (ICD-10-CA: O43.– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Placenta previa (ICD-10-CA: O44.001 or O44.101 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Placental abruption (ICD-10-CA: O45.– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Antepartum hemorrhage (ICD-10-CA: O46.– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Rupture of uterus (ICD-10-CA: O71.0– or O71.1– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Obstetric embolism (ICD-10-CA: O88.– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Herpes (ICD-10-CA: O98.501 coded as type (1) or [(M), (W), (X) or (Y) but not (2)], with B00.– as type (3))
- HIV (ICD-10-CA: O98.701 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])
- Other maternal diseases (includes morbid obesity, cancer, hematology disorders, cardiovascular disorders, musculoskeletal disorders, neurological disorders, cystic fibrosis, Crohn's disease, lupus, rheumatoid arthritis, specified renal diseases) (ICD-10-CA: O99.– with sixth digit of 1 coded as type (1) or [(M), (W), (X) or (Y) but not (2)])

11. Women with unknown age

12. Records with invalid discharge date

13. Termination of Pregnancy records (codes may be recorded in any position; procedures not coded as “out of hospital” or “abandoned after onset” [Intervention Status Attribute = A or OOH Indicator Flag = Y]):

CCI: 5.CA.20.^, 5.CA.24.^, 5.CA.88.^, 5.CA.89.^ or

5.CA.93.^

OR

ICD-10-CA: O04.–

Description:

Cases within the denominator where a C-section delivery was recorded

Numerator

Inclusions:

1. Cases within the denominator with a C-section delivery that was not performed out of hospital (CCI: 5.MD.60.^ and OOH Indicator Flag does not equal Y)

Background, Interpretation and Benchmarks

In Canada, C-sections have increased 30% since 2000–2001; they accounted for 28% of all deliveries in 2015–2016, which is similar to the rate in other developed countries¹⁻². C-sections are usually performed in order to avoid maternal or fetal injury or death in a complicated birth. However, compared with vaginal deliveries, C-sections are associated with increased risks of maternal morbidity^{3,4} and higher hospital costs⁵. The Society of Obstetricians and Gynaecologists of Canada (SOGC) promotes normal childbirth, without technological interventions, when possible⁶.

Rationale

In order to assess appropriateness of care, this indicator focuses on a population of low-risk pregnancies for which a vaginal birth is expected. The SOGC recommends using the Modified Robson classification system to facilitate appropriate comparisons of C-section rates among homogeneous populations;⁷ this indicator is limited to Modified Robson Group 1 (nullipara, singleton, cephalic, 37 weeks, spontaneous labour). Additionally, post-term births and those with maternal and

fetal health conditions and other complications of pregnancy are excluded. With the assistance of SOGC clinical experts, the exclusion criteria were largely aligned with those outlined in the *Quality-Based Procedures Clinical Handbook for Low Risk Birth*⁸.

Variations in this indicator may reflect differences in clinical practice. This measure is intended to be used as a flag to identify areas for improvement and to help reduce C-section rates. Although the indicator is limited to a very low-risk population, efforts to decrease the rate of C-sections in this population may lead to an overall decrease in C-section rates.

Interpretation A lower rate for this indicator is desirable

HSP Framework Dimension Health System Outputs: Appropriate and effective

Areas of Need Getting Better

Targets/Benchmarks Not applicable

1. Canadian Institute for Health Information. [Health Indicators e-Publication](#). Accessed October 9, 2017.

2. Organisation for Economic Co-operation and Development. *Health at a Glance 2015: OECD Indicators*. 2015.

3. Hammad IA, Chauhan SP, Magann EF, et al. [Peripartum complications with Cesarean delivery: A review of Maternal-Fetal Medicine Units Network publications](#). *Journal of Maternal-Fetal & Neonatal Medicine*. 2014.

4. . Liu S, Liston RM, Joseph KS, et al. [Maternal mortality and severe morbidity associated with low-risk planned Cesarean delivery versus planned vaginal delivery at term](#) . *Canadian Medical Association Journal*. February 2007.

References

5. Canadian Institute for Health Information. *Health Care in Canada 2010*. 2010.

6. Society of Obstetricians and Gynaecologists of Canada. [Joint policy statement on normal childbirth](#) . *Journal of Obstetrics and Gynaecology Canada*. December 2008.

7. Farine D, Shepherd D, Robson M, et al. [Classification of Caesarean sections in Canada: The Modified Robson criteria](#). *Journal of Obstetrics and Gynaecology Canada*. October 2012.

8. The Provincial Council for Maternal and Child Health; Ministry of Health and Long-Term Care. *Quality-Based Procedures Clinical Handbook for Low Risk Birth*. 2017.

Availability of Data Sources and Results

Data Sources DAD

Type of Year:

Fiscal

Available Data Years

First Available Year:

2015

Last Available Year:

2016

Geographic Coverage All provinces/territories except Quebec

Reporting Level/Disaggregation National, Province/Territory, Region, Facility

Result Updates

Update Frequency Every year

Web Tool:

Indicator Results Your Health System: In Depth

URL:

[Accessing Indicator Results on Your Health System: In Depth](#)

Updates Not applicable

Quality Statement

Caveats and Limitations

Results are not calculated for Quebec, since parity information is not available for this province.

Trending Issues

Prior to 2015–2016, parity information was not available for all provinces and territories submitting to the Discharge Abstract Database

Comments

Not applicable