Perinatal Services BC
An agency of the Provincial Health Services Authority

Surveillance Perinatal Indicators: Quarterly Report 2016/17

Summary of Changes

May 1, 2018

The PSBC Surveillance Team reviewed the Quarterly Report indicators that were introduced in the 2011/12 fiscal year. Some changes and/or modifications have been made to update the indicators for future years, beginning with the 2014/15 fiscal year.

The changes/modifications are as follows:

1. **Deliveries (Mothers)**

   Indicators removed due to low incidences
   - Postpartum Hemorrhage + Transfusion (rate per 1,000 deliveries)
   - Postpartum Hemorrhage + Hysterectomy (rate per 1,000 deliveries)
   - Eclampsia (rate per 1,000 deliveries)
   - Puerperal Sepsis (rate per 1,000 deliveries)

   These indicators have been added to the Annual Perinatal Health Report.

   Indicators added:
   - Pre-Pregnancy Body Mass Index (BMI) Category (rate per 100 mothers with known BMI)
   - Pre-Pregnancy Body Mass Index (BMI) Unknown (rate per 100 mothers)

2. **Births (Babies)**

   Indicator categories modified:
   - Live births by Gestational Age (Weeks)
     From: <30, 30-31, 32-33, 34-36, >=37, Unknown
     To: <34, 34-36. 37-40, 41+, Unknown

   Indicator added:
   - Term infants receiving exclusive breast milk during birth admission (rate per 100 live term births)

Beginning with the 2015/16 fiscal year, following Indicators were renamed due to data scope change since 2010/2011 fiscal year:
- Preterm NICU Admission: changed into Preterm Neonatal Intensive Care Use
- Term NICU Admission: changed into Term Neonatal Intensive Care Use

Please feel free to contact the Surveillance Team at Perinatal Services BC if you have any questions or comments.

Technical Notes

The Surveillance Perinatal Indicators: Quarterly Report includes perinatal data for BC residents for six fiscal years (April 1 to March 31): 2011/12 to 2016/17. The focus of this report is to provide a summary of selected indicators on maternal and neonatal morbidity for British Columbia overall. The appendix lists the description of indicators and calculation methods used in this report.

List of Tables

Quarters and Date Range

Q1: April 1 to June 30
Q2: July 1 to September 30
Q3: October 1 to December 31
Q4: January 1 to March 31

Methodology and Limitations

Inclusions

- Data on all births (singletons, twins, and multiples) for BC residents only.
- Linked mothers and newborns for each fiscal year (<0.02% of records are not linked).

Exclusions

- Deliveries and births of BC residents occurring outside of BC.

Notes

- Mother-newborn assigned fiscal year is based on maternal discharge date.
- Resident level of geography is based on the postal code recorded during the delivery admission.
- The reader should use caution when interpreting rates of neonatal and maternal adverse outcomes because these rates are based on a very small number of events.
- Maternal Transfer to Higher Level of Care: Surrey Memorial Hospital has been added to the 2nd Tier hospital group, effective April 1, 2013 discharges.
- Until April 1, 2014 discharges, if a woman who delivered at home attended by a registered midwife was admitted to acute care within 24 hours of delivery, the acute care admission will be her delivery record and no transfer will be recorded. Effective April 1, 2014 discharges, all deliveries at home attended by a registered midwife are counted as deliveries at home and admissions to acute care within 24 hours of delivery are considered transfers.

Appendix

Table 1. Definitions

Indicator	Description
Labour Induction	Instrumental or pharmacological assistance to initiate labour, prior to the onset of the first stage of labour.
Cesarean Delivery	A delivery involving the surgical incision of the abdomen and uterine walls.
Last Menstrual Period (LMP)	The first day of a woman's last menses before conception. Used to calculate gestational age and duration of pregnancy.
Body Mass Index (BMI)	Ratio of weight to height, as measured pre-pregnancy or up to 12 weeks gestation. Formula: BMI = pre-pregnancy weight (kg)/(height (m))^2.
Body Mass Index (BMI) Group	Pre-pregnancy BMI categorized according to the Canadian Guidelines for Body Weight Classification. Underweight = < 18.50 Normal Weight = 18.50 - 24.99 Overweight = 25.00 - 29.99 Obese = >= 30.00 Unknown = pre-pregnancy weight and/or height are missing
Mother Transferred to Higher Level of Care Following Delivery	Maternal transfer to a hospital with higher level of care following delivery. Transfers from 1st tier to 2nd, or 2nd to 3rd, or 1st to 3rd are included. Criteria for higher level of care: 3rd tier: BC Women's Hospital & Health Centre Royal Columbian Hospital Victoria General Hospital St Paul's Hospital 2nd tier: Kelowna General Hospital Royal Inland Hospital University Hospital of Northern BC Nanaimo Regional General Hospital Surrey Memorial Hospital (added April 1, 2013) 1st tier: Hospitals not identified as 3rd or 2nd tier. Excludes: Transfers to lower level of care facilities (3rd to 2nd or 2nd to 1st).
Stillbirth	The complete expulsion or extraction from the maternal body after at least 20 weeks gestation, or after attaining a weight of at least 500 grams, of a fetus, in which at birth there is no breathing, beating heart, pulsation of the umbilical cord, or unmistaken movement of voluntary muscle (ref: BC Vital Statistics).
Stillbirth Type	Stillbirth can occur: • Antepartum: stillbirth or intrauterine death reported prior to onset of first stage of labour. • Intrapartum: stillbirth or intrauterine death reported after onset of first stage of labour. • Unknown: stillbirth or intrauterine death reported, but unknown if prior to or after onset of first stage of labour.
Gestational Age	The number of completed weeks a fetus has developed since the beginning of the pregnancy.
Live Births by Gestational Age	Live born categorized into gestational age groups.
Term Infants Receiving Exclusive Breast Milk	Term Infants (≥37 completed weeks gestation) receiving exclusive breast milk (including expressed breast milk) during birth admission. No food or liquid (not even water) was given. Undiluted drops of syrup consisting of vitamins, mineral supplements or medicine may have been given to the baby.

Indicator	Description
Newborn Transferred to Higher Level of Care	Live born transferred to a hospital with higher level of care. Transfers from nursery to a Level II NICU and transfers from Level II to Level III NICU are included. Criteria for higher level of care: NICU 2 & 3: BC Women's Hospital & Health Centre Royal Columbian Hospital Victoria General Hospital Surrey Memorial Hospital NICU 2: St. Paul's Hospital Burnaby General Hospital The Richmond Hospital Lions Gate Hospital Abbotsford Regional Hospital Kelowna General Hospital Royal Inland Hospital University Hospital of Northern BC Nanaimo Regional General Hospital Excludes: Transfers to hospital not identified as Level 2 or Level 3.
Neonatal Deaths	In-hospital baby deaths. Excludes: Transfers out-of-province and transfers out-of-country.
Term Infants (A birth >= 37 completed weeks gestation.)	
Neonatal Intensive Care Use	2010/11 forward: During the Birth Episode of Care, term infants require Level 2a, 2b, 3a, OR 3b care (as defined by the PSBC Neonatal Daily Classification Tool) for at least one day.
Neonatal Intensive Care Use >2 days	Term infants require Level 2a, 2b, 3a, OR 3b care (as defined by the PSBC Neonatal Daily Classification Tool) for more than 2 days.
Neonatal Intensive Care Use with Sepsis	Term infants require Level 2a, 2b, 3a, OR 3b care (as defined by the PSBC Neonatal Daily Classification Tool) with a diagnosis of sepsis. See Table 4 for list of codes.
Neonatal Intensive Care Use with Ventilatory Support	Term infants require Level 2a, 2b, 3a, OR 3b care (as defined by the PSBC Neonatal Daily Classification Tool) with ventilatory support. See Table 4 for list of procedures that indicate ventilatory support.
Preterm Infants (A birth < 37 completed weeks gestation.)	
Neonatal Intensive Care Use	2010/11 forward: During the Birth Episode of Care, preterm infants require Level 2a, 2b, 3a, OR 3b care (as defined by the PSBC Neonatal Daily Classification Tool) for at least one day.
Neonatal Intensive Care Use >2 days	Preterm infants require Level 2a, 2b, 3a, OR 3b care (as defined by the PSBC Neonatal Daily Classification Tool) for more than 2 days.
Neonatal Intensive Care Use with Sepsis	Preterm infants require Level 2a, 2b, 3a, OR 3b care (as defined by the PSBC Neonatal Daily Classification Tool) with a diagnosis of sepsis. See Table 4 for list of codes.
Neonatal Intensive Care Use with Ventilatory Support	Preterm infants require Level 2a, 2b, 3a, OR 3b care (as defined by the PSBC Neonatal Daily Classification Tool) with ventilatory support. See Table 4 for list of procedures that indicate ventilatory support.

Table 2. Methods of Calculation for Selected Indicators

Indicator	Method
Labour Induction	Number of mothers with labour induction x 100 Total deliveries
Cesarean Delivery	Number of mothers with cesarean delivery x 100 Total deliveries
Pre-Pregnancy Body Mass Index (BMI)	Weight (kg) height $(m)^2$
Body Mass Index (BMI) Group	Number of mothers by pre-pregnancy BMI group x 100 Total deliveries with known pre-pregnancy BMI
Body Mass Index (BMI) Unknown	Number of mothers with unknown BMI x 100 Total deliveries
Mothers Transferred to Higher Level of Care Following Delivery	Number of mothers transferred to higher level of care following delivery x 1,000 Total deliveries
Stillbirth Rate	Number of stillbirths x 1,000 Total births
Stillbirth Rate by Type	Number of stillbirths by type x 1,000 Total number of births
Live Births by Gestational Age	Number of live births by gestational age group x 1,000 Total live births
Term Infants Receiving Exclusive Breast Milk	Number of live term newborns with exclusive breast milk x 100 Total term live births
Newborn Transferred to Higher Level of Care	Number of live newborns transferred to higher level of care hospital x 1,000 Total live births
Neonatal Deaths	Number of live newborn deaths + baby transfer deaths x 1,000 Total live births
Term Infants (A birth >= 37 completed weeks gestation.)	
Neonatal Intensive Care Use	Number of term births with Neonatal Intensive Care Use x 1,000 Total live births
Neonatal Intensive Care Use >2 days	Number of term births with Neonatal Intensive Care Use >2 days x 1,000 Total live births
Neonatal Intensive Care Use with Sepsis	Number of term births with Neonatal Intensive Care Use with sepsis x 1,000 Total live births
Neonatal Intensive Care Use with Ventilatory Support	Number of term births with Neonatal Intensive Care Use with ventilatory support x 1,000 Total live births
Preterm Infants (A birth before 37 completed weeks gestation.)	
Neonatal Intensive Care Use >2 days	Number of preterm births with Neonatal Intensive Care Use >2 days x 1,000 Total live births
Neonatal Intensive Care Use with Sepsis	Number of preterm births with Neonatal Intensive Care Use with sepsis x 1,000 Total live births
Neonatal Intensive Care Use with Ventilatory Support	Number of preterm births with Neonatal Intensive Care Use with ventilatory support x 1,000 Total live births

Table 3. Final Gestational Age (GA)

Hierarchy used for calculating the final gestational age is determined by the following preferential order:
Use the GA calculated from the last menstrual period (LMP)
Exception: Use the GA based on the first ultrasound if: GA based on menstrual dating differs from GA at first ultrasound by ≥2 weeks GA based on menstrual dating differs from GA at first ultrasound (done at <14 weeks gestation) by 1 week
Use GA from first ultrasound if GA from LMP is not available.
Use newborn clinical estimate from physical examination if GA from LMP and GA from first ultrasound are unavailable. Use newborn clinical estimate from physical examination if GA from LMP is ≥ 3 weeks different and no GA at first ultrasound is unavailable.
Use obstetrical clinical estimate of gestational age if GA from LMP, GA at first ultrasound and GA from newborn clinical estimate are not available.

Table 4. Codes for Selected Indicators

Indicator	ICD-10 and/or CCI Codes
Neonatal Intensive Care Use with Sepsis	P36 Bacterial sepsis of newborn Includes: congenital septicaemia P36.0 Sepsis of newborn due to streptococcus, group B P36.1 Sepsis of newborn due to other and unspecified streptococci P36.2 Sepsis of newborn due to Staphylococcus aureus P36.3 Sepsis of newborn due to other and unspecified staphylococci P36.4 Sepsis of newborn due to Escherichia coli P36.5 Sepsis of newborn due to anaerobes P36.8 Other bacterial sepsis of newborn P36.9 Bacterial sepsis of newborn, unspecified Includes: Diagnosis codes with a prefix of (Q) – query diagnoses And nicu_ii>0 and/or nicu_iii>0
Neonatal Intensive Care Use with Ventilatory Support	1.GZ.31.^^ Ventilation, respiratory system NEC positive pressure (e.g. CPAP, BIPAP) 1.GZ.31.CB.ND Non-invasive approach positive pressure (e.g., CPAP, BIPAP) 1.GZ.31.CA-ND Invasive per orifice approach by endotracheal intubation positive pressure (e.g., CPAP, BIPAP) 1.GZ.31.CR-ND Invasive per orifice with incision approach for intubation through tracheostomy AND/OR BCPDR Ventilator Days field ≥1: Total number of days recorded in field. And nicu_ii>0 and/or nicu_iii>0