



# Perinatal Services BC

An agency of the Provincial Health Services Authority

## SURVEILLANCE PERINATAL INDICATORS QUARTERLY REPORT 2013/2014

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### TECHNICAL NOTES

The Perinatal Surveillance Quarterly Report includes perinatal data for BC residents from six fiscal years (April 1 to March 31), 2008/2009 to 2013/2014. The focus of this report is to provide a summary of selected indicators on maternal and neonatal morbidity for British Columbia overall. Appendix 1 lists the calculation methods and description of indicators used in this report.

### 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.
- 2013/2014 are provisional data and subject to revision.
- “Postpartum hemorrhage + Hysterectomy” – change has been made to field to reflect hysterectomy performed as a consequence of postpartum hemorrhage (see Table 1 and Table 4).
- “Gestational Age” calculation – change has been made to reflect current adopted SOGC calculation (see Table 3).
- Maternal Transfer to Higher Level of Care – Surrey Memorial Hospital has been added to the 2<sup>nd</sup> Tier hospital group, effective April 1, 2013 discharges.

#### DATE RANGE – QUARTERS:

Q1: April 1 to June 30

Q2: July 1 to September 30

Q3: October 1 to December 31

Q4: January 1 to March 31



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### APPENDIX 1 - Table 1. DEFINITIONS

Indicator	Description
Labour induction	Instrumental or pharmacological assistance to initiate labour, prior to the onset of the first stage of labour.
Caesarean delivery	A delivery involving the surgical incision of the abdomen and uterine walls.
Last menstrual period (LMP)	The first day of a women's last menses before conception. Used to calculate gestational age and duration of pregnancy.
Postpartum hemorrhage + transfusion	A severe maternal condition in pregnancy, where the patient receives whole or packed red blood cells as a consequence of labour and delivery.
Postpartum hemorrhage + hysterectomy	A severe maternal condition in pregnancy, where the patient undergoes hysterectomy as a consequence of a postpartum hemorrhage related to labour and delivery. (Revised 2013/2014 fiscal year.)
Eclampsia	Defined as the development of convulsions or seizures during pregnancy, or postpartum in women with signs and symptoms of preeclampsia or gestational or pre-existing hypertension.
Puerperal sepsis	Infection of the genital tract following delivery. Serious form of septicemia.
Maternal transfer to a higher level of care following delivery	Maternal transfer to a hospital with higher level of care following delivery. Transfers from 1 <sup>st</sup> tier to 2 <sup>nd</sup> or 2 <sup>nd</sup> tier to 3 <sup>rd</sup> , or 1 <sup>st</sup> tier to 3 <sup>rd</sup> are included. Criteria for higher level of care: <b>3<sup>rd</sup> tier:</b> BC Women's Hospital & Health Centre Royal Columbian Hospital Victoria General Hospital St Paul's Hospital <b>2<sup>nd</sup> tier:</b> Kelowna General Hospital Royal Inland Hospital The University Hospital of Northern BC (Prince George) Nanaimo Regional Hospital Surrey Memorial Hospital (added April 1, 2013) <b>1<sup>st</sup> tier:</b> Hospitals not identified as 3 <sup>rd</sup> or 2 <sup>nd</sup> tier. <b>Excludes:</b> Transfers to lower level of care facilities (3 <sup>rd</sup> to 2 <sup>nd</sup> tier or 2 <sup>nd</sup> to 1 <sup>st</sup> tier).
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 unmistakable 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; gestational age is the number of completed weeks a fetus has developed since the beginning of the pregnancy.
Newborn transfer 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: <b>NICU II &amp; III:</b> BC Women's Hospital & Health Centre Royal Columbian Hospital



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Indicator	Description
	Victoria General Hospital Surrey Memorial Hospital <b>NICU II:</b> St. Paul's Hospital Burnaby General Hospital The Richmond Hospital Lions Gate Hospital Abbotsford Regional Hospital Kelowna General Hospital Royal Inland Hospital The University Hospital of Northern BC (Prince George) Nanaimo Regional Hospital <b>Excludes:</b> Transfers to hospital not identified as Level II or Level III.
Newborn death following birth	In-hospital newborn death. <b>Excludes:</b> Live born discharged home, transfers out-of-province and transfers out-of-country.
<b>Term Infant</b>	A birth from 37 completed weeks gestation.
NICU admissions	Term infants admitted to a level II and/or III NICU (based on bed that the infant occupies). Starting with 2010–2011 fiscal year discharges, NICU levels are determined from the definitions for British Columbia's Neonatal Levels of Service Classification. The NICU level of care provided must be determined by the care providers and documented on the infant's health record.
NICU admissions >2 days	Term infants admitted to a level II and/or III NICU with a length of stay greater than 2 days.
NICU admissions with sepsis	Term infants admitted to a level II and/or III NICU with a diagnosis of sepsis. See Table 4 for list of codes.
NICU admissions with ventilatory support	Term infants admitted to level II and/or III NICU with ventilatory support. See Table 4 for list of procedures that indicate ventilatory support.
<b>Preterm Infant</b>	A birth before 37 completed weeks gestation.
NICU admissions	Preterm infants admitted to level II and/or III NICU (based on bed that the infant occupies). Starting with 2010–2011 fiscal year discharges, NICU levels are determined from the definitions for British Columbia's Neonatal Levels of Service Classification. The NICU level of care provided must be determined by the care providers and documented on the infant's health record.
NICU admissions >2 days	Preterm infants admitted to level II and/or III NICU with a length of stay greater than 2 days.
NICU admissions with sepsis	Preterm infants admitted to level II and/or III NICU with a diagnosis of sepsis. See Table 4 for list of codes.
NICU admissions with ventilatory support	Preterm infants admitted to level II and/or III NICU with ventilatory support. See Table 4 for list of procedures that indicate ventilatory support.



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**Table 2. METHODS FOR SELECTED INDICATORS**

Indicator	Method
Labour Induction	$\frac{\text{Number of mothers with labour induction}}{\text{Total deliveries}} \times 100$
Caesarean delivery	$\frac{\text{Number of mothers with caesarean delivery}}{\text{Total deliveries}} \times 100$
Postpartum hemorrhage and transfusion	$\frac{\text{Number of mothers with postpartum hemorrhage+transfusion}}{\text{Total deliveries}} \times 1000$
Postpartum hemorrhage and hysterectomy	$\frac{\text{Number of mothers with postpartum hemorrhage+hysterectomy}}{\text{Total deliveries}} \times 1000$
Eclampsia	$\frac{\text{Number of mothers with eclampsia}}{\text{Total deliveries}} \times 1000$
Puerperal sepsis	$\frac{\text{Number of mothers with puerperal sepsis}}{\text{Total deliveries}} \times 1000$
Mothers transferred to higher level of care following delivery	$\frac{\text{Number of mothers transferred to higher level of care following delivery}}{\text{Total deliveries}} \times 1000$
Stillbirth rate	$\frac{\text{Number of stillbirths}}{\text{Total number of births}} \times 1000$
Stillbirth type rate	$\frac{\text{Number of stillbirths by type}}{\text{Total number of births}} \times 1000$
Live births by gestational age	$\frac{\text{Total number of live births by gestational age group}}{\text{Total number of live births}} \times 1000$
Newborn transfer to higher level of care	$\frac{\text{Number of live newborns transferred to higher level of care hospital}}{\text{Total number of live births}} \times 1000$
Newborn death following birth	$\frac{\text{Number of live newborn deaths + newborn transfer deaths}}{\text{Total number of live births}} \times 1000$
<b>Term Infants</b>	
NICU admissions	$\frac{\text{Number of term births with NICU admission}}{\text{Total number of live births}} \times 1000$
NICU admissions >2 days	$\frac{\text{Number of term births with NICU admission >2 days}}{\text{Total number of live births}} \times 1000$
NICU admissions with sepsis	$\frac{\text{Number of term births with NICU admission with sepsis}}{\text{Total number of live births}} \times 1000$
NICU admissions with ventilatory support	$\frac{\text{Number of term births with NICU admission with ventilatory support}}{\text{Total number of live births}} \times 1000$
<b>Preterm Infants</b>	
NICU admissions >2 days	$\frac{\text{Number of preterm births with NICU admission >2 days}}{\text{Total number of live births}} \times 1000$
NICU admissions with sepsis	$\frac{\text{Number of preterm births with NICU admission with sepsis}}{\text{Total number of live births}} \times 1000$
NICU admissions with sepsis	$\frac{\text{Number of preterm births with NICU admission with sepsis}}{\text{Total number of live births}} \times 1000$
NICU admissions with ventilatory support	$\frac{\text{Number of preterm births with NICU admission with ventilatory support}}{\text{Total number of live births}} \times 1000$



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**Table 3. FINAL GESTATIONAL AGE (GA)**

GESTATIONAL AGE AT DELIVERY IS CALCULATED USING AN ALGORITHM CONSISTENT WITH THAT RECOMMENDED BY THE SOCIETY OF OBSTETRICIANS AND GYNAECOLOGISTS OF CANADA.

**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  $\geq 2$  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  $\geq 3$  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
Postpartum hemorrhage with transfusion	O72.0* Third stage hemorrhage O72.1* Other immediate postpartum hemorrhage O72.2* Delayed and secondary postpartum hemorrhage O72.3* Postpartum coagulation defects (Diagnosis type = "M", "1" or "2")  AND  BCPDR Transfusion field: Mother received whole or packed red blood cells during this pregnancy, including autologous blood transfusion. Excludes: Platelets, plasma and cryoprecipitate transfusion.
Postpartum hemorrhage with hysterectomy	O72.0* Third stage hemorrhage O72.1* Other immediate postpartum hemorrhage O72.2* Delayed and secondary postpartum hemorrhage O72.3* Postpartum coagulation defects  AND  5.MD.60.RC Cesarean hysterectomy 5.MD.60.RD Cesarean hysterectomy 5.MD.60.KE Cesarean hysterectomy 5.MD.60.CB Cesarean hysterectomy 1.RM.87.LA-GX Excision partial, uterus and surrounding structure - open approach, using device NEC Extent = SU 1.RM.89.LA Excision total, uterus and surrounding structures - using open approach AND Does not have procedure code beginning with: 1.PL.74* 1.RS.74* 1.RS.80*
Eclampsia	O15.0* Eclampsia in pregnancy O15.1* Eclampsia in labour O15.2* Eclampsia in the puerperium O15.9* Eclampsia, unspecified as to time period
Puerperal sepsis	O85 Puerperal sepsis O85.002 Puerperal sepsis, delivered, with mention of postpartum complication O85.004 Puerperal sepsis, postpartum condition or complication



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	<p>O85.009 Puerperal sepsis, unspecified as to episode of care, or not applicable</p> <p>P36 Bacterial sepsis of newborn Includes: congenital septicaemia</p> <p>P36.0 Sepsis of newborn due to streptococcus, group B</p> <p>P36.1 Sepsis of newborn due to other and unspecified streptococci</p> <p>P36.2 Sepsis of newborn due to Staphylococcus aureus</p> <p>P36.3 Sepsis of newborn due to other and unspecified staphylococci</p> <p>P36.4 Sepsis of newborn due to Escherichia coli</p> <p>P36.5 Sepsis of newborn due to anaerobes</p> <p>P36.8 Other bacterial sepsis of newborn</p> <p>P36.9 Bacterial sepsis of newborn, unspecified</p> <p>Includes: Diagnosis codes with a prefix of (Q) – query diagnoses</p>
<p>NICU admissions with sepsis</p>	<p>1.GZ.31.^ Ventilation, respiratory system NEC positive pressure (e.g. CPAP, BIPAP)</p> <p>1.GZ.31.CB.ND Non-invasive approach positive pressure (e.g., CPAP, BIPAP)</p> <p>1.GZ.31.CA-ND Invasive per orifice approach by endotracheal intubation positive pressure (e.g., CPAP, BIPAP)</p> <p>1.GZ.31.CR-ND Invasive per orifice with incision approach for intubation through tracheostomy</p> <p>AND/OR</p> <p>BCPDR Ventilator Days field: Total number of days recorded in field.</p>
<p>Term/Preterm NICU admissions with ventilatory support</p>	