

### **Publication Information**

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## **General Notes**

This report is based on delivery, postpartum transfer/readmission, newborn, and newborn transfer/readmission records submitted to Perinatal Services BC's British Columbia Perinatal Data Registry (BCPDR). The registry captures >99% of deliveries and births that occur in the province.

Records used to generate this report meet the following conditions:

- Mother delivery and baby newborn records must be linked. Unlinked mother delivery or newborn records are excluded (<0.2% of babies are not linked to a mother).
- Complete late terminations are excluded from all indicators except the Crude Stillbirth Rate; pregnancies involving selective fetal reduction are retained.
- Mother's delivery record has a discharge date between April 1, 2015 and March 31, 2020.
- Fiscal years begin on April 1 and end on March 31 of the following year. Fiscal year is based on the mother's discharge date from the delivery admission.
- Resident Health Authority was derived by linking the postal code on the mother's delivery record with the September 2016 version of BC Stats' Geocoding Self Service translation file.
- Rates with numerators of 1-4 cases are not reported (NR).

## Terms used in the Perinatal Health Report (see specifications on pages 99 and 100) Delivery Admission<sup>1</sup>

- Record of care provided between admission to acute care and discharge from acute care for delivery of a baby. Woman can be discharged to home or to another hospital. OR
- Record of care provided by a registered midwife for deliveries at home.

### Delivery Episode of Care

Total time woman spent in one or more hospitals, beginning from admission to hospital
for delivery of a baby. Includes the Delivery Admission and all acute care episodes
captured in the BCPDR where the woman was discharged from one hospital and
admitted directly to a different hospital.

### Maternal Admission

 Any record of maternal care received by the BCPDR. Includes deliveries at home with a registered midwife, admissions to acute care for delivery, and postpartum readmissions or transfers within 42 days of delivery.

<sup>&</sup>lt;sup>1</sup>NOTE: Until March 31, 2014, if a woman who delivered at home with a registered midwife was admitted to acute care within 24 hours of delivery, the acute care admission was her Delivery Admission and the transfer was not recorded. Effective April 1, 2014, all deliveries at home with a registered midwife have home as the location of the Delivery Admission. All admissions to acute care within 42 days, including those within 24 hours of delivery, are counted as Post-Delivery Admissions.

### Post-Delivery Admission<sup>1</sup>

Any record of post-delivery maternal care received by the BCPDR. Includes acute care
episodes that are transfers from another hospital and admissions from home, up to 42
days after delivery.

### Birth Admission<sup>1</sup>

- Record of care provided between baby's birth and discharge from acute care after birth. Baby can be discharged home or to another hospital. OR
- Record of care provided by a registered midwife for births at home.

### Birth Episode of Care

 Total time baby spent in hospital between birth and discharge home. Includes the Birth Admission and all acute care episodes captured in the BCPDR where baby was discharged from one hospital and admitted directly to a different hospital.

### **Baby Admission**

Any record of baby care received by the BCPDR. Includes births at home with a
registered midwife, admissions to acute care from birth, neonatal readmissions or
transfers before 28 days of age, and continuous episodes of care (never discharged to
home) from birth up to one year of age.

### Post-Neonatal Admission<sup>1</sup>

Any record of post-birth baby care received by the BCPDR. Includes acute care
episodes that are transfers from another hospital and admissions from home, up to 28
days after birth.

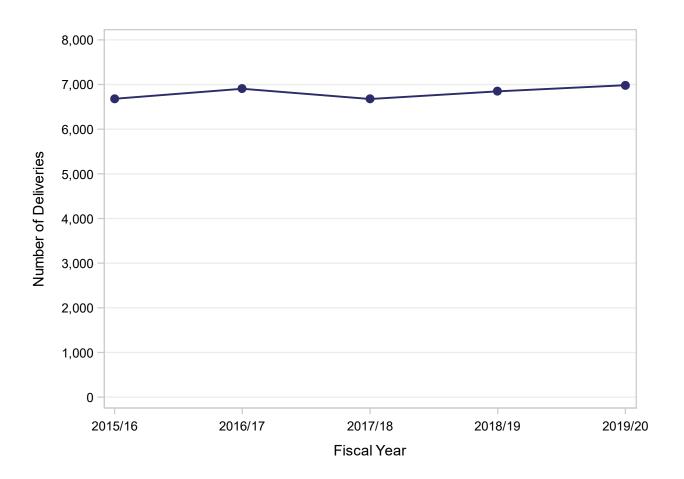
<sup>&</sup>lt;sup>1</sup>NOTE: Until March 31, 2014, if a woman who delivered at home with a registered midwife was admitted to acute care within 24 hours of delivery, the acute care admission was her Delivery Admission and the transfer was not recorded. Effective April 1, 2014, all deliveries at home with a registered midwife have home as the location of the Delivery Admission. All admissions to acute care within 42 days, including those within 24 hours of delivery, are counted as Post-Delivery Admissions.

## Perinatal Health Report 2015/16 to 2019/20 Provincial Health Services Authority

**Section 1: Maternal Health** 

## **Total Deliveries**

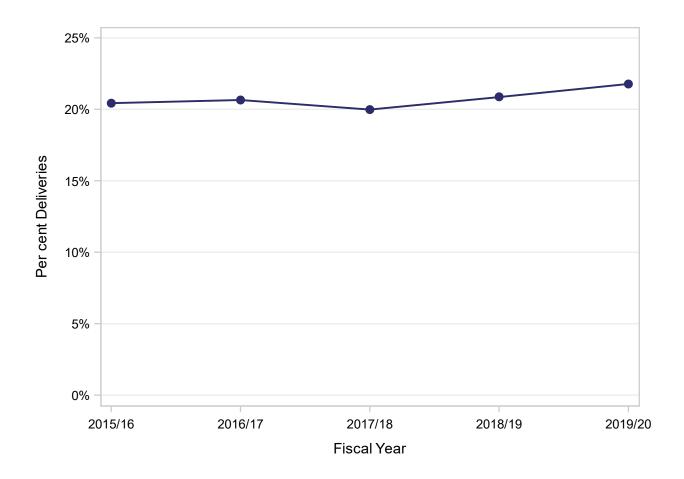
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
	2015/16	2016/17	2017/18	2018/19	2019/20		
Provincial Health Services Authority	6,681	6,905	6,676	6,847	6,985		

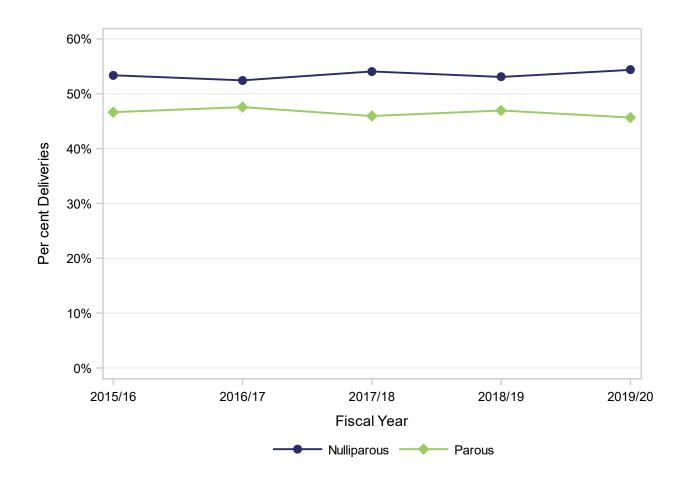
## **Deliveries to Residents of Other Health Authorities**

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year					
Health Authority	2015/16	2016/17	2017/18	2018/19	2019/20	
Provincial Health Services Authority	20.4%	20.7%	20.0%	20.9%	21.8%	

**Deliveries by Parity**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

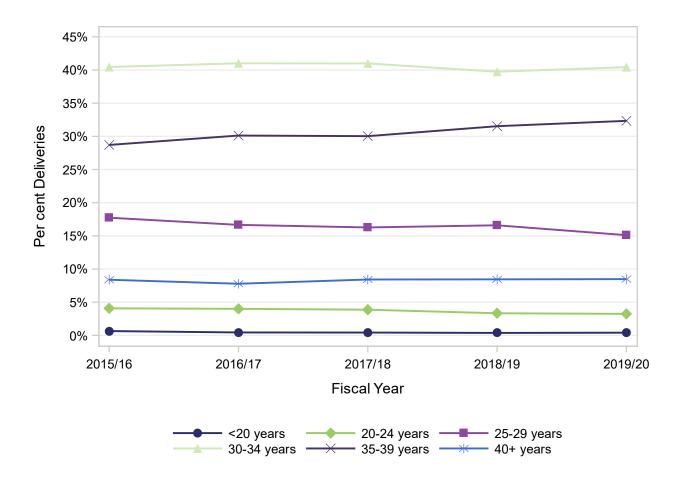


# Average and Median Maternal Age at Delivery by Parity

		Fiscal Year								
	2015	2015/16 2016/17		2017/18		2018/19		2019/20		
Parity	Average	Median	Average	Median	Average	Median	Average	Median	Average	Median
All	33.3	33.5	33.5	33.7	33.6	33.6	33.7	33.8	33.8	33.9
Nulliparous	32.4	32.5	32.6	32.7	32.6	32.7	32.8	32.8	32.8	32.8
Parous	34.4	34.6	34.5	34.6	34.7	34.8	34.8	35.0	35.0	35.2

Definitions and specifications begin on Page 81 of this document.

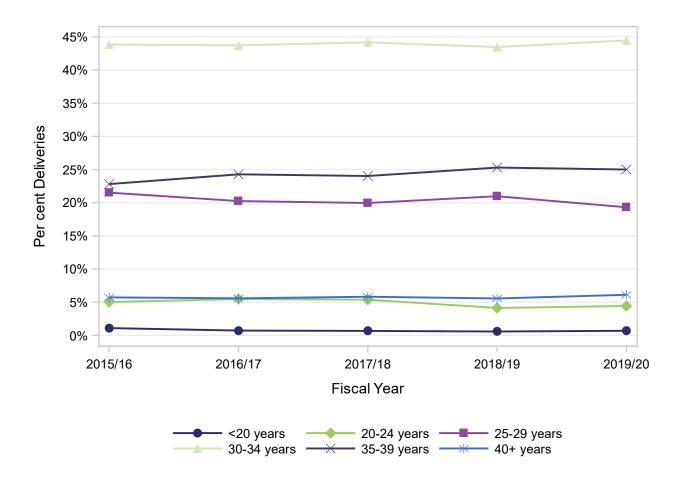
Maternal Age at Delivery
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year				
Maternal Age	2015/16	2016/17	2017/18	2018/19	2019/20
<20 years	0.6%	0.4%	0.4%	0.4%	0.4%
20-24 years	4.1%	4.0%	3.9%	3.3%	3.2%
25-29 years	17.7%	16.7%	16.3%	16.6%	15.1%
30-34 years	40.5%	41.0%	41.0%	39.7%	40.4%
35-39 years	28.7%	30.1%	30.0%	31.5%	32.3%
40+ years	8.4%	7.8%	8.4%	8.4%	8.5%

# Maternal Age at Delivery Nulliparous Women

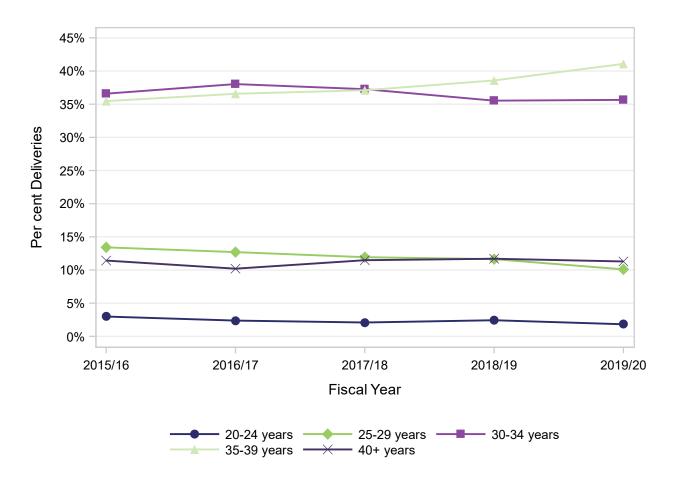
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year				
Maternal Age	2015/16	2016/17	2017/18	2018/19	2019/20
<20 years	1.1%	0.7%	0.7%	0.6%	0.7%
20-24 years	5.0%	5.5%	5.4%	4.1%	4.4%
25-29 years	21.5%	20.2%	20.0%	21.0%	19.3%
30-34 years	43.8%	43.7%	44.2%	43.5%	44.5%
35-39 years	22.8%	24.3%	24.0%	25.3%	25.0%
40+ years	5.7%	5.6%	5.8%	5.6%	6.1%

# Maternal Age at Delivery Parous Women

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



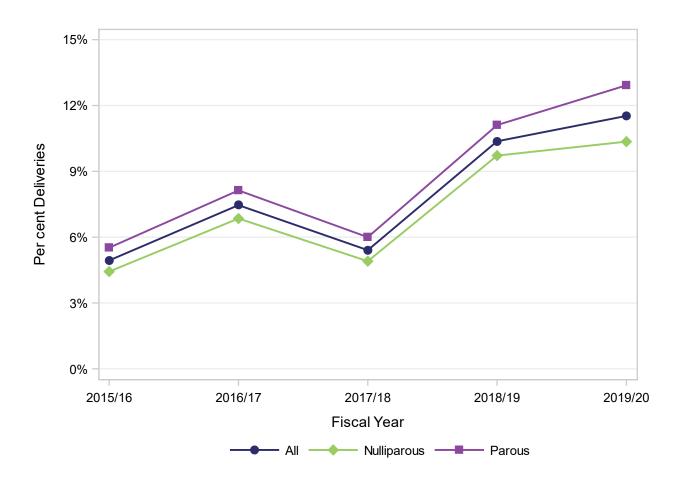
	Fiscal Year				
Maternal Age	2015/16	2016/17	2017/18	2018/19	2019/20
<20 years	NR	NR	NR	NR	NR
20-24 years	3.0%	2.4%	2.1%	2.4%	1.8%
25-29 years	13.4%	12.7%	11.9%	11.6%	10.1%
30-34 years	36.6%	38.0%	37.3%	35.5%	35.7%
35-39 years	35.5%	36.6%	37.1%	38.6%	41.1%
40+ years	11.4%	10.2%	11.5%	11.7%	11.3%

NR: Rates and per cents based on numerators of 1 to 4 are not reported. Definitions and specifications begin on Page 81 of this document.

### **Antenatal Care Visits**

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

## Deliveries with <5 Antenatal Care Visits by Parity

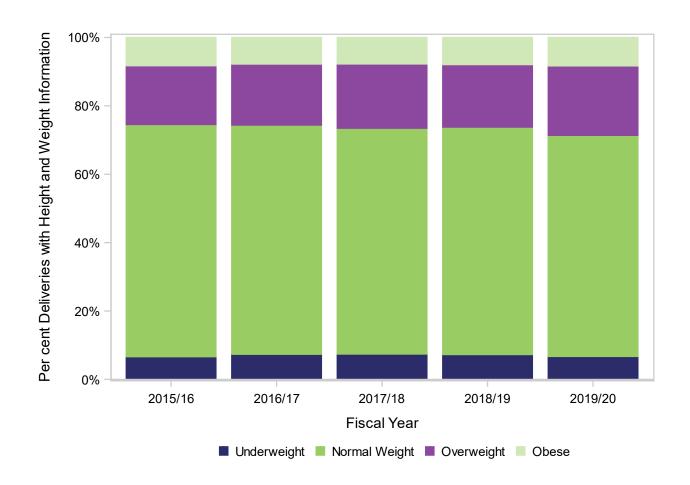


Deliveries with <5 Antenatal Care Visits or Missing Number of Visits

	Fiscal Year				
	2015/16	2016/17	2017/18	2018/19	2019/20
<5 Visits	4.9%	7.5%	5.4%	10.4%	11.5%
Missing Visits	25.6%	12.1%	33.1%	6.5%	4.1%

Pre-Pregnancy Body Mass Index (BMI)
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

## Distribution of Pre-Pregnancy BMI Among Deliveries With COMPLETE Height and Weight

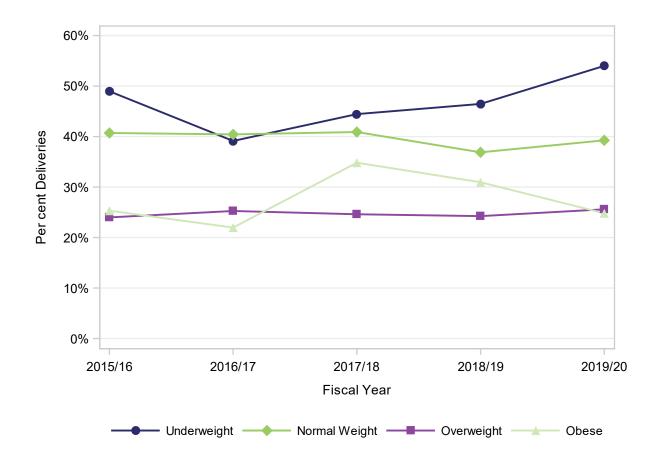


### Distribution of Pre-Pregnancy BMI Among ALL Deliveries

	Fiscal Year				
BMI Category	2015/16	2016/17	2017/18	2018/19	2019/20
Underweight	4.5%	5.0%	5.0%	4.9%	4.7%
Normal Weight	46.5%	45.3%	44.7%	44.5%	45.2%
Overweight	11.8%	12.1%	12.7%	12.2%	14.2%
Obese	5.7%	5.3%	5.2%	5.3%	5.8%
BMI Missing	31.6%	32.4%	32.3%	33.1%	30.1%

Definitions and specifications begin on Page 81 of this document.

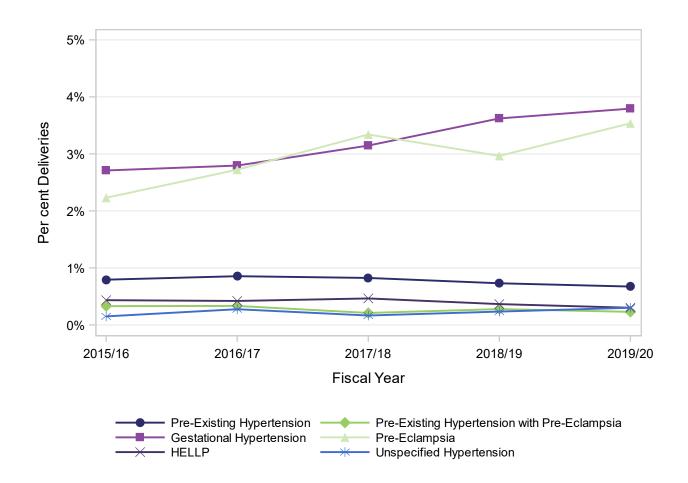
## **Appropriate\* Weight Gain During Pregnancy** by Pre-Pregnancy Body Mass Index (BMI) Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year				
BMI Category	2015/16	2016/17	2017/18	2018/19	2019/20
Underweight	49.0%	39.1%	44.4%	46.5%	54.0%
Normal Weight	40.7%	40.4%	40.9%	36.9%	39.3%
Overweight	24.0%	25.3%	24.6%	24.2%	25.6%
Obese	25.3%	22.0%	34.8%	31.0%	24.8%

<sup>\*</sup> As defined by the Institute of Medicine. Data are limited to deliveries with complete height and weight information (19% of deliveries in 2019/20). Definitions and specifications begin on Page 81 of this document.

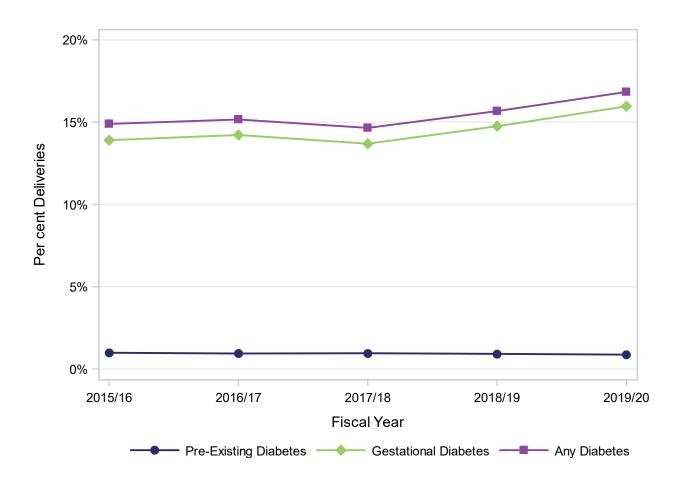
**Hypertensive Disorders of Pregnancy**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year							
Type of Hypertension	2015/16	2016/17	2017/18	2018/19	2019/20			
No Hypertension	93.3%	92.6%	91.8%	91.8%	91.2%			
Pre-Existing Hypertension	0.8%	0.9%	0.8%	0.7%	0.7%			
Pre-Existing Hypertension with Pre-Eclampsia	0.3%	0.3%	0.2%	0.3%	0.2%			
Gestational Hypertension	2.7%	2.8%	3.1%	3.6%	3.8%			
Pre-Eclampsia	2.2%	2.7%	3.3%	3.0%	3.5%			
HELLP	0.4%	0.4%	0.5%	0.4%	0.3%			
Eclampsia	NR	NR	NR	NR	NR			
Unspecified Hypertension	0.1%	0.3%	0.2%	0.2%	0.3%			

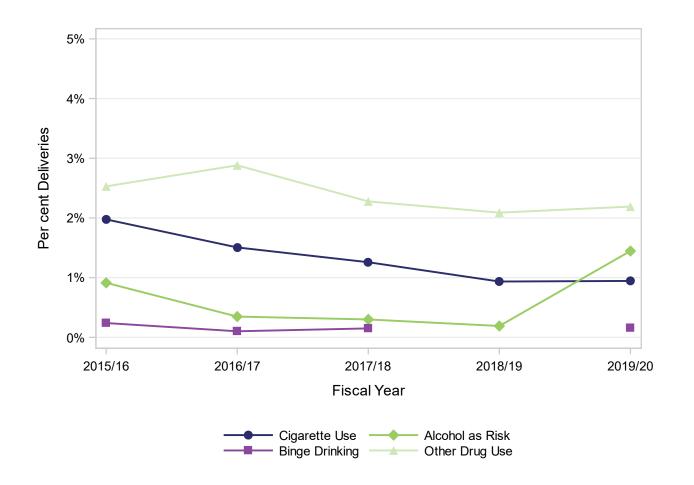
NR: Rates and per cents based on numerators of 1 to 4 are not reported. Definitions and specifications begin on Page 81 of this document.

**Diabetes Mellitus in Pregnancy**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year							
Type of Diabetes	2015/16	2016/17	2017/18	2018/19	2019/20			
Pre-Existing Diabetes	1.0%	0.9%	1.0%	0.9%	0.9%			
Gestational Diabetes	13.9%	14.2%	13.7%	14.8%	16.0%			
Any Diabetes	14.9%	15.2%	14.6%	15.7%	16.8%			

Substance Use During Pregnancy
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

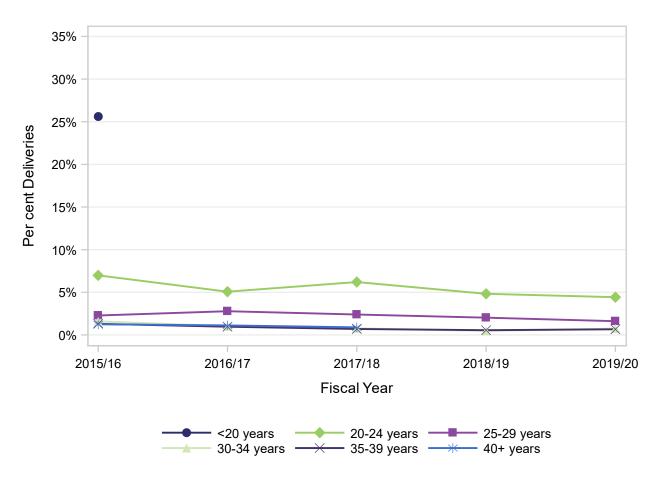


	Fiscal Year						
Substance	2015/16	2016/17	2017/18	2018/19	2019/20		
Cigarette Use	2.0%	1.5%	1.3%	0.9%	0.9%		
Alcohol as Risk	0.9%	0.3%	0.3%	0.2%	1.4%		
Binge Drinking	0.2%	0.1%	0.1%	NR	0.2%		
Other Drug Use	2.5%	2.9%	2.3%	2.1%	2.2%		

NR: Rates and per cents based on numerators of 1 to 4 are not reported. Definitions and specifications begin on Page 81 of this document.

# Cigarette Use at Any Time During Pregnancy by Maternal Age

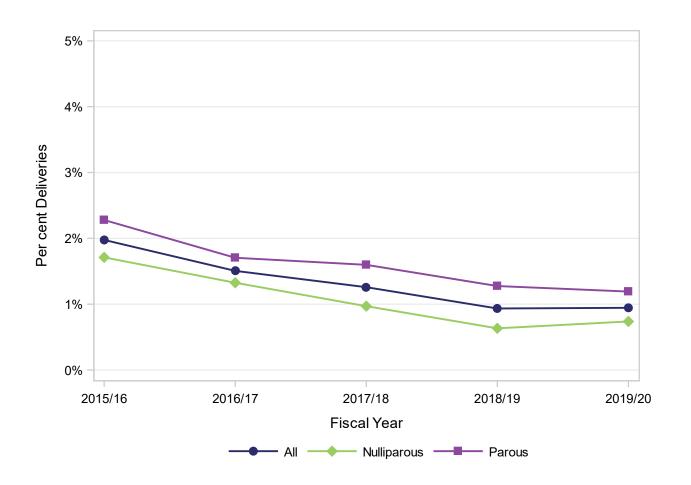
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
Maternal Age	2015/16	2016/17	2017/18	2018/19	2019/20		
<20 years	25.6%	NR	NR	NR	NR		
20-24 years	7.0%	5.1%	6.2%	4.8%	4.4%		
25-29 years	2.3%	2.8%	2.4%	2.0%	1.6%		
30-34 years	1.6%	1.0%	0.8%	0.5%	0.7%		
35-39 years	1.3%	1.0%	0.7%	0.6%	0.7%		
40+ years	1.3%	1.1%	0.9%	NR	NR		

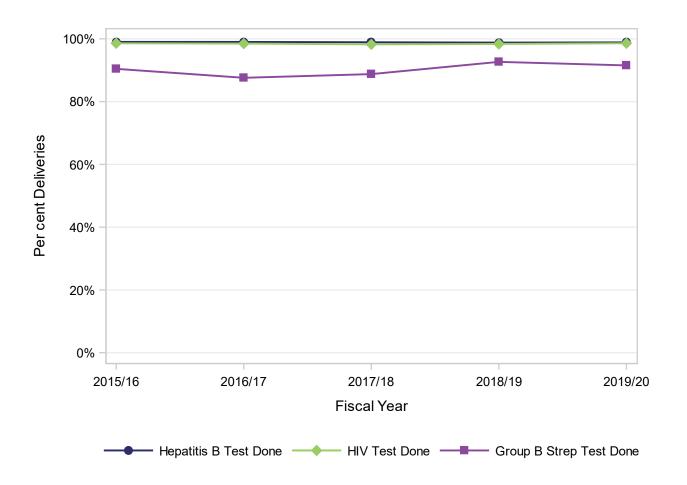
NR: Rates and per cents based on numerators of 1 to 4 are not reported. Definitions and specifications begin on Page 81 of this document.

## **Cigarette Use at Any Time During Pregnancy by Parity**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year							
Parity	2015/16	2016/17	2017/18	2018/19	2019/20			
All	2.0%	1.5%	1.3%	0.9%	0.9%			
Nulliparous	1.7%	1.3%	1.0%	0.6%	0.7%			
Parous	2.3%	1.7%	1.6%	1.3%	1.2%			

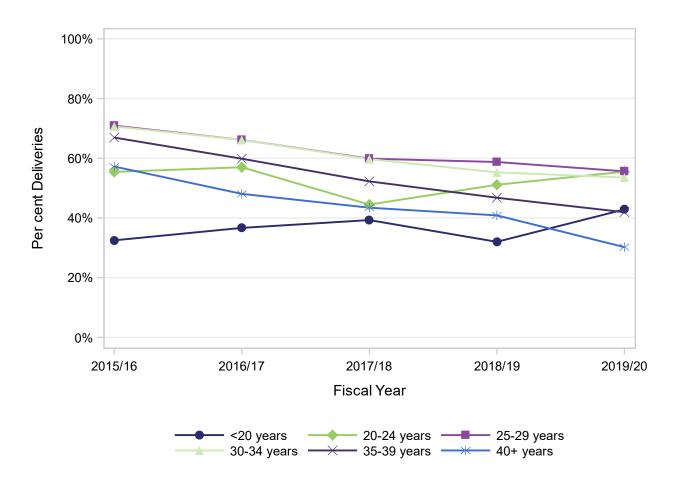
Maternal Screening Tests
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
Type of Screening	2015/16	2016/17	2017/18	2018/19	2019/20		
Hepatitis B Test Done	99.0%	99.0%	98.9%	98.8%	98.9%		
HIV Test Done	98.6%	98.5%	98.2%	98.4%	98.6%		
Group B Strep Test Done	90.4%	87.6%	88.8%	92.7%	91.5%		

Woman who delivered a baby at 35 weeks gestation or more was screened for Group B Streptococcus. Definitions and specifications begin on Page 81 of this document.

## **Uptake of Prenatal Genetic Screening** by Maternal Age Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

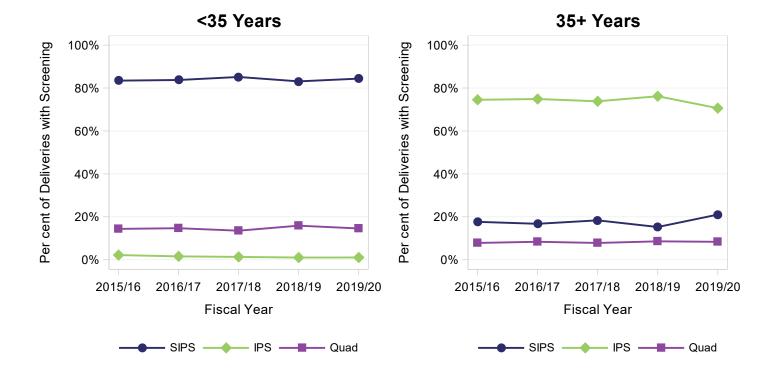


	Fiscal Year							
Maternal Age	2015/16	2016/17	2017/18	2018/19	2019/20			
<20 years	32.5%	36.7%	39.3%	32.0%	42.9%			
20-24 years	55.4%	57.0%	44.5%	51.1%	55.5%			
25-29 years	70.9%	66.2%	59.9%	58.7%	55.6%			
30-34 years	70.7%	66.1%	59.7%	55.3%	53.5%			
35-39 years	66.9%	59.9%	52.3%	46.8%	41.9%			
40+ years	57.2%	48.1%	43.4%	40.9%	30.2%			

Section 1: Maternal Health.

# Type of Down Syndrome and Trisomy 18 Screening Performed by Maternal Age

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

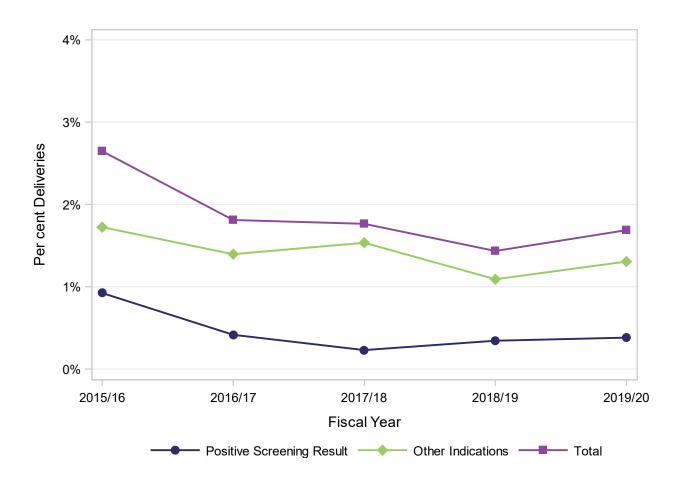


		Fiscal Year				
Maternal Age	Types of Screening	2015/16	2016/17	2017/18	2018/19	2019/20
	SIPS	83.4%	83.7%	85.2%	83.1%	84.4%
<35 years	IPS	2.2%	1.6%	1.3%	1.0%	1.1%
	Quad	14.4%	14.7%	13.5%	15.9%	14.6%
	SIPS	17.7%	16.7%	18.4%	15.3%	21.0%
35+ years	IPS	74.5%	74.9%	73.8%	76.2%	70.6%
	Quad	7.8%	8.4%	7.8%	8.6%	8.4%

SIPS, IPS, and Quad are publicly-funded Down syndrome screenings performed as part of the BC Prenatal Genetic Screening Program. Data are limited to singleton deliveries with Down syndrome screening performed (51% of all deliveries in 2019/20). Click here for information on the BC Prenatal Genetic Screening Program.

Definitions and specifications begin on Page 81 of this document.

## **Uptake of Invasive Diagnostic Testing by Indication**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



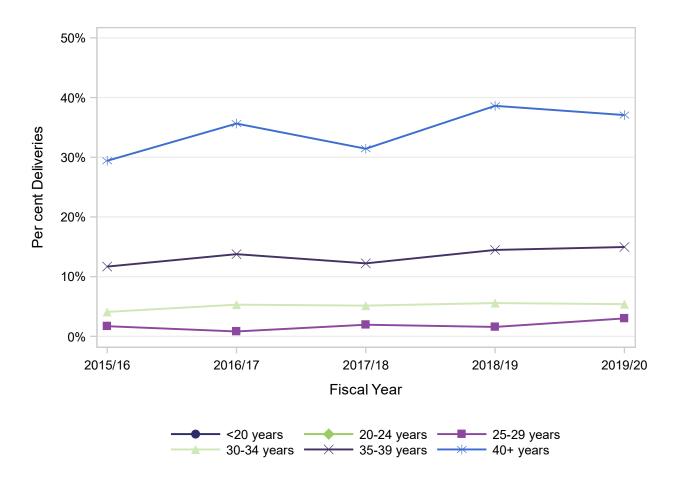
	Fiscal Year							
Invasive Diagnostic Testing Indication	2015/16	2016/17	2017/18	2018/19	2019/20			
Positive Screening Result	0.9%	0.4%	0.2%	0.3%	0.4%			
Other Indications	1.7%	1.4%	1.5%	1.1%	1.3%			
Total	2.6%	1.8%	1.8%	1.4%	1.7%			

Invasive diagnostic testing includes chorionic villus sampling or amniocentesis. Data are limited to singleton deliveries.

Other indications include all indications for invasive diagnostic testing other than a positive funded screening result. Click here for information on the BC Prenatal Genetic Screening Program.

Definitions and specifications begin on Page 81 of this document.

## **Use of Artificial Reproductive Technology** Nulliparous Women by Age Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
Maternal Age	2015/16	2016/17	2017/18	2018/19	2019/20		
<20 years	NR	NR	NR	NR	NR		
20-24 years	NR	NR	NR	NR	NR		
25-29 years	1.7%	0.8%	1.9%	1.6%	3.0%		
30-34 years	4.1%	5.3%	5.1%	5.6%	5.4%		
35-39 years	11.7%	13.8%	12.2%	14.5%	15.0%		
40+ years	29.4%	35.6%	31.4%	38.6%	37.1%		

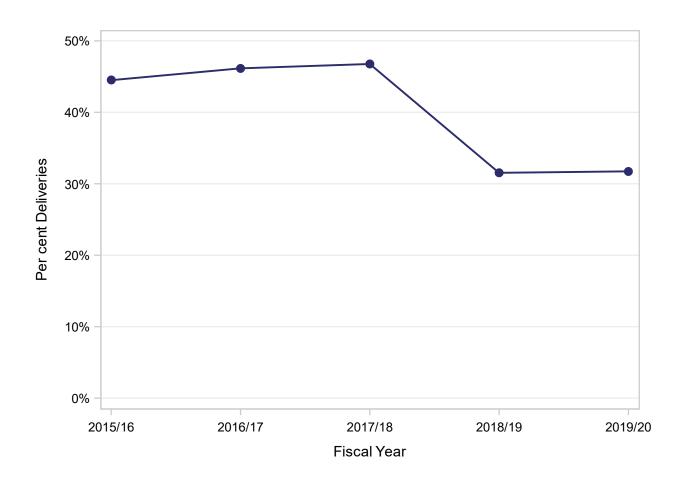
NR: Rates and per cents based on numerators of 1 to 4 are not reported. Definitions and specifications begin on Page 81 of this document.

Section 1: Maternal Health.

## Perinatal Health Report 2015/16 to 2019/20 Provincial Health Services Authority

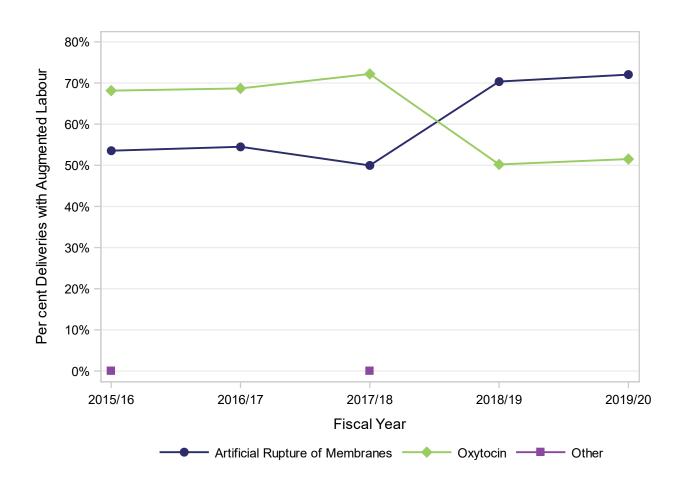
**Section 2: Labour and Delivery** 

**Labour Augmentation**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
	2015/16 2016/17 2017/18 2018/19 2019/2						
Labour Augmentation	44.5%	46.2%	46.8%	31.5%	31.7%		

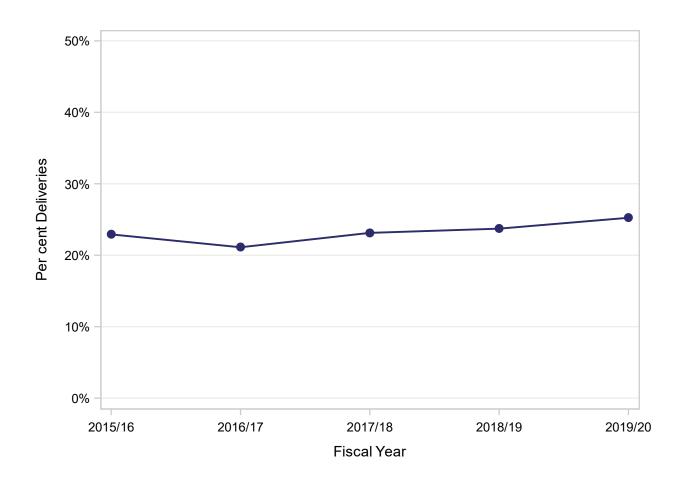
**Method of Labour Augmentation**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
Method of Labour Augmentation	2015/16	2016/17	2017/18	2018/19	2019/20		
Artificial Rupture of Membranes	53.5%	54.5%	50.0%	70.4%	72.0%		
Oxytocin	68.1%	68.7%	72.2%	50.2%	51.5%		
Other	0.0%	NR	0.0%	NR	NR		

## **Labour Induction**

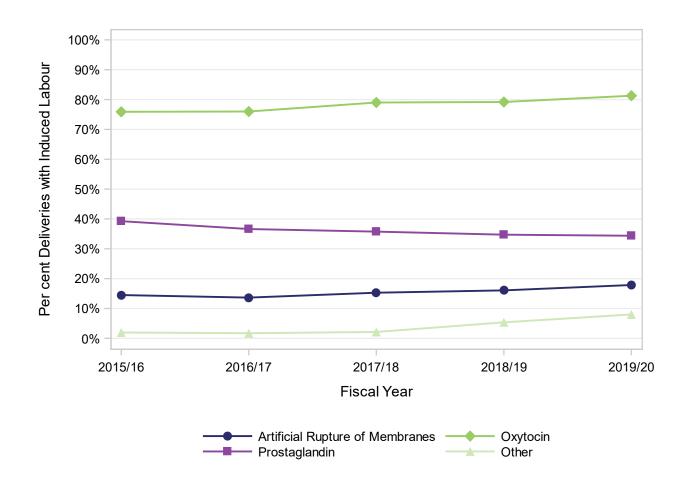
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
	2015/16	2016/17	2017/18	2018/19	2019/20		
Labour Induction	22.9%	21.1%	23.1%	23.7%	25.2%		

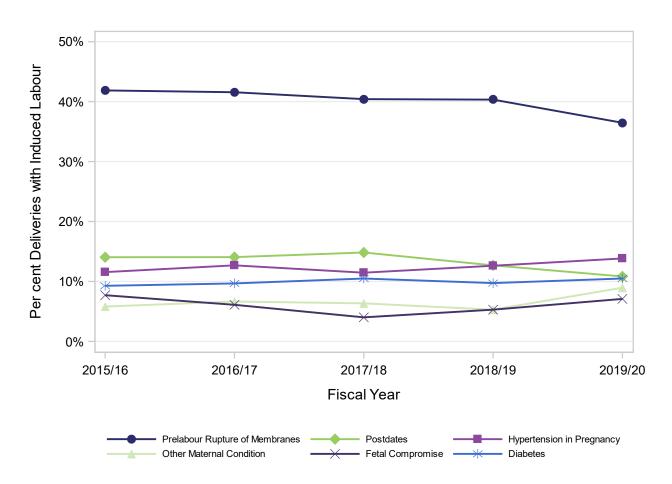
## **Method of Labour Induction**

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year					
Method of Labour Induction	2015/16	2016/17	2017/18	2018/19	2019/20	
Artificial Rupture of Membranes	14.5%	13.6%	15.3%	16.1%	17.9%	
Oxytocin	75.9%	76.0%	79.0%	79.2%	81.3%	
Prostaglandin	39.3%	36.6%	35.8%	34.7%	34.4%	
Other	2.0%	1.7%	2.1%	5.4%	8.0%	

# **Primary Indication for Labour Induction**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



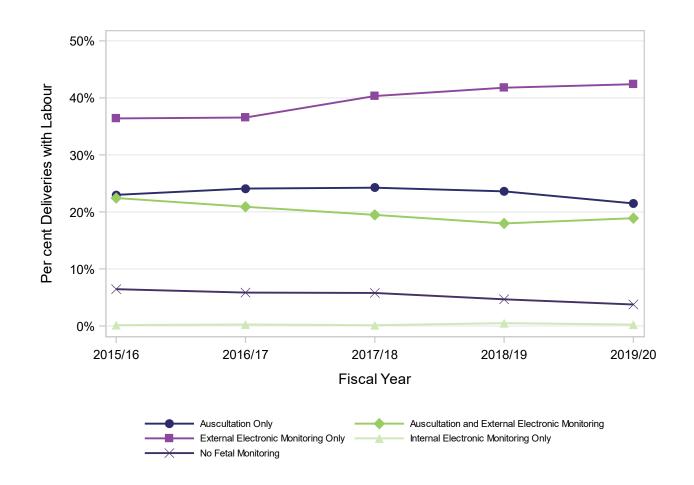
	Fiscal Year						
Primary Indication for Labour Induction	2015/16	2016/17	2017/18	2018/19	2019/20		
Prelabour Rupture of Membranes	41.9%	41.6%	40.4%	40.3%	36.5%		
Post Dates	14.0%	14.1%	14.8%	12.7%	10.8%		
Hypertension in Pregnancy	11.6%	12.7%	11.5%	12.6%	13.8%		
Other Maternal Condition	5.8%	6.7%	6.3%	5.3%	9.0%		
Fetal Compromise	7.7%	6.1%	4.0%	5.3%	7.1%		
Diabetes	9.3%	9.7%	10.5%	9.7%	10.5%		
Fetal Demise	1.7%	1.2%	0.9%	0.7%	0.8%		
Logistics	NR	NR	NR	NR	NR		
Antepartum Hemorrhage	NR	NR	0.3%	NR	NR		
Chorioamnionitis	NR	NR	NR	NR	NR		
Other	7.5%	7.6%	11.0%	12.7%	11.3%		
Unknown	NR	NR	NR	NR	NR		

Selected indications are included in the figure; all indications are included in the table.

NR: Rates and per cents based on numerators of 1 to 4 are not reported.

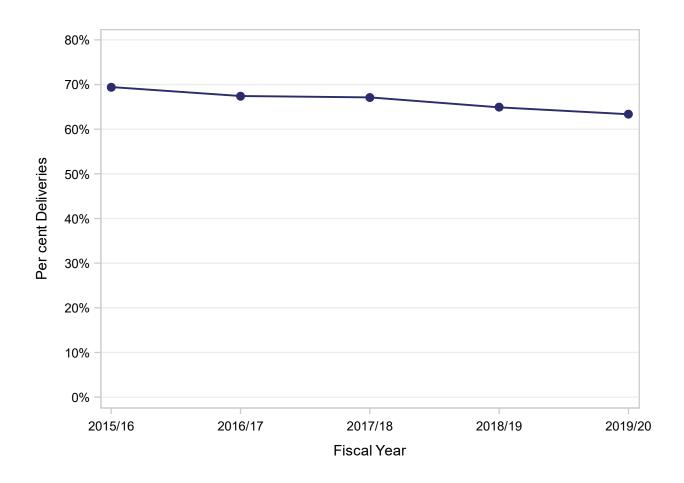
Definitions and specifications begin on Page 81 of this document.

# Method of Fetal Surveillance During Labour Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year					
Method of Fetal Surveillance During Labour	2015/16	2016/17	2017/18	2018/19	2019/20	
Auscultation Only	23.0%	24.1%	24.2%	23.6%	21.5%	
Auscultation and External Electronic Monitoring	22.4%	20.9%	19.5%	18.0%	18.9%	
External Electronic Monitoring Only	36.4%	36.6%	40.3%	41.8%	42.4%	
Internal Electronic Monitoring Only	0.1%	0.3%	0.1%	0.5%	0.2%	
No Fetal Monitoring	6.4%	5.8%	5.8%	4.7%	3.8%	

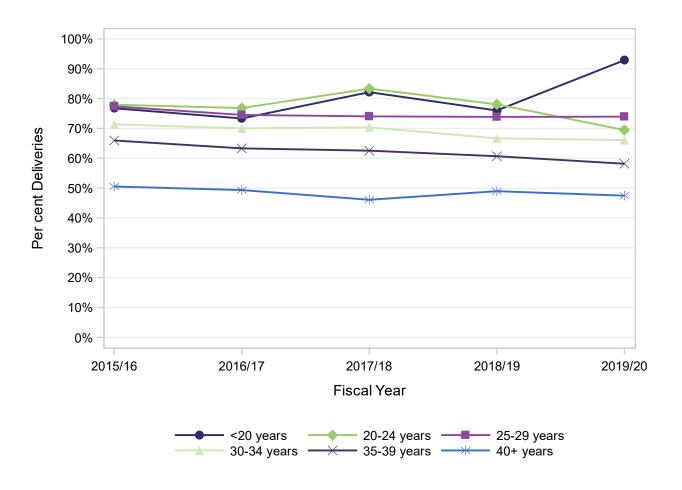
**Vaginal Delivery**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
	2015/16	2016/17	2017/18	2018/19	2019/20		
Vaginal Delivery	69.4%	67.4%	67.1%	64.9%	63.4%		

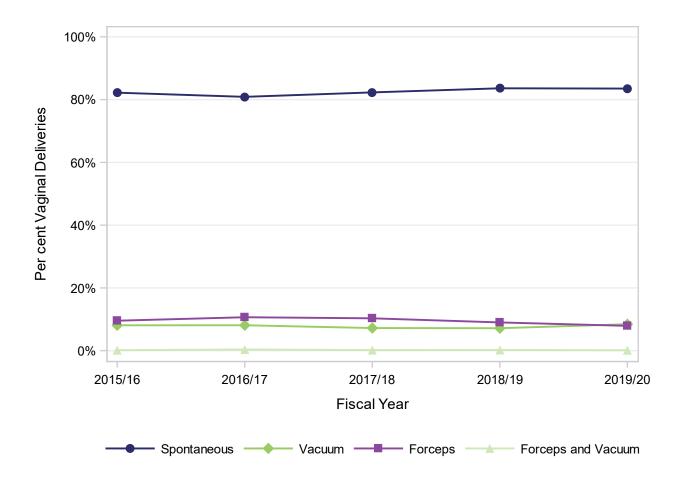
# **Vaginal Delivery**

**by Maternal Age**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year					
Maternal Age	2015/16	2016/17	2017/18	2018/19	2019/20	
<20 years	76.7%	73.3%	82.1%	76.0%	92.9%	
20-24 years	77.9%	76.8%	83.3%	78.1%	69.5%	
25-29 years	77.4%	74.5%	74.0%	73.9%	73.9%	
30-34 years	71.4%	70.0%	70.4%	66.7%	66.1%	
35-39 years	66.0%	63.3%	62.5%	60.7%	58.2%	
40+ years	50.5%	49.3%	46.1%	49.0%	47.5%	

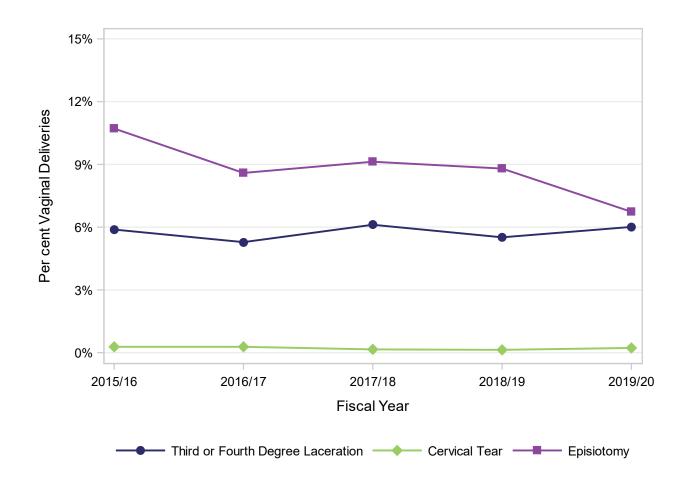
**Type of Vaginal Delivery**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
Type of Vaginal Delivery	2015/16	2016/17	2017/18	2018/19	2019/20		
Spontaneous	82.2%	80.9%	82.3%	83.6%	83.5%		
Vacuum	8.1%	8.1%	7.2%	7.2%	8.4%		
Forceps	9.5%	10.7%	10.3%	9.0%	7.9%		
Forceps and Vacuum	0.2%	0.4%	0.2%	0.2%	0.1%		

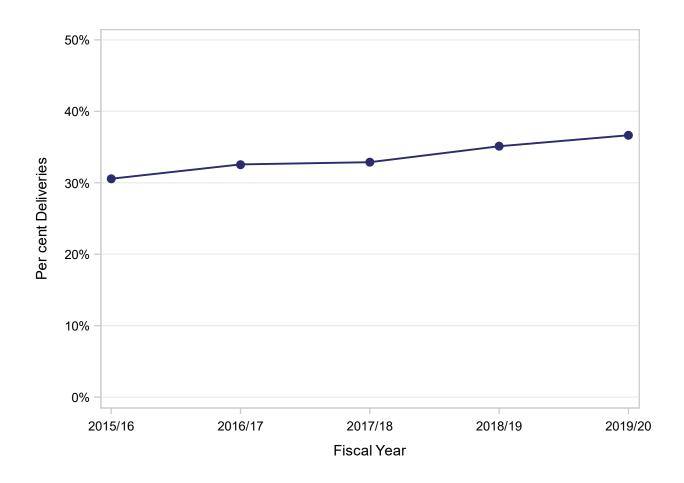
### **Perineal Trauma**

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year					
Perineal Trauma	2015/16	2016/17	2017/18	2018/19	2019/20	
Third or Fourth Degree Laceration	5.9%	5.3%	6.1%	5.5%	6.0%	
Cervical Tear	0.3%	0.3%	0.2%	0.1%	0.2%	
Episiotomy	10.7%	8.6%	9.1%	8.8%	6.7%	

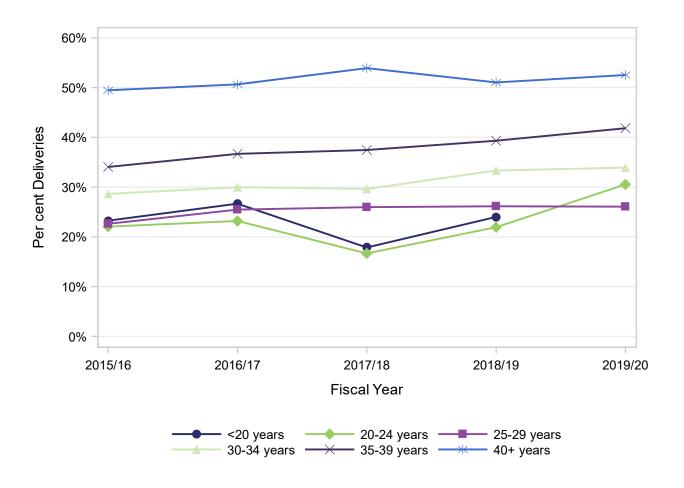
**Cesarean Delivery**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year					
	2015/16	2016/17	2017/18	2018/19	2019/20	
Cesarean Delivery	30.6%	32.6%	32.9%	35.1%	36.6%	

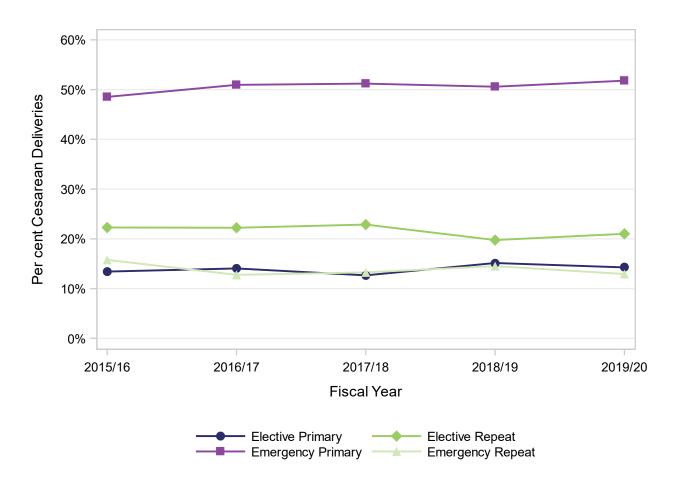
# **Cesarean Delivery**

by Maternal Age
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



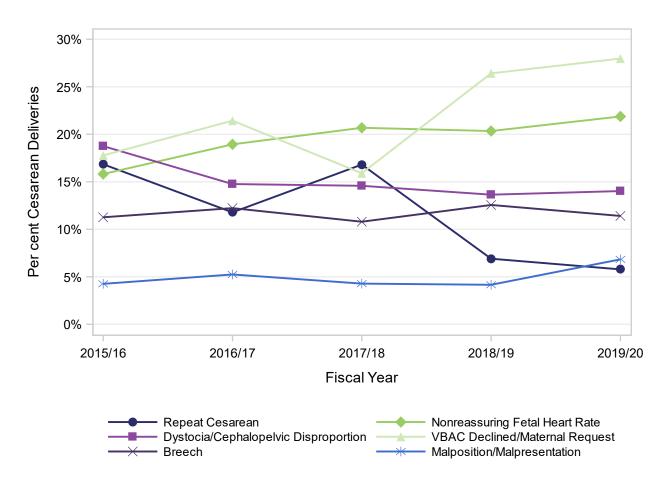
	Fiscal Year					
Maternal Age	2015/16	2016/17	2017/18	2018/19	2019/20	
<20 years	23.3%	26.7%	17.9%	24.0%	NR	
20-24 years	22.1%	23.2%	16.7%	21.9%	30.5%	
25-29 years	22.6%	25.5%	26.0%	26.1%	26.1%	
30-34 years	28.6%	30.0%	29.6%	33.3%	33.9%	
35-39 years	34.0%	36.7%	37.5%	39.3%	41.8%	
40+ years	49.5%	50.7%	53.9%	51.0%	52.5%	

**Type of Cesarean Delivery**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
Type of Cesarean Delivery	2015/16	2016/17	2017/18	2018/19	2019/20		
Elective Primary	13.4%	14.1%	12.7%	15.1%	14.3%		
Elective Repeat	22.3%	22.2%	22.9%	19.8%	21.0%		
Emergency Primary	48.5%	51.0%	51.2%	50.6%	51.8%		
Emergency Repeat	15.8%	12.8%	13.3%	14.5%	12.9%		

## **Primary Indication for Cesarean Delivery**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



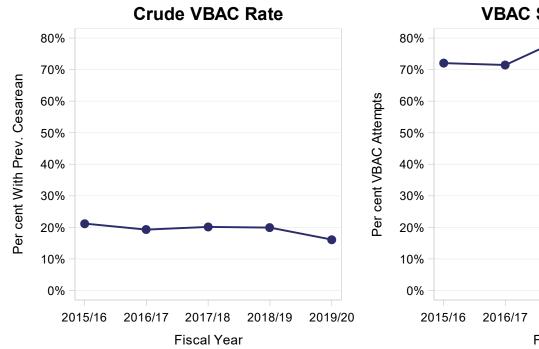
	Fiscal Year						
Primary Indication for Cesarean Delivery	2015/16	2016/17	2017/18	2018/19	2019/20		
Repeat Cesarean	16.8%	11.8%	16.8%	6.9%	5.8%		
Nonreassuring Fetal Heart Rate	15.8%	18.9%	20.7%	20.3%	21.9%		
Dystocia/Cephalopelvic Disproportion	18.8%	14.8%	14.6%	13.6%	14.0%		
VBAC Declined/Maternal Request	17.8%	21.4%	15.9%	26.4%	28.0%		
Breech	11.3%	12.2%	10.8%	12.6%	11.4%		
Malposition/Malpresentation	4.3%	5.2%	4.3%	4.2%	6.8%		
Placenta Previa	2.5%	2.0%	3.0%	2.2%	2.0%		
Abruptio Placenta	0.9%	0.8%	0.8%	0.5%	0.6%		
Active Herpes	0.2%	0.3%	NR	NR	NR		
Other	11.6%	12.5%	13.2%	13.1%	9.5%		
Unknown	NR	NR	NR	NR	NR		

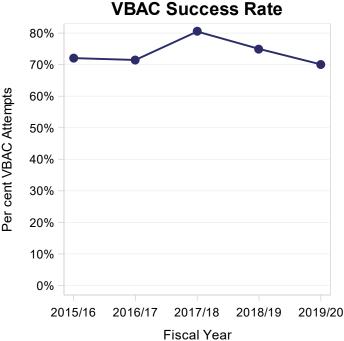
Selected indications are included in the figure; all indications are included in the table.

NR: Rates and per cents based on numerators of 1 to 4 are not reported.

### **Vaginal Birth After Cesarean (VBAC)**

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020





### Vaginal Birth After Cesarean (VBAC)

	Fiscal Year						
	2015/16	2016/17	2017/18	2018/19	2019/20		
Crude VBAC Rate	21.2%	19.3%	20.1%	19.9%	16.1%		
VBAC Eligible Rate	86.7%	81.2%	78.1%	81.1%	79.1%		
VBAC Attempted Rate	33.9%	33.2%	31.7%	32.6%	28.6%		
VBAC Success Rate	72.1%	71.5%	80.5%	75.0%	70.1%		

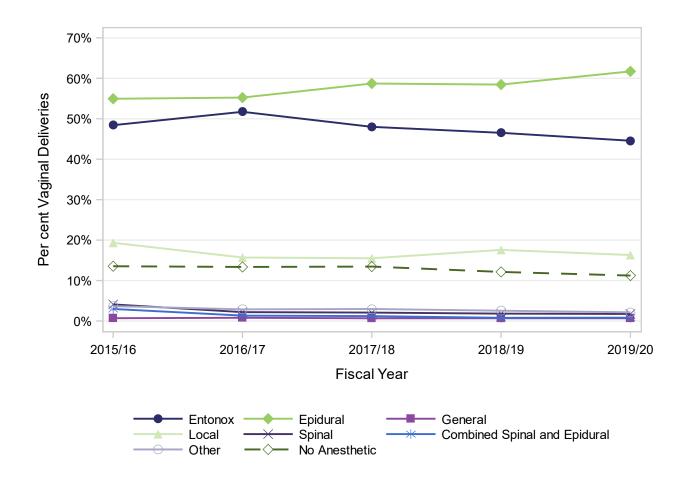
**Crude VBAC Rate:** Total number vaginal deliveries / Women with a previous cesarean **VBAC Eligible Rate:** Women considered eligible for VBAC / Women with a previous cesarean

VBAC Attempted Rate: Women who attempted a VBAC / Women considered eligible for VBAC

VBAC Success Rate: Women with a vaginal delivery / Women who were eligible for and attempted VBAC

# Anesthesia or Analgesia During Labour and Delivery Vaginal Deliveries

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



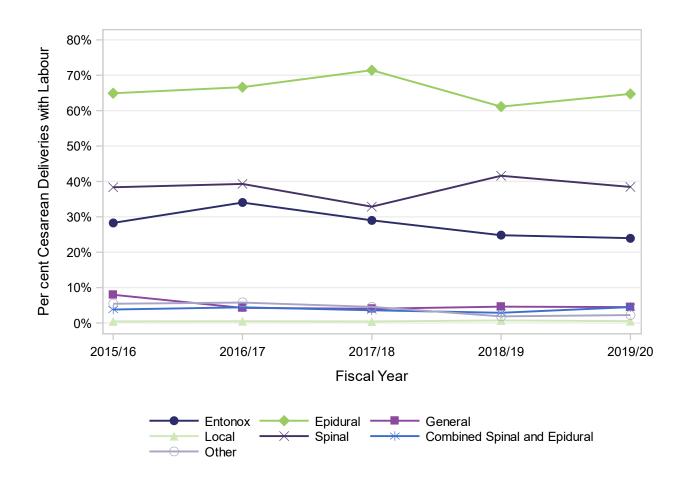
	Fiscal Year					
Anesthesia or Analgesia	2015/16	2016/17	2017/18	2018/19	2019/20	
Entonox	48.4%	51.7%	48.0%	46.5%	44.6%	
Epidural	54.9%	55.2%	58.7%	58.5%	61.7%	
General	0.7%	0.8%	0.7%	0.7%	0.7%	
Local	19.3%	15.7%	15.5%	17.6%	16.3%	
Spinal	4.1%	2.2%	2.1%	1.8%	1.7%	
Combined Spinal and Epidural	-	-	-	NR	0.8%	
Other	3.7%	2.9%	3.0%	2.5%	2.1%	
No Anesthetic	13.5%	13.4%	13.5%	12.1%	11.2%	

Effective April 2015, Combined spinal and epidural anaesthetic (CSE) is coded when a combined spinal and epidural are given at the same time. Multiple agents may be used.

NR: Rates and per cents based on numerators of 1 to 4 are not reported.

## Anesthesia or Analgesia During Labour and Delivery Cesarean Deliveries with Labour

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

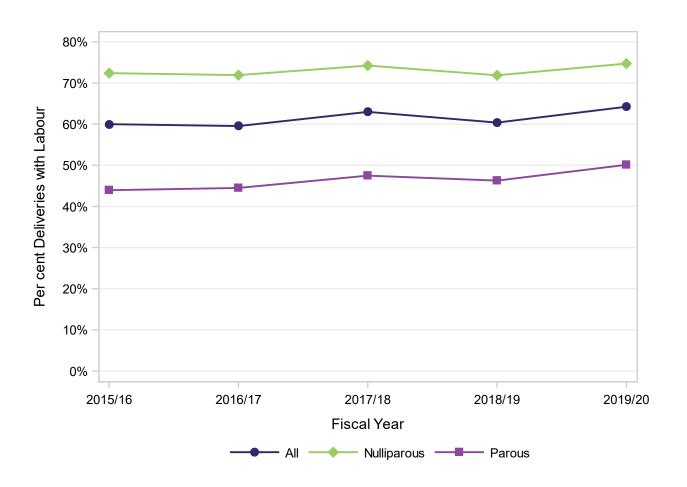


	Fiscal Year					
Anesthesia or Analgesia	2015/16	2016/17	2017/18	2018/19	2019/20	
Entonox	28.3%	34.0%	29.0%	24.8%	24.0%	
Epidural	64.9%	66.6%	71.4%	61.1%	64.7%	
General	8.0%	4.3%	4.0%	4.6%	4.5%	
Local	0.5%	0.5%	0.4%	0.7%	0.5%	
Spinal	38.3%	39.3%	32.9%	41.6%	38.4%	
Combined Spinal and Epidural	-	-	-	NR	4.5%	
Other	5.4%	5.8%	4.6%	1.9%	2.2%	

Effective April 2015, Combined spinal and epidural anaesthetic (CSE) is coded when a combined spinal and epidural are given at the same time. Multiple agents may be used.

NR: Rates and per cents based on numerators of 1 to 4 are not reported.

### **Epidural Anesthesia or Analgesia During Labour and Delivery by Parity**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

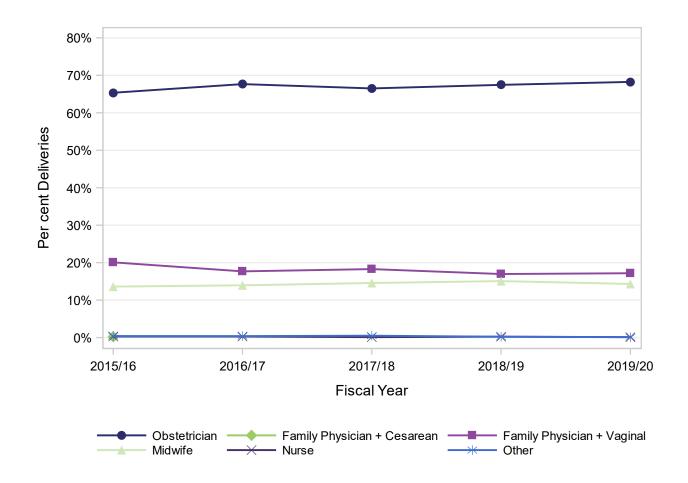


	Fiscal Year					
Parity	2015/16	2016/17	2017/18	2018/19	2019/20	
All	60.0%	59.5%	63.0%	60.4%	64.2%	
Nulliparous	72.4%	71.9%	74.2%	71.9%	74.7%	
Parous	43.9%	44.5%	47.5%	46.3%	50.1%	

Effective April 2015, Combined spinal and epidural anaesthetic (CSE) is coded when a combined spinal and epidural are given at the same time. Includes Combined spinal and epidural anaesthetic (CSE).

### **Delivery Provider**

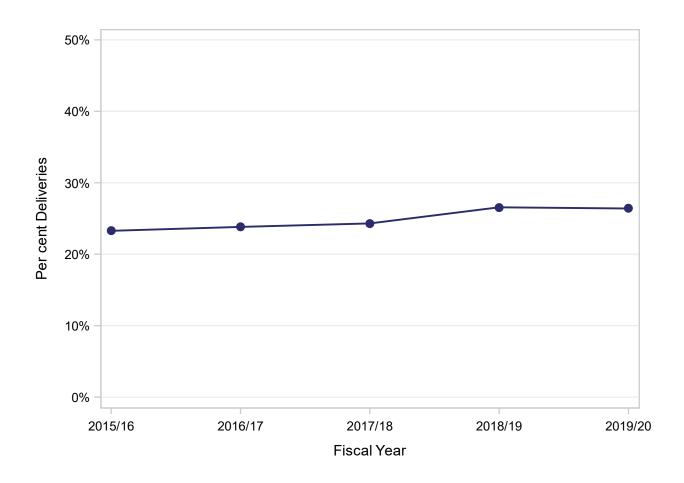
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year					
Delivery Provider	2015/16	2016/17	2017/18	2018/19	2019/20	
Obstetrician	65.3%	67.7%	66.5%	67.5%	68.2%	
Surgeon	NR	NR	NR	NR	NR	
Family Physician + Cesarean	0.2%	NR	NR	NR	NR	
Family Physician + Vaginal	20.1%	17.7%	18.3%	17.0%	17.2%	
Midwife	13.6%	14.0%	14.6%	15.1%	14.3%	
Nurse	0.3%	0.3%	0.1%	0.2%	0.1%	
Other	0.4%	0.4%	0.5%	0.2%	0.1%	

Describes the training of the provider who delivered the baby. This may not be the same type of health care professional who provided antenatal care. NR: Rates and per cents based on numerators of 1 to 4 are not reported.

# **Deliveries with Midwifery-Involved Care**Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

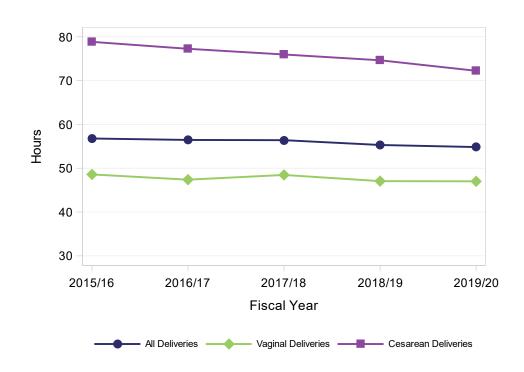


	Fiscal Year					
	2015/16	2016/17	2017/18	2018/19	2019/20	
Deliveries with Midwifery-Involved Care	23.3%	23.8%	24.3%	26.6%	26.4%	

Indicates if a registered midwife was involved at any point in maternal or newborn care. May not be the provider who performs the delivery. Definitions and specifications begin on Page 81 of this document.

### Length of Stay for the Delivery Episode of Care by Mode of Delivery Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

Median Total Length of Stay (Hours)



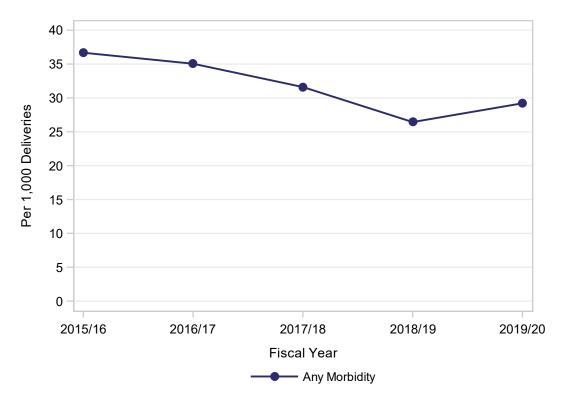
### Median Antepartum, Postpartum, and Total Length of Stay for the Delivery Episode of Care

	A	ntepartı	ım LOS	(Hours	)	Postpartum LOS (Hours)			Total LOS (Hours)						
		Fis	scal Yea	ar		Fiscal Year			Fiscal Year						
Mode of Delivery	15/16	16/17	17/18	18/19	19/20	15/16	16/17	17/18	18/19	19/20	15/16	16/17	17/18	18/19	19/20
All Deliveries	6.6	6.7	7.6	7.1	7.4	49.6	49.6	48.7	48.2	47.6	56.8	56.5	56.4	55.3	54.8
Vaginal Deliveries	7.2	7.1	8.0	7.6	7.8	40.1	38.9	39.4	38.1	38.0	48.6	47.4	48.5	47.1	47.0
Cesarean Deliveries	4.8	5.3	5.9	5.3	5.9	71.5	69.2	65.0	63.3	58.9	78.8	77.3	76.0	74.6	72.2

Deliveries outside acute care facilities are excluded. Definitions and specifications begin on Page 81 of this document.

### **Maternal Morbidity**

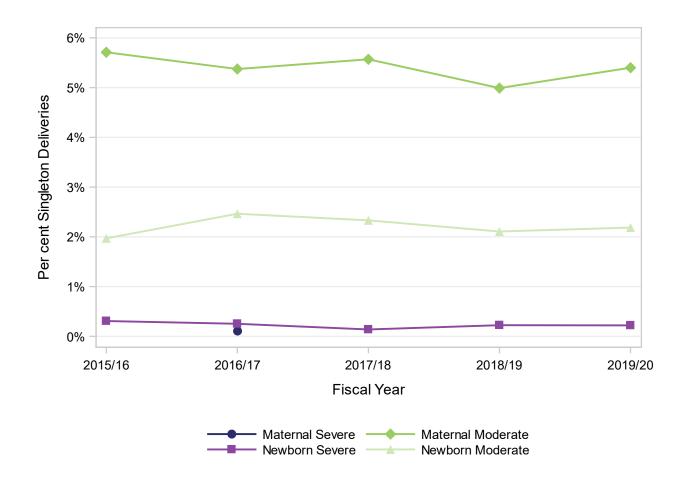
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



### **Specific Maternal Morbidities**

			Fiscal Year		
	2015/16	2016/17	2017/18	2018/19	2019/20
Type of Morbidity	per 1,000	per 1,000	per 1,000	per 1,000	per 1,000
Liver Complications	9.3	6.5	8.2	5.7	8.0
Postpartum Hemorrhage with Transfusion	8.8	11.7	8.4	8.5	6.9
Urinary Tract Infection	6.4	5.5	4.2	3.9	3.9
Sepsis	7.5	5.8	6.3	4.1	5.6
Wound Infection	3.4	2.9	3.4	3.4	3.1
HELLP	4.3	4.2	4.6	3.7	3.0
Anesthetic Complications	2.5	2.6	1.9	1.2	2.3
Antepartum Hemorrhage with Transfusion	2.7	4.3	2.2	2.8	4.0
Eclampsia	NR	NR	NR	NR	0.0
Shock	0.9	NR	NR	NR	NR
Pulmonary Embolism	0.9	NR	0.0	0.0	NR
Postpartum Hemorrhage with Hysterectomy	NR	NR	NR	NR	NR
Stroke	NR	NR	NR	NR	NR

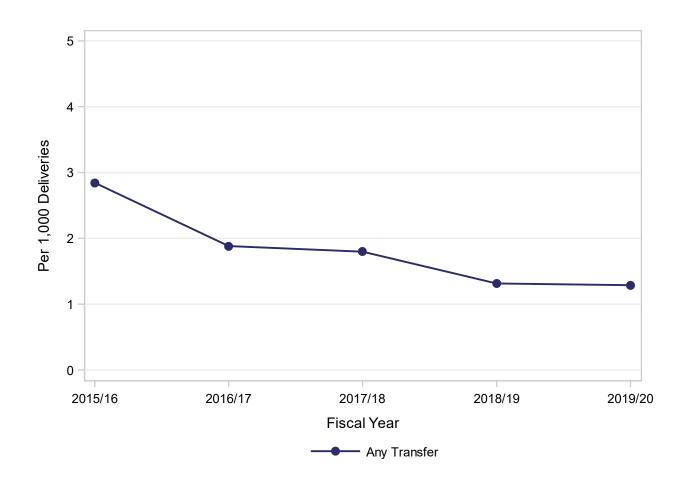
Adverse Outcome of Labour or Delivery
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
	2015/16	2016/17	2017/18	2018/19	2019/20		
Any Adverse Outcome	7.8%	7.9%	7.9%	7.2%	7.6%		
Maternal Severe Adverse Outcome	NR	0.1%	NR	NR	NR		
Maternal Moderate Adverse Outcome	5.7%	5.4%	5.6%	5.0%	5.4%		
Neonatal Severe Adverse Outcome	0.3%	0.3%	0.1%	0.2%	0.2%		
Neonatal Moderate Adverse Outcome	2.0%	2.5%	2.3%	2.1%	2.2%		

NR: Rates and per cents based on numerators of 1 to 4 are not reported. Definitions and specifications begin on Page 81 of this document.

Maternal Hospital Transfers
Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

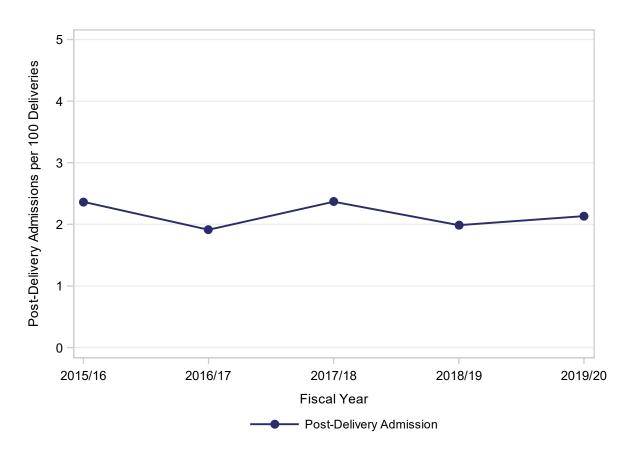


	Fiscal Year							
	2015/16 2016/17 2017/18 2018/19 2019/2							
Type of Transfer	per 1,000	per 1,000	per 1,000	per 1,000	per 1,000			
Any Transfer	2.8	1.9	1.8	1.3	1.3			

Women may be transferred to another hospital for either maternal or neonatal indications. Includes transfers from an inpatient Delivery Admission directly to another acute care facility. Definitions and specifications begin on Page 81 of this document.

### **Post-Delivery Admissions**

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



Leading Diagnoses Associated with Post-Delivery Admissions
Per cent Post-Delivery Admissions

	Fiscal Year								
Most Responsible Diagnosis	2015/16	2016/17	2017/18	2018/19	2019/20				
Postpartum Infection	21.5%	19.7%	23.4%	21.3%	24.2%				
Hypertension or Eclampsia	8.2%	19.7%	19.0%	19.1%	22.1%				
Other Diseases Complicating Pregnancy	15.8%	17.4%	13.9%	17.6%	20.8%				
Postpartum Hemorrhage	17.1%	16.7%	21.5%	15.4%	18.8%				
Complications of Anesthesia	7.6%	4.5%	NR	5.1%	3.4%				
Retained Placenta Without Hemorrhage	NR	NR	NR	NR	0.0%				
Routine Postpartum Care	4.4%	NR	0.0%	NR	NR				
Other Wound Issues	7.0%	3.8%	5.7%	5.1%	NR				
Care of Breasts	3.2%	NR	3.2%	NR	NR				
Pregnancy-Associated Mental Health	0.0%	NR	NR	NR	NR				

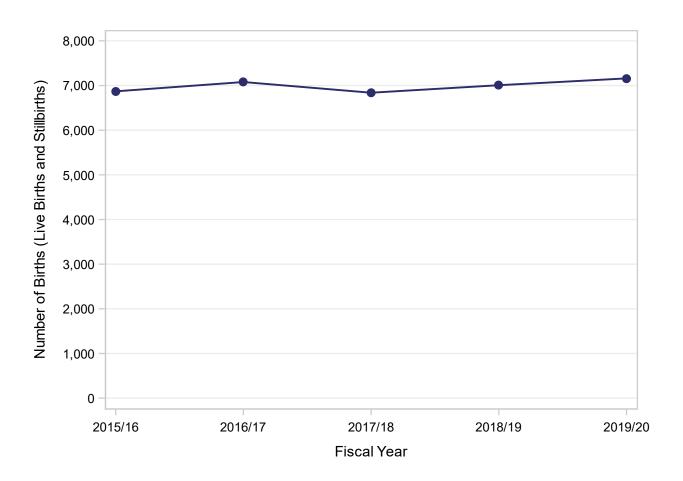
Post-Delivery Admissions include inter-hospital transfers and readmissions from home.

NR: Rates and per cents based on numerators of 1 to 4 are not reported.

## Perinatal Health Report 2015/16 to 2019/20 Provincial Health Services Authority

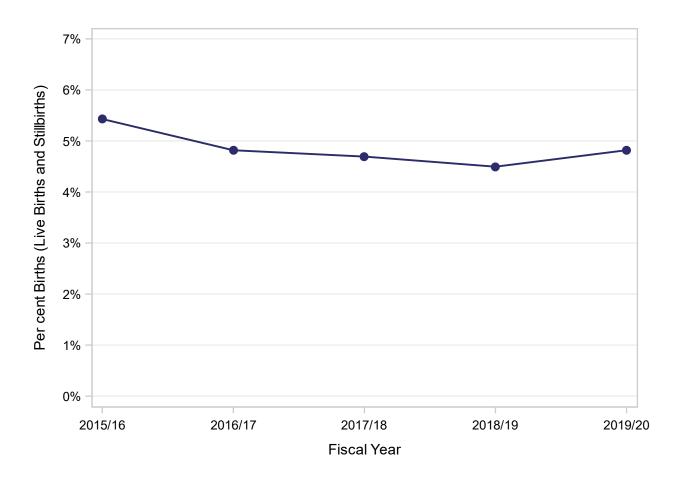
**Section 3: Newborn Health** 

**Total Births**Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
	2015/16	2016/17	2017/18	2018/19	2019/20		
Provincial Health Services Authority	6,870	7,078	6,839	7,007	7,160		

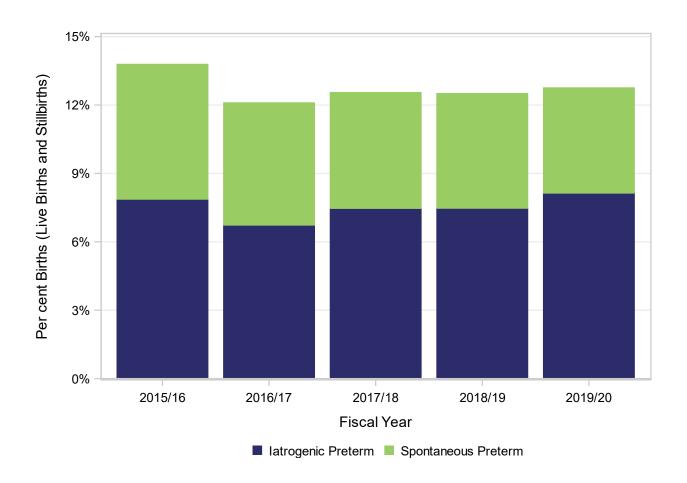
**Births Part of a Multiple Gestation**Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
	2015/16 2016/17 2017/18 2018/19 2019						
Multiple Gestation	5.4%	4.8%	4.7%	4.5%	4.8%		

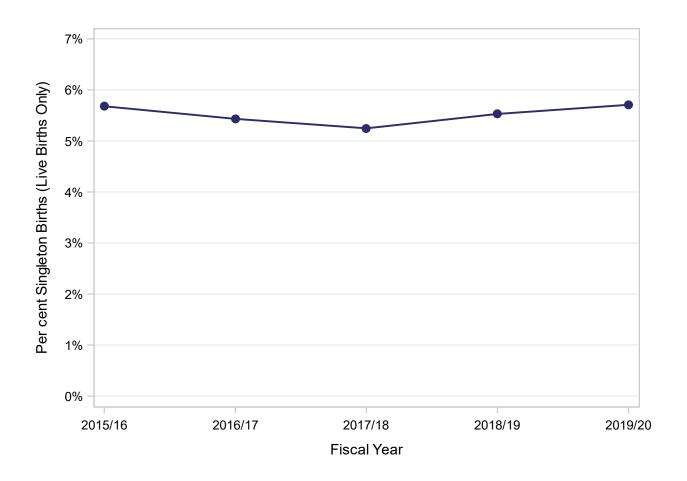
### **Preterm Birth**

Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



		Fiscal Year							
	2015/16	2016/17	2017/18	2018/19	2019/20				
latrogenic Preterm	7.9%	6.7%	7.5%	7.5%	8.1%				
Spontaneous Preterm	5.9%	5.4%	5.1%	5.0%	4.6%				
Total Preterm	13.8%	12.1%	12.5%	12.5%	12.8%				

**Low Birthweight Singletons**Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



		Fiscal Year						
	2015/16 2016/17 2017/18 2018/19 2019/20							
Low Birthweight	5.7%	5.4%	5.2%	5.5%	5.7%			

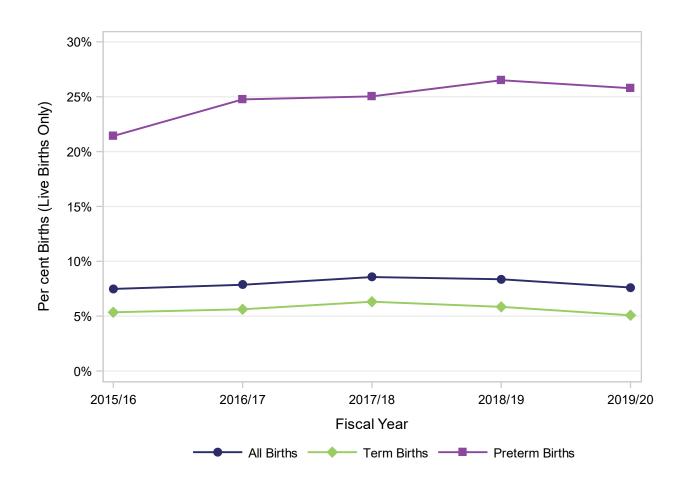
Weight for Gestational Age
Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year							
	2015/16	2016/17	2017/18	2018/19	2019/20			
Small for Gestational Age	8.0%	8.3%	8.3%	8.5%	8.3%			
Large for Gestational Age	10.1%	9.6%	9.4%	9.6%	9.0%			

## **Newborn Resuscitation**

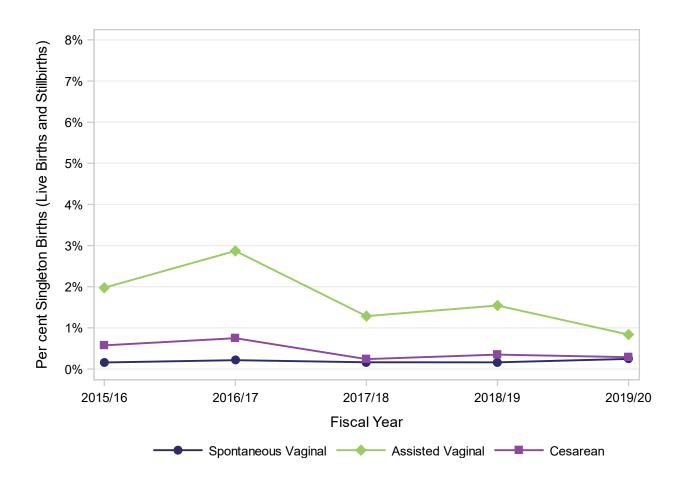
**by Gestational Age**Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
Gestational Age	2015/16	2016/17	2017/18	2018/19	2019/20		
All Births	7.4%	7.7%	8.3%	8.3%	7.4%		
Term Births	5.3%	5.6%	6.3%	5.8%	5.0%		
Preterm Births	21.4%	24.3%	23.5%	26.4%	25.5%		

# **Birth Injury**

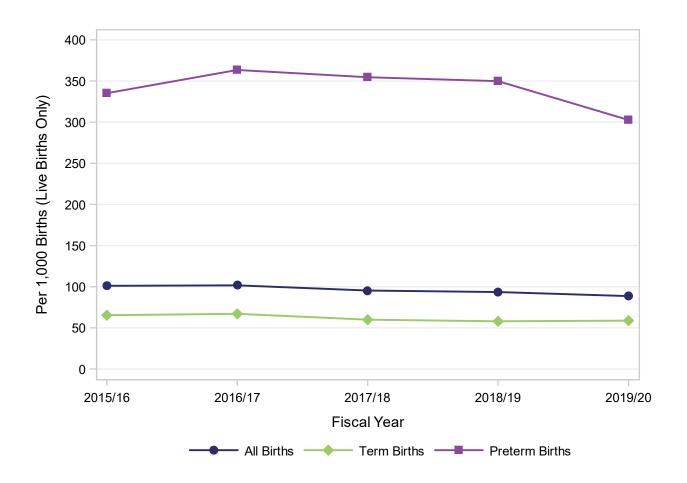
by Mode of Delivery
Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year						
Mode of Delivery	2015/16	2016/17	2017/18	2018/19	2019/20		
Spontaneous Vaginal	0.2%	0.2%	0.2%	0.2%	0.2%		
Assisted Vaginal	2.0%	2.9%	1.3%	1.5%	0.8%		
Cesarean	0.6%	0.7%	0.2%	0.4%	0.3%		

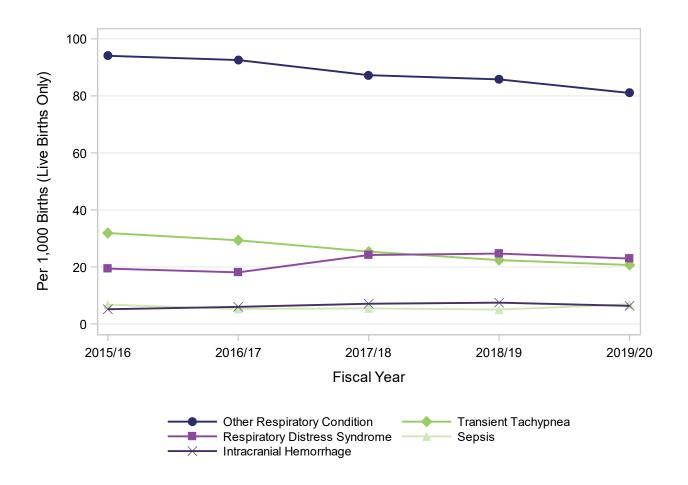
# **Neonatal Morbidity**

by Gestational Age
Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



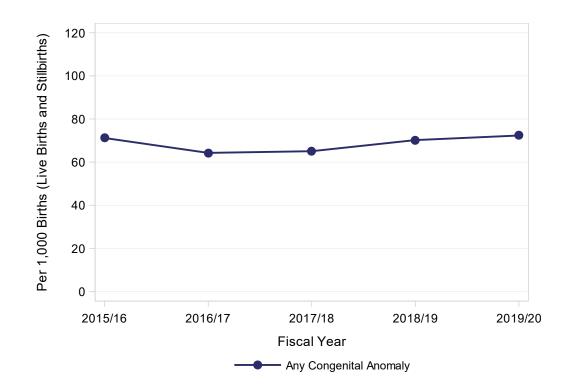
	Fiscal Year							
	2015/16	2016/17	2018/19	2019/20				
Gestational Age	per 1,000	per 1,000	per 1,000	per 1,000	per 1,000			
All Births	101.1	101.7	95.4	93.5	88.6			
Term Births	65.4	67.1	60.0	58.0	58.8			
Preterm Births	335.2	363.4	354.6	349.8	302.6			

**Type of Neonatal Morbidity**Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year								
	2015/16 2016/17 2		2017/18 2018/19		2019/20				
Type of Morbidity	per 1,000	per 1,000	per 1,000	per 1,000	per 1,000				
Other Respiratory Condition	94.1	92.6	87.3	85.8	81.0				
Transient Tachypnea	31.9	29.3	25.4	22.4	20.7				
Respiratory Distress Syndrome	19.4	18.1	24.2	24.7	22.9				
Sepsis	6.8	5.3	5.5	5.0	6.9				
Intracranial Hemorrhage	5.1	6.0	7.1	7.5	6.3				

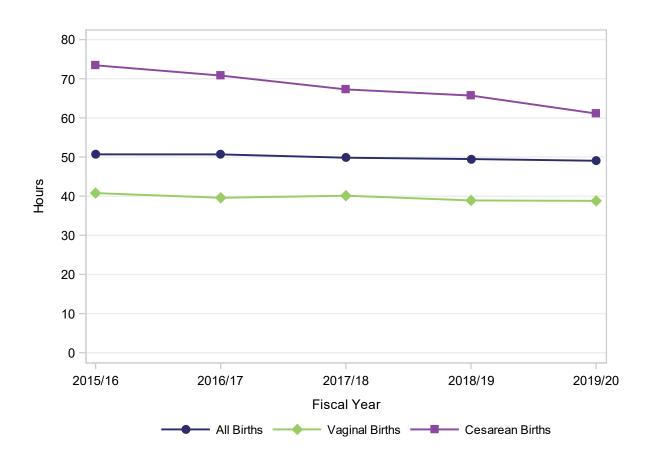
**Congenital Anomalies**Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



Specific Congenital Anomalies Per 1,000 Live Births and Stillbirths

		ı	Fiscal Year	•	
	2015/16	2016/17	2017/18	2018/19	2019/20
Type of Congenital Anomaly	per 1,000	per 1,000	per 1,000	per 1,000	per 1,000
Chromosomal	3.5	3.7	4.2	3.3	3.2
Circulatory System	24.9	18.1	22.7	21.5	24.4
Cleft Lip or Palate	1.9	3.2	0.9	1.9	2.4
Digestive System	9.5	9.0	8.2	8.3	9.1
Eye, Ear, Face, or Neck	3.6	4.2	2.8	5.4	4.1
Genital Organs	8.0	5.8	6.3	6.0	10.1
Musculoskeletal System	19.7	16.5	19.3	19.1	17.3
Nervous System	3.6	3.0	2.2	4.9	4.2
Respiratory System	3.3	3.4	2.6	2.9	3.8
Urinary System	7.3	8.9	6.4	10.0	8.7
Other Specific Anomaly	4.9	5.9	4.4	7.7	8.8

### Median Length of Stay (Hours) for the Birth Episode of Care Live Births by Mode of Delivery Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

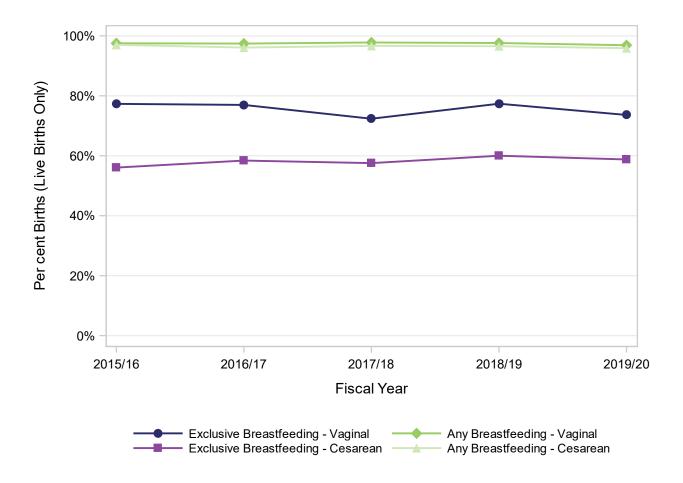


			Fiscal Year		
	2015/16	2016/17	2017/18	2018/19	2019/20
All Births	50.7	50.7	49.8	49.5	49.0
Vaginal Births	40.8	39.6	40.1	38.9	38.8
Cesarean Births	73.4	70.8	67.3	65.7	61.1

Delivery method is based on maternal information. Multifetal pregnancies where any newborn was born by cesarean are included in the Cesarean births category.

# **Breastfeeding During the Birth Admission by Mode of Delivery**

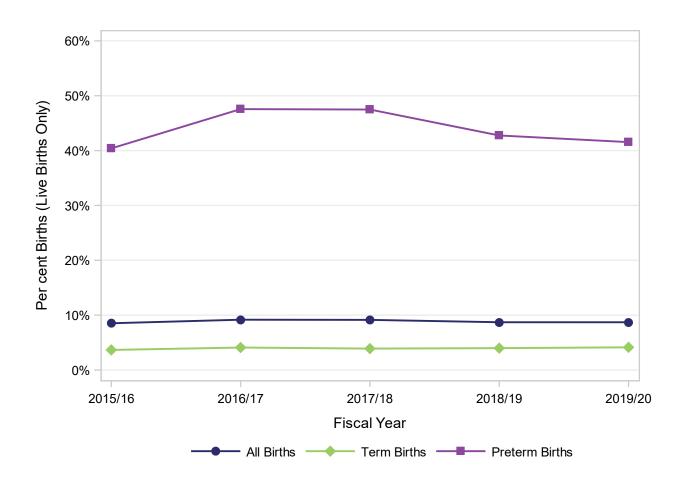
Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year							
	2015/16	2016/17	2017/18	2018/19	2019/20			
Exclusive Breastfeeding - Vaginal	77.3%	77.0%	72.4%	77.4%	73.6%			
Any Breastfeeding - Vaginal	97.5%	97.4%	97.8%	97.6%	96.9%			
Exclusive Breastfeeding - Cesarean	56.1%	58.4%	57.5%	60.0%	58.8%			
Any Breastfeeding - Cesarean	97.0%	96.1%	96.7%	96.5%	95.9%			

# Neonatal Intensive Care Use During Birth Episode of Care by Gestational Age

Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

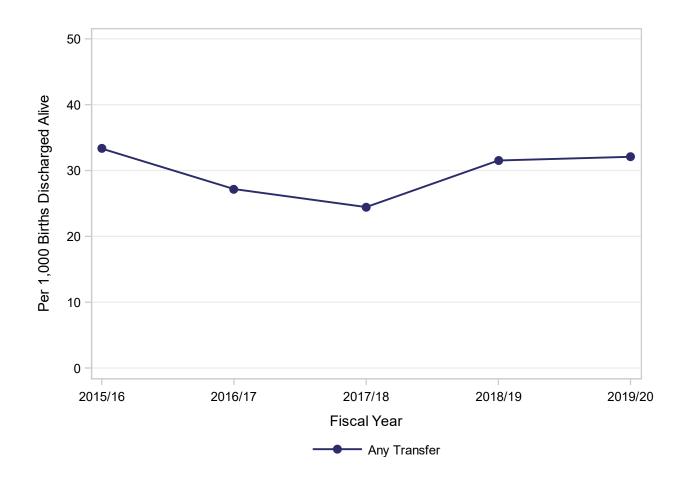


## Median Length of Stay (Days) in Neonatal Intensive Care During Birth Episode of Care by Gestational Age

			Fiscal Year		
	2015/16	2015/16 2016/17 2017/18			2019/20
All Births	31.0	26.0	24.0	26.0	27.0
Term Births	7.5	7.0	8.5	8.5	8.5
Preterm Births	38.0	33.0	28.0	34.0	31.5

NICU days are assigned based on baby's needs as defined by PSBC Neonatal Daily Classification Tool. Click here to access resources on the Neonatal Daily Classification Tool.

## **Transfer to Another Hospital from the Birth Admission**Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



			Fiscal Year		
	2015/16	2016/17	2017/18	2018/19	2019/20
	per 1,000	per 1,000	per 1,000	per 1,000	per 1,000
Any Transfer	33.3	27.2	24.4	31.5	32.1

Neonates may be transferred to another hospital for either maternal or neonatal indications. Includes transfers from an inpatient Birth Admission directly to another acute care facility. Definitions and specifications begin on Page 81 of this document.

## Transfer to Another Hospital from the Birth Admission Preterm Births

Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

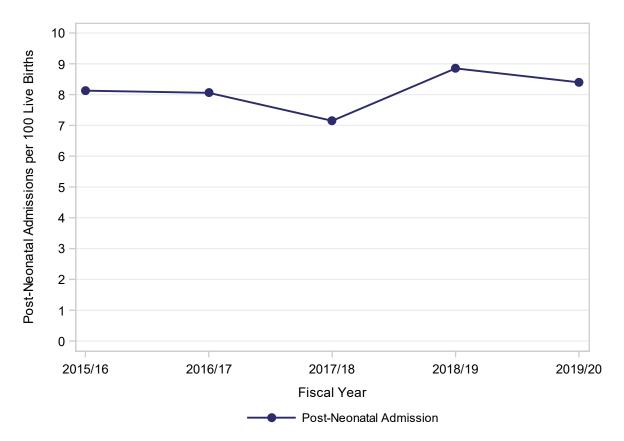


			Fiscal Year		
	2015/16	2016/17	2017/18	2018/19	2019/20
	per 1,000	er 1,000   per 1,000   per 1,000   per 1		per 1,000	per 1,000
Any Transfer	208.4	183.6	156.3	205.6	198.8

Neonates may be transferred to another hospital for either maternal or neonatal indications. Includes transfers from an inpatient Birth Admission directly to another acute care facility. Definitions and specifications begin on Page 81 of this document.

### **Post-Neonatal Admissions**

Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



### Leading Diagnoses Associated with Post-Neonatal Admissions Per cent Post-Neonatal Admissions

	Fiscal Year							
Most Responsible Diagnosis	2015/16	2016/17	2017/18	2018/19	2019/20			
Jaundice	27.1%	32.2%	36.1%	34.2%	37.5%			
Low Birth Weight or Preterm Birth	30.0%	22.4%	20.6%	23.2%	20.8%			
Congenital Anomalies	9.0%	11.0%	10.3%	10.7%	12.6%			
Feeding Problems	6.5%	4.2%	4.5%	5.8%	3.7%			
Other Infections	3.3%	3.0%	4.1%	2.9%	3.4%			
Respiratory Infections	3.8%	6.2%	5.6%	3.6%	3.0%			
Isoimmunization	2.7%	2.1%	2.3%	2.9%	2.0%			
Apnea	1.4%	1.1%	3.3%	2.4%	1.8%			
Urinary Tract Infections	1.6%	1.6%	1.9%	1.3%	1.7%			
Respiratory Distress	NR	1.4%	NR	0.8%	0.8%			

Post-Neonatal Admissions include inter-hospital transfers and readmissions from home.

NR: Rates and per cents based on numerators of 1 to 4 are not reported.

### **In-Hospital Perinatal Mortality**

Births in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

	Fiscal Year					
	2015/16	2016/17	2017/18	2018/19	2019/20	
In-Hospital Perinatal Mortality	per 1,000	per 1,000	per 1,000	per 1,000	per 1,000	
Crude Stillbirth Rate = Total Stillbirths / (Live Births + Stillbirths)	49.2	46.0	48.4	44.2	49.2	
Stillbirth Rate = Stillbirths >=500g / (Live Births + Stillbirths >=500g)	5.3	3.1	2.5	1.4	2.9	
Early Neonatal Mortality Rate = Early Neonatal Deaths / Live Births	2.8	4.0	3.1	3.4	3.9	
Perinatal Mortality Rate = Perinatal Deaths / (Live Births + Stillbirths >=500g)	8.0	7.1	5.6	4.9	6.9	
Late Neonatal Mortality Rate = Late Neonatal Deaths / Live Births	NR	1.0	1.3	NR	0.8	
Total Neonatal Mortality Rate = Total Neonatal Deaths / Live Births	3.2	5.0	4.4	3.9	4.8	
Post-Neonatal Mortality Rate = Post-Neonatal Deaths / Live Births	0.7	NR	0.9	NR	NR	
Infant Mortality Rate = Infant Deaths / Live Births	4.0	5.4	5.3	4.0	5.2	

### **DEFINITIONS:**

**Crude Stillbirths:** Infant born deceased at any birthweight. Includes late pregnancy terminations. **Stillbirths >=500g:** Infant born deceased weighing >=500g. Excludes late pregnancy terminations.

**Early Neonatal Deaths:** Infant born alive died in hospital between 0 and 6 days after birth.

**Perinatal Deaths:** Stillbirths >=500g + early neonatal deaths.

**Late Neonatal Deaths:** Infant born alive died in hospital between 7 and 27 days after birth.

**Total Neonatal Deaths:** Early neonatal deaths + late neonatal deaths.

Post-Neonatal Deaths: Infant born alive died in hospital between 28 and 364 days after birth.

**Infant Deaths:** Total neonatal death + post-neonatal deaths.

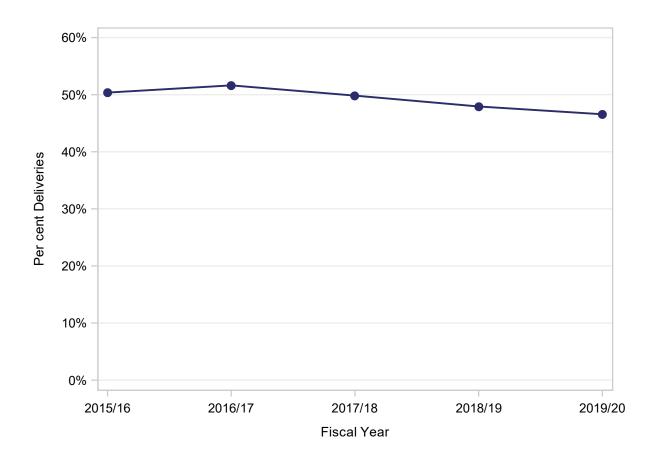
Section 3: Newborn Health.

## Perinatal Health Report 2015/16 to 2019/20 Provincial Health Services Authority

**Section 4: 'Normal Labour'** 

# **Deliveries with 'Normal Labour'**

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



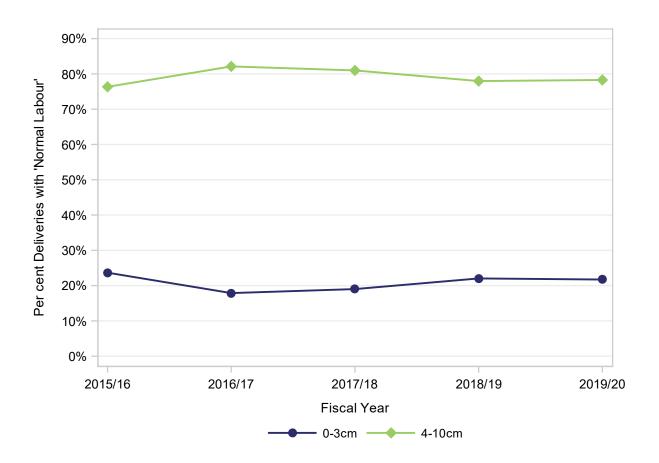
	Fiscal Year							
Health Authority	2015/16	2016/17	2017/18	2018/19	2019/20			
Provincial Health Services Authority	50.4%	51.6%	49.8%	47.9%	46.6%			

Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

# **Cervical Dilation at Admission**

## Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year							
Cervical Dilation at Admission	2015/16	2016/17	2017/18	2018/19	2019/20			
0-3cm	23.7%	17.9%	19.0%	22.0%	21.7%			
4-10cm	76.3%	82.1%	81.0%	78.0%	78.3%			
Missing	25.2%	20.6%	31.3%	23.1%	20.6%			

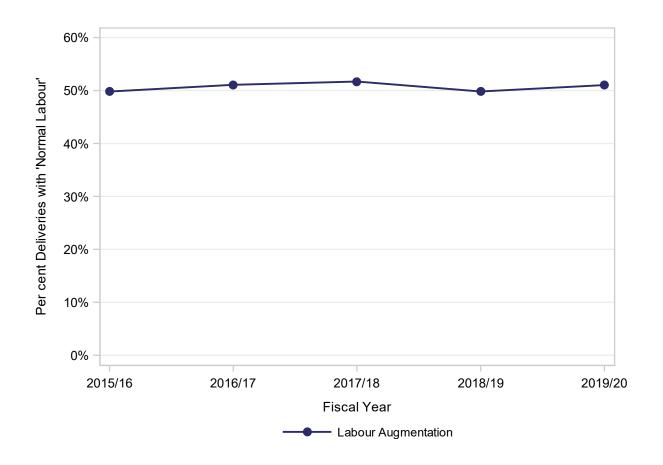
Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

The proportion of women dilated 0-3 or 4-10cm is based on women with non-missing dilation at admission. Definitions and specifications begin on Page 81 of this document.

# **Labour Augmentation**

# Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



# **Labour Augmentation by Mode of Delivery**

Deliveries with 'Normal Labour'

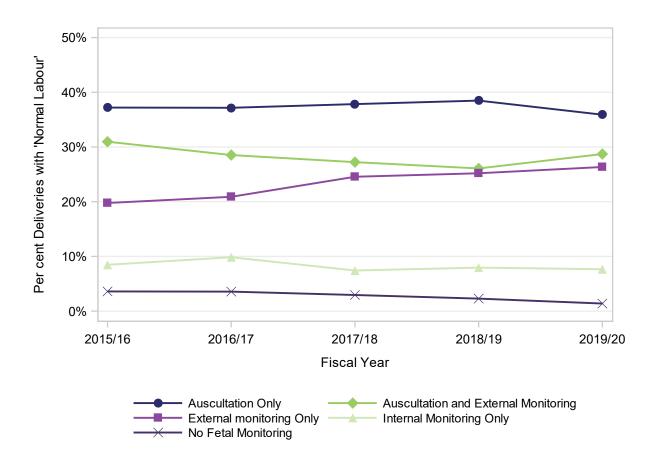
	Fiscal Year								
Mode of Delivery	2015/16	2016/17	2017/18	2018/19	2019/20				
Spontaneous Vaginal	43.5%	44.4%	45.4%	44.2%	45.1%				
Assisted Vaginal	67.0%	68.3%	66.2%	63.0%	65.1%				
Cesarean	73.8%	72.7%	74.3%	69.9%	71.4%				

Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

# **Method of Fetal Surveillance During Labour**

# Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



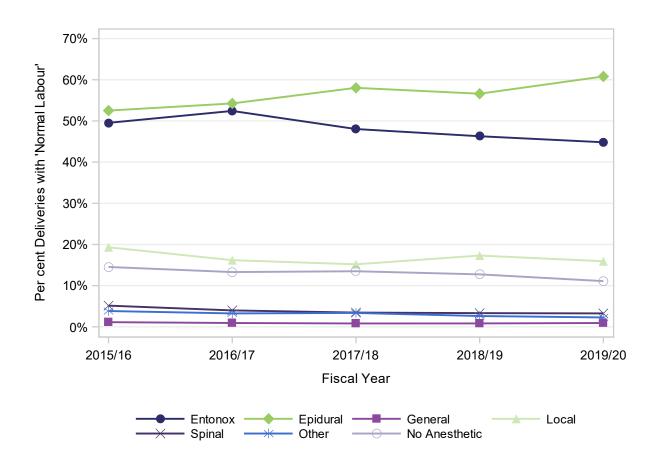
	Fiscal Year							
Method of Fetal Surveillance	2015/16	2016/17	2017/18	2018/19	2019/20			
Auscultation Only	37.2%	37.2%	37.8%	38.5%	35.9%			
Auscultation and External Monitoring	31.0%	28.5%	27.2%	26.1%	28.7%			
External Monitoring Only	19.8%	20.9%	24.6%	25.2%	26.3%			
Internal Monitoring Only	8.5%	9.8%	7.4%	8.0%	7.7%			
No Fetal Monitoring	3.6%	3.6%	2.9%	2.3%	1.4%			

Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

# **Anesthesia and Analgesia During Labour and Delivery**

## Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



			Fiscal Year		
Anesthesia or Analgesia	2015/16	2016/17	2017/18	2018/19	2019/20
Entonox	49.5%	52.4%	48.0%	46.3%	44.8%
Epidural	52.5%	54.2%	58.0%	56.6%	60.8%
General	1.1%	0.9%	0.8%	0.8%	0.9%
Local	19.3%	16.2%	15.2%	17.3%	15.9%
Spinal	5.1%	4.0%	3.5%	3.3%	3.3%
Combined Spinal and Epidural	-	-	-	NR	NR
Other	3.8%	3.3%	3.4%	2.6%	2.3%
No Anesthetic	14.5%	13.3%	13.5%	12.7%	11.1%

Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

Effective April 2015, Combined spinal and epidural anaesthetic (CSE) is coded when a combined spinal and epidural are given at the same time. NR: Rates and per cents based on numerators of 1 to 4 are not reported.

Multiple agents may be used.

# Median Length of Labour Stages (Hours) by Mode of Delivery

# Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020

	First Stage (Hours)				Second Stage (Hours)					
Mode of Delivery	15/16	16/17	17/18	18/19	19/20	15/16	16/17	17/18	18/19	19/20
Spontaneous Vaginal	5.5	5.4	5.6	5.5	5.6	0.6	0.5	0.7	0.6	0.6
Assisted Vaginal	9.3	9.5	9.5	8.8	9.0	2.7	2.7	2.6	2.6	2.5
Cesarean	11.4	10.8	12.0	10.7	9.8	4.4	4.0	4.4	4.1	4.1

	Antepartum LOS (Hours)			P	Postpartum LOS (Hours)			Total LOS (Hours)							
Mode of Delivery	15/16	16/17	17/18	18/19	19/20	15/16	16/17	17/18	18/19	19/20	15/16	16/17	17/18	18/19	19/20
Spontaneous Vaginal	4.7	4.6	5.3	4.9	5.3	35.9	34.5	34.8	34.9	34.4	40.9	39.8	40.6	40.5	40.3
Assisted Vaginal	10.0	10.4	11.1	10.5	10.2	49.7	49.7	49.1	48.9	46.9	60.6	60.6	60.7	59.0	59.0
Cesarean	13.2	12.5	13.2	11.9	12.2	71.3	69.1	66.0	64.1	62.4	84.2	81.5	81.3	75.9	75.5

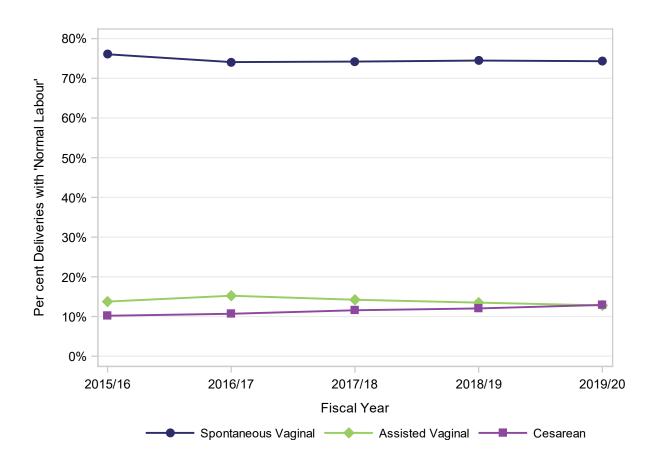
Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

Deliveries outside acute care facilities are excluded.

# **Mode of Delivery**

# Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



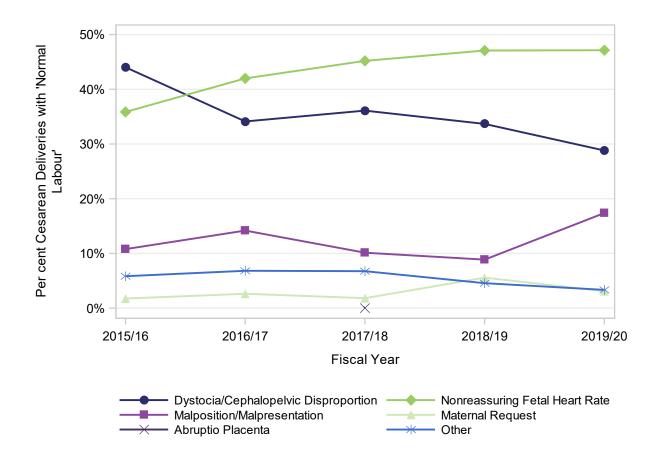
	Fiscal Year							
Mode of Delivery	2015/16	2016/17	2017/18	2018/19	2019/20			
Spontaneous Vaginal	76.0%	74.1%	74.2%	74.5%	74.3%			
Assisted Vaginal	13.8%	15.2%	14.2%	13.5%	12.8%			
Cesarean	10.2%	10.7%	11.6%	12.0%	12.9%			

Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

# **Primary Indication for Cesarean Delivery**

# Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year							
Primary Indication for Cesarean Delivery	2015/16	2016/17	2017/18	2018/19	2019/20			
Dystocia/Cephalopelvic Disproportion	44.0%	34.1%	36.1%	33.7%	28.8%			
Nonreassuring Fetal Heart Rate	35.9%	42.0%	45.2%	47.1%	47.1%			
Malposition/Malpresentation	10.8%	14.2%	10.1%	8.9%	17.4%			
Maternal Request	1.7%	2.6%	1.8%	5.6%	3.1%			
Abruptio Placenta	NR	NR	0.0%	NR	NR			
Other	5.8%	6.8%	6.8%	4.6%	3.3%			

Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

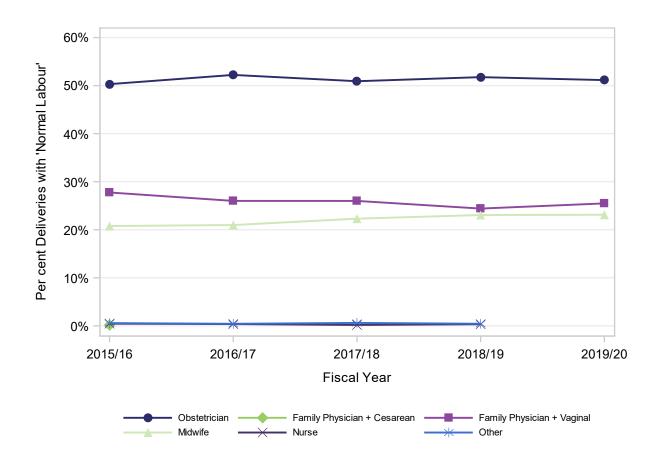
Selected indications are included in the figure; all indications are included in the table.

NR: Rates and per cents based on numerators of 1 to 4 are not reported.

# **Delivery Provider**

# Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



			Fiscal Year		
Delivery Provider	2015/16	2016/17	2017/18	2018/19	2019/20
Obstetrician	50.3%	52.2%	50.9%	51.8%	51.2%
Surgeon	NR	NR	NR	NR	NR
Family Physician + Cesarean	0.1%	NR	NR	NR	NR
Family Physician + Vaginal	27.8%	26.0%	26.0%	24.4%	25.5%
Midwife	20.8%	21.0%	22.3%	23.1%	23.1%
Nurse	0.4%	0.4%	0.2%	0.3%	NR
Other	0.6%	0.4%	0.6%	0.4%	NR

Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

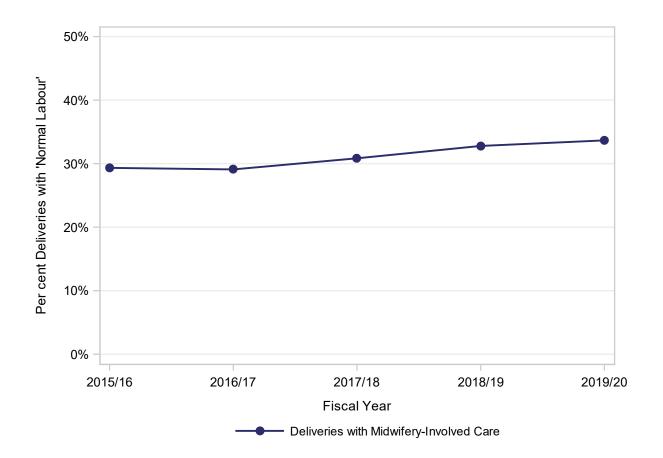
Describes the training level of the provider who delivered the baby. This may not be the same type of health care professional who provided antenatal care. NR: Rates and per cents based on numerators of 1 to 4 are not reported.

Definitions and specifications begin on Page 81 of this document.

# **Deliveries with Midwifery-Involved Care**

## Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



# Deliveries with Midwifery-Involved Care by Mode of Delivery Deliveries with 'Normal Labour'

			Fiscal Year		
	2015/16	2016/17	2017/18	2018/19	2019/20
Spontaneous Vaginal	29.4%	29.3%	32.6%	34.2%	34.4%
Assisted Vaginal	25.3%	26.3%	24.3%	29.8%	29.8%
Cesarean	34.1%	31.2%	27.3%	27.3%	33.1%

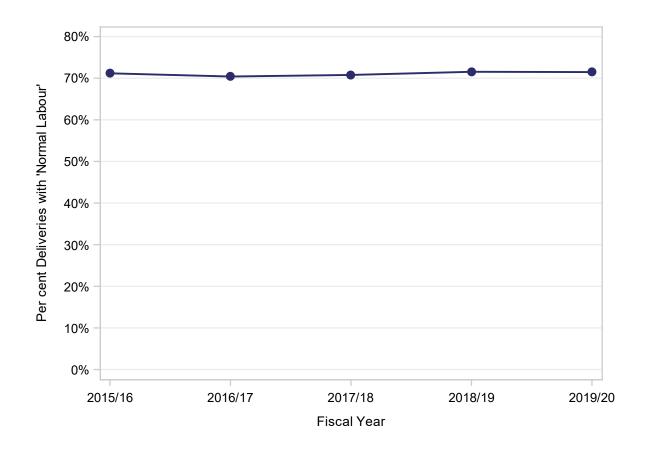
Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

Indicates if a registered midwife was involved at any point during prenatal care or the delivery episode. May not be the provider who performs the delivery. Definitions and specifications begin on Page 81 of this document.

# **Deliveries with 'Normal Childbirth'**

#### Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



	Fiscal Year							
	2015/16	2016/17	2017/18	2018/19	2019/20			
'Normal Childbirth'	71.2%	70.4%	70.8%	71.5%	71.5%			

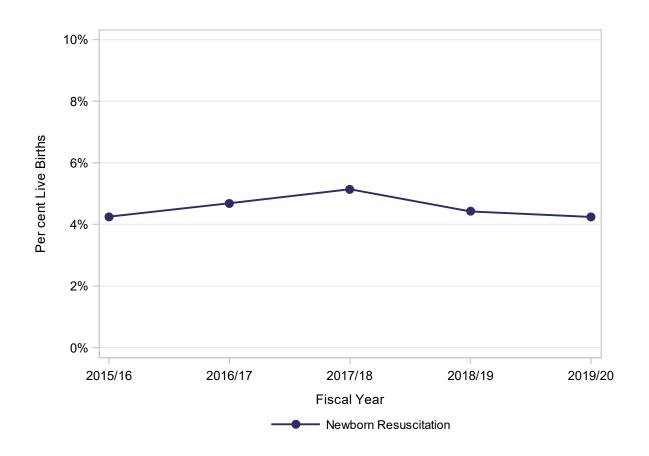
Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

'Normal Childbirth' excludes the following: spinal anaesthesia, general anaesthesia, vacuum-assisted delivery, forceps-assited delivery, cesarean delivery, or episiotomy.

#### **Newborn Resuscitation**

## Babies Born from Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



# **Newborn Resuscitation by Mode of Delivery**

Babies Born from Deliveries with 'Normal Labour'

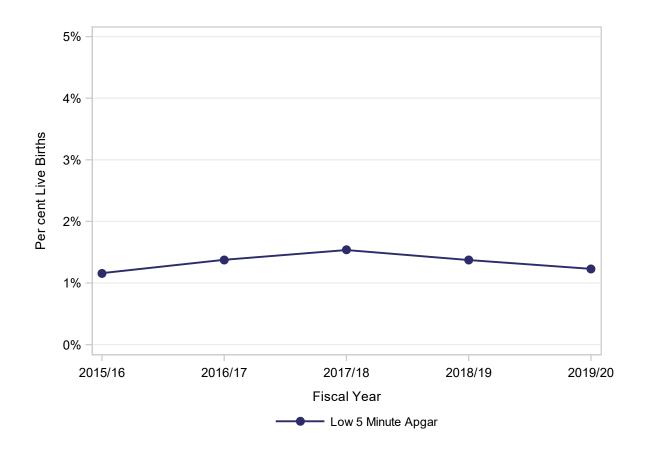
	Fiscal Year						
Mode of Delivery	2015/16	2016/17	2017/18	2018/19	2019/20		
Spontaneous Vaginal	2.5%	3.0%	3.5%	3.1%	2.8%		
Assisted Vaginal	8.6%	9.6%	6.8%	8.8%	7.0%		
Cesarean	11.4%	9.4%	13.8%	7.6%	9.8%		

Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

# **Low 5 Minute Apgar Score**

## Babies Born from Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



# Low 5 Minute Apgar Score by Mode of Delivery Babies Born from Deliveries with 'Normal Labour'

	Fiscal Year						
Mode of Delivery	2015/16	2016/17	2017/18	2018/19	2019/20		
Spontaneous Vaginal	0.6%	0.8%	1.1%	1.2%	0.7%		
Assisted Vaginal	2.2%	2.4%	1.7%	2.0%	1.2%		
Cesarean	4.1%	4.2%	4.4%	1.5%	4.5%		

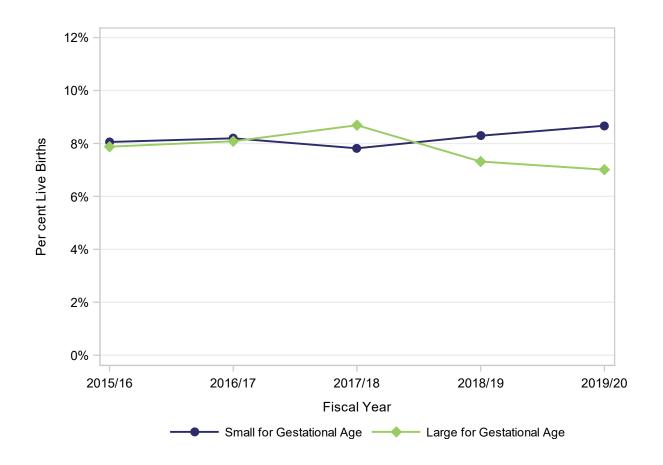
Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

Low 5 Minute Apgar Score defined as below 7 out of 10 at five minutes after birth.

# Weight for Gestational Age

# Babies Born from Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



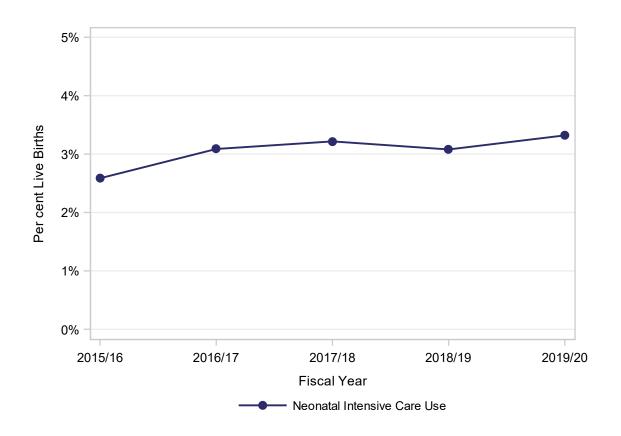
		Fiscal Year						
	2015/16	2016/17	2017/18	2018/19	2019/20			
Small for Gestational Age	8.1%	8.2%	7.8%	8.3%	8.7%			
Large for Gestational Age	7.9%	8.1%	8.7%	7.3%	7.0%			

Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

# **Neonatal Intensive Care Use During Birth Episode of Care**

## Babies Born from Deliveries with 'Normal Labour'

Deliveries in Provincial Health Services Authority: April 1, 2015 - March 31, 2020



# Neonatal Intensive Care Use During Birth Episode by Mode of Delivery Babies Born from Deliveries with 'Normal Labour'

	Fiscal Year					
Mode of Delivery	2015/16	2016/17	2017/18	2018/19	2019/20	
Spontaneous Vaginal	1.6%	2.2%	2.4%	2.6%	2.3%	
Assisted Vaginal	4.5%	4.6%	5.5%	4.8%	5.3%	
Cesarean	7.0%	6.8%	5.5%	4.1%	7.1%	

Deliveries with 'Normal Labour' are those where the woman has no history of cesarean delivery and delivers a singleton infant with the head as the presenting part between 37 and 41 estimated weeks� gestation after spontaneous onset of labour.

NICU days are assigned based on baby's needs as defined by PSBC Neonatal Daily Classification Tool. Click here to access resources on the Neonatal Daily Classification Tool. Definitions and specifications begin on Page 81 of this document.

# **Definitions**

## **Section 1: Maternal Health**

#### **Deliveries to Residents of Other Health Authorities**

- Deliveries to women who reside in a different Health Authority.
  - Deliveries at home with a registered midwife as delivery provider are always considered within the home health authority
  - For deliveries in the Provincial Health Services Authority, this represents women who are not residents of Vancouver Coastal.

#### **Parity**

• Indicates whether a woman delivered a previous pregnancy ≥20 weeks gestation or ≥500g. For nulliparous women, this is the first pregnancy meeting these criteria. Parous women have had at least one previous pregnancy meeting these criteria.

#### **Maternal Age at Delivery**

• Maternal age, in completed years, at delivery.

#### **Antenatal Care Visits**

- <5 Visits Women with fewer than five antenatal care visits documented in the PDR.
- <u>Missing</u> Women with no information documented about the number of antenatal care visits.

#### **Pre-Pregnancy Body Mass Index (BMI)**

Calculated only where pre-pregnancy weight and height are complete.

- Pre-pregnancy weight (kg)/(height (in cm))<sup>2</sup>
- Underweight BMI <18.5.
- Normal Weight BMI between 18.5 and 24.9.
- Overweight BMI between 25.0 and 29.9.
- Obese BMI ≥ 30.0.
- BMI Missing pre-pregnancy weight and/or height are not documented.

#### **Appropriate Weight Gain During Pregnancy**

Calculated only where pre-pregnancy weight, admission weight, and height are complete.

 Categorizes weight gain during pregnancy into low, appropriate, or high according to guidelines published by the Institute of Medicine.

#### **Hypertensive Disorders of Pregnancy**

Reflects only the most severe form of hypertension according to the hierarchy below. Women may have more than one type of hypertension diagnosed.

- 1. <u>Eclampsia</u> mother had eclampsia diagnosed during pregnancy. Mother may have had pre-existing or gestational hypertension.
- 2. <u>HELLP</u> mother had HELLP syndrome (<u>H</u>emolysis, <u>E</u>levated <u>L</u>iver enzymes, and <u>L</u>ow <u>P</u>latelet count) diagnosed during pregnancy.
- 3. <u>Pre-Existing Hypertension with Pre-Eclampsia</u> mother had a documented hypertensive disorder before pregnancy and also had pre-eclampsia diagnosed in pregnancy.
- 4. <u>Pre-Eclampsia</u> mother had pre-eclampsia diagnosed during pregnancy. Mother may also have had gestational hypertension.

- 5. <u>Pre-Existing Hypertension</u> mother had a documented hypertensive disorder before pregnancy. Mother may also have had gestational hypertension.
- 6. Gestational Hypertension mother had hypertension diagnosed during pregnancy.
- 7. Unspecified Hypertension mother had hypertension diagnosed during pregnancy, but the specific type is not recorded.
- 8. No Hypertension no hypertensive conditions were documented by a care provider.

#### **Diabetes Mellitus in Pregnancy**

- <u>Pre-Existing Diabetes</u> mother had a diagnosis of diabetes mellitus type 1 or 2 documented by care provider before pregnancy.
- <u>Gestational Diabetes</u> mother had gestational diabetes documented by care provider during pregnancy.

#### **Substance Use During Pregnancy**

- <u>Cigarette Use</u> care provider documented mother reports smoking cigarettes at any time during the pregnancy. Includes women who stopped or reduced smoking during pregnancy.
- <u>Alcohol as Risk</u> care provider documents alcohol as a risk in the pregnancy. Alcohol use prior to the woman knowing she was pregnant is not included.
- <u>Binge Drinking</u> care provider documents mother consumed ≥ 4 alcoholic drinks at one time during the current pregnancy.
- Other Drug Use care provider documented that mother reports use of drugs (heroin/opiates, methadone, cannabinoids, stimulants, or solvents) at any time during the pregnancy OR care provider lists use of prescription, 'other' or unknown other drug as a risk to the pregnancy. Drug use prior to the woman knowing she was pregnant may be included.

#### **Maternal Screening Tests**

- <u>Hepatitis B Test Done</u> mother was screened for the Hepatitis B virus (Hepatitis B surface antigen, or HBsAg) during pregnancy.
- <u>HIV Test Done</u> mother was screened for the Human Immunodeficiency Virus (HIV) during pregnancy.
- <u>Group B Strep Test Done</u> Woman who delivered a baby at 35 weeks gestation or more was screened for Group B Streptococcus.

#### **Uptake of Prenatal Genetic Screening Program**

- Indicates whether the woman had sufficient biological markers tested to complete screening for at least one of the following conditions: open neural tube defect, trisomy, 18, or trisomy 21.
- Includes women with any of the following combinations of samples on prenatal genetic screening or diagnostic tests: Integrated Prenatal Screen (IPS), Serum Integrated Prenatal Screen (SIPS), Quad screen (QUAD), nuchal translucency (NT) ultrasound plus QUAD, NT plus pregnancy-associated plasma protein A (PAPP-A), NT ultrasound, or Alpha-fetoprotein (AFP) during pregnancy as offered by the <u>BC Prenatal Genetic</u> <u>Screening Program</u>.
- Women who exclusively undergo privately paid screening tests are not included.

#### Types of Down Syndrome and Trisomy 18 Screening Performed

 Calculated only for women who had prenatal genetic screening for trisomy 21 and 18 performed as offered by the <u>BC Prenatal Genetic Screening Program.</u>

- Indicates the type of prenatal genetic screening for trisomy 21 and 18 performed.
- NT ultrasound plus QUAD, NT ultrasound plus PAPP-A, and NT ultrasound are included as part of IPS.
- Women who exclusively undergo privately paid screening tests are not included.

#### **Uptake of Invasive Diagnostic Testing by Indication**

- Includes women that had chorionic villus sampling or amniocentesis performed.
- Indicates the type indication for invasive diagnostic testing to be performed.

#### **Use of Artificial Reproductive Technology**

 Use of in vitro fertilization or other artificial reproductive technology (e.g. ovulation induction, intracytoplasmic sperm injection [ICSI], embryo transfer) to conceive the current pregnancy.

# **Section 2: Labour and Delivery**

#### **Labour Augmentation**

Labour for the current delivery was augmented by a care provider. Any of the following methods may be used:

- Artificial Rupture of Membranes
- Oxytocin woman received oxytocin, pitocin, or syntocinon to augment labour.
- Other a method not specified above was used to augment labour.

#### **Labour Induction**

Labour for the current delivery was induced by a care provider. Any of the following methods may be used:

- Artificial Rupture of Membranes
- Oxytocin woman received oxytocin, pitocin, or syntocinon to initiate labour.
- Prostaglandin woman received a prostaglandin to initiate labour.
- Other a method not specified above was used to initiate labour.

#### **Primary Indication for Labour Induction**

Primary reason noted in the maternal chart for labour induction. In the case of multiples, the reason noted for the first baby is assigned to the entire delivery.

- <u>Prelabour Rupture of Membranes</u> rupture of membranes before the onset of uterine contractions at term.
- <u>Post Dates</u> the pregnancy has continued past the due date (41 completed weeks gestation).
- <u>Hypertension in Pregnancy</u> woman had high blood pressure, including pre-existing or gestational hypertension.
- Other Maternal Condition woman had a condition other than those specified above.
- Fetal Compromise medical concern about the health of the fetus.
- <u>Diabetes</u> woman had diabetes of any type (gestational, type 1, or type 2).
- Fetal Demise
- Logistics inability for woman to access supportive health care in reasonable time.
- Antepartum Hemorrhage woman had bleeding after 20 weeks' gestation but before labour.
- Chorioamnionitis woman had a cervicovaginal infection.
- Other other reason not captured above.

Unknown – reason for induction is unclear, unknown, or not documented.

#### **Fetal Surveillance During Labour**

- Auscultation Only fetal surveillance was conducted only using intermittent auscultation.
- <u>Auscultation and External Electronic Monitoring</u> fetal surveillance was conducted using intermittent auscultation and external electronic fetal monitoring.
- External Electronic Monitoring Only fetal surveillance was conducted only using external electronic fetal monitoring.
- <u>Internal Electronic Monitoring Only</u> fetal surveillance was conducted only using internal electronic fetal monitoring.
- No Fetal Monitoring no fetal monitoring was conducted during labour.

#### **Mode of Delivery**

- Vaginal
  - Spontaneous the baby was delivered vaginally without assistance of vacuum or forceps extractors.
  - Assisted Vaginal the newborn was delivered vaginally with the assistance of vacuum and/or forceps extraction.
    - <u>Vacuum</u> the baby was delivered vaginally with the assistance of a vacuum extractor.
    - <u>Forceps</u> the baby was delivered vaginally with the assistance of forceps.
    - <u>Forceps and Vacuum</u> the baby was delivered vaginally with the assistance of vacuum and forceps extractors.
- Cesarean the baby was delivered by an incision in the mother's abdomen.
  - <u>Elective Primary</u> woman without a previous cesarean had a cesarean delivery with elective timing.
  - <u>Elective Repeat</u> woman with a history of cesarean delivery had a cesarean delivery with elective timing.
  - <u>Emergency Primary</u> woman without a previous cesarean had a cesarean delivery with urgent or emergent timing.
  - Emergency Repeat woman with a history of cesarean delivery had a cesarean delivery with urgent or emergent timing.

#### **Perineal Trauma**

- <u>Third or Fourth Degree Laceration</u> the woman experienced a significant perineal tear during delivery.
- Cervical Tear the woman experienced a cervical tear during delivery.
- Episiotomy an episiotomy was performed during delivery.

#### **Primary Indication for Cesarean Delivery**

Primary reason noted in the maternal chart for cesarean delivery. For multifetal pregnancies, this reflects the reason the first baby was delivered by cesarean. This may not be the first baby delivered (e.g. if the first baby was delivered vaginally and the second baby by cesarean).

- Repeat Cesarean woman with a history of cesarean is not a VBAC candidate and has a medical indication for repeat cesarean delivery.
- <u>Nonreassuring Fetal Heart Rate</u> increased or decreased fetal heart rate (tachycardia or bradycardia), especially during and after uterine contractions.

- <u>Dystocia/Cephalopelvic Disproportion</u> abnormal of difficult labour. Includes failure to progress, incoordinate uterine activity, and cephalopelvic disproportion (large baby for maternal pelvis).
- <u>VBAC Declined/Maternal Request</u> woman was eligible for a vaginal birth after previous cesarean (VBAC) but declines, OR woman with or without a previous cesarean requests a cesarean delivery.
- <u>Breech</u> the fetus' buttocks were the presenting part.
- <u>Malposition/Malpresentation</u> the orientation of the fetal head and or body to the maternal pelvis is not favourable for a vaginal delivery (e.g. occipitoposterior position or transverse lie). Excludes breech presentation.
- <u>Placenta Previa</u> the placenta is low in the uterus, partially or completely covering the cervix.
- Abruptio Placenta premature separation of the placenta from the uterus.
- <u>Active Herpes</u> mother had an active herpes outbreak that could be transmitted to the infant during vaginal delivery.
- Other other reason not captured.
- <u>Unknown</u> reason for cesarean is unclear, unknown, or not documented.

#### Vaginal Birth after Cesarean

- <u>VBAC Eligible</u> woman was either noted by a care provider as being eligible for VBAC
  in this pregnancy, OR whose eligibility was unknown and had a singleton pregnancy with
  the head as the presenting part.
- <u>VBAC Attempted</u> women was were either noted by a care provider as having attempted a VBAC, OR whose attempt at VBAC was unknown but whose labour was either augmented or induced.
- <u>VBAC Success</u> women who were eligible for and attempted a VBAC and delivered vaginally.

#### **Anesthetic/Analgesic Use During Labour and Delivery**

- Entonox the mother received entonox (nitrous oxide gas) for pain management.
- <u>Epidural</u> the mother received anesthesia in the epidural space of the spine for pain management.
- <u>General</u> the mother received general anesthesia for pain management.
- Local the mother received localized anesthetic agents for pain management.
- <u>Spinal</u> the mother received anesthesia in the subarachnoid space of the spine for pain management.
- <u>Combined Spinal and Epidural</u> the mother received anesthesia both in the subarachnoid space and epidural space of the spine for pain management.
- Other mother received another type of anesthetic or analgesic agent including pudendal anesthesia not specified above.
- No Anesthetic no analgesic or anesthetic agents were used for pain management.

#### **Health Care Providers**

- <u>Delivery Provider</u> describes the training level of the individual who delivered the baby. May not be the same type of care provider as a woman used for her antenatal care. In the case of multifetal pregnancies, the highest training level of any delivering provider is assigned to the delivery.
  - o Family Physician + Vaginal a family physician performed a vaginal delivery.

- <u>Family Physician + Cesarean</u> a family physician performed a cesarean delivery.
- <u>Deliveries With Midwifery-Involved Care</u> a registered midwife was involved at any point in maternal or newborn care. A registered midwife may not have been the delivery provider.

#### **Length of Stay for Delivery Episode of Care**

- <u>Antepartum Length of Stay</u> hours between when a woman is admitted to an acute care facility and when she delivers a baby.
- <u>Postpartum Length of Stay</u> hours between when a woman delivers a baby in an acute care facility and her discharge from the Delivery Episode of Care.
- <u>Total Length of Stay</u> hours between when a woman is admitted to an acute care facility for delivery and her discharge from the Delivery Episode of Care.

#### **Maternal Morbidity**

Morbidity may be documented during any Maternal Admission.

- <u>Liver Complications</u> mother had confirmed or suspected cholestatis, acute fatty liver, or liver hematoma.
- <u>Postpartum Hemorrhage with Transfusion</u> mother had a postpartum bleed and received blood products via transfusion.
- Urinary Tract Infection
- Sepsis mother had confirmed or suspected sepsis, including puerperal sepsis.
- <u>Wound Infection</u> mother had confirmed or suspected infection or disruption of an obstetric or surgical wound.
- <u>HELLP</u> mother had confirmed or suspected HELLP syndrome (Hemolysis, Elevated Liver enzymes, and Low Platelet count).
- <u>Anesthetic Complications</u> mother had a confirmed or suspected complication related to the anesthetic administered during the delivery episode. Spinal or epidural headache and unspecified complications are excluded.
- Antepartum Hemorrhage with Transfusion mother had an antepartum (≥20 weeks' gestation) or intrapartum bleed and received blood products via transfusion during the delivery episode.
- Eclampsia mother had confirmed or suspected eclampsia.
- Shock mother had confirmed or suspected obstetric shock.
- Pulmonary Embolism mother had a confirmed or suspected blood clot in the lungs.
- <u>Postpartum Hemorrhage with Hysterectomy</u> mother had a postpartum bleed and underwent a complete or subtotal (partial) hysterectomy.
- Stroke mother had a confirmed or suspected stroke.

#### **Adverse Outcome of Labour or Delivery**

Maternal adverse events are included during the Delivery Admission. Among singleton deliveries.

- <u>Maternal Severe Adverse Event</u> woman experienced uterine rupture during labour, assisted ventilation or resuscitation, or in-hospital death.
- <u>Maternal Moderate Adverse Event</u> woman experienced third or fourth degree perineal tear; blood transfusion; or unanticipated operative procedure
- Newborn Severe Adverse Event singleton baby was stillborn or died in-hospital
- Newborn Moderate Adverse Event
  - o Singleton baby ≥2,000 grams at birth experienced birth trauma, OR

 Singleton baby at term ≥2,500 grams at birth without a congenital anomaly or hydrops was born at a facility without a NICU and transferred to a facility with a NICU within 24 hours, admitted to NICU ≥ 2 days, or had an Apgar at 5 minutes

#### **Maternal Transfer to Another Hospital**

- Women may be transferred to another hospital for either maternal or neonatal indicatons.
  - NOTE: Effective April 1, 2014, women transferred directly to acute care from a delivery at home may be included in these transfer indicators. See page vi for more information.
- Any Transfer woman was transferred from the Delivery Admission to a(n) (different) acute care facility.

#### **Post-Delivery Admissions**

- Total number of eligible inter-hospital transfers or readmissions among women who
  delivered a baby. A woman can have more than one Post-Delivery Admission. Ratio of
  Post-Delivery Admissions per 100 deliveries.
  - Admissions with a most responsible diagnosis of Z76.3 (Healthy person accompanying sick person) are excluded.
- <u>Diagnosis associated with Post-Delivery Admission</u> the diagnosis that accounted for the majority of time the woman stayed in hospital. May not be the reason for admission. Per 100 Post-Delivery Admissions.
  - The following account for the majority of diagnoses associated with Post-Delivery Admissions for 2015/16 to 2019/20, inclusive:
    - Routine Postpartum Care —care and examination immediately after delivery or routine postpartum follow-up, including change or removal of drains and planned wound closure.
    - Postpartum Hemorrhage
    - <u>Postpartum Infection</u> includes sepsis, obstetric wound infection, urinary tract infection, or post-procedural infection.
    - Other Diseases Complicating Pregnancy Diseases of organ systems that complicate or are aggravated by pregnancy.
    - Hypertension or Eclampsia includes essential hypertension, gestational hypertension, pre-eclampsia, eclampsia, or HELLP.
    - Other Wound Issues includes care of perineal or vaginal tears, uterine rupture or dehiscence, disruption or hematoma of surgical wound, or cardiac surgical complications.
    - Complications of Anesthesia reactions to or complications of anesthesia.
    - <u>Care of Breasts</u> includes breast infection, lactation problems, or supervision of lactation mother.
    - Retained Placenta Without Hemorrhage
    - <u>Pregnancy-Associated Mental Health</u> includes postpartum depression and puerperal psychosis.

### **Section 3: Newborn Health**

#### **Birth Type**

Defined in accordance with BC Vital Stats.

- <u>Live Birth</u> baby displayed signs of life (breathing, heart beat, pulsation of umbilical cord, or movement of voluntary muscle) at birth.
- <u>Stillbirth</u> baby born at ≥20 weeks' estimated gestation or ≥500 grams birthweight does not display any of the above signs. Fetal death may have occurred <20 weeks' gestation.

#### **Multiple Gestation**

There was more than one fetus in the pregnancy (twin, triplet, or quadruplet).

#### **Gestational Age**

- <u>Term</u> baby was delivered at or after 37 completed weeks' estimated gestation.
- Preterm baby was delivered before 37 completed weeks' estimated gestation.
  - <u>latrogenic Preterm</u> baby was delivered following induced labour or by cesarean delivery without labour, before 37 completed weeks' estimated gestation.
  - Spontaneous Preterm baby was delivered following onset of spontaneous labour before 37 completed weeks' estimated gestation.

#### Weight for Gestational Age

- <u>Small for Gestational Age</u> babies born weighing less than the 10<sup>th</sup> percentile of weight for their sex and gestational age. Based on BC-specific growth curves available here.
- <u>Large for Gestational Age</u> babies born weighing more than the 90<sup>th</sup> percentile of weight for their sex and gestational age. Based on BC-specific growth curves available <u>here</u>.

#### **Low Birthweight Singletons**

 Singleton babies born weighing less than 2,500 grams. Includes both preterm and term babies

#### **Newborn Resuscitation**

- Baby received resuscitation by intermittent positive pressure, chest compressions, or drugs. Captures interventions up to 60 minutes of age or until admission to neonatal intensive care, whichever came first.
  - NOTE: Drugs may be given for either resuscitation or stabilization.

#### Birth Injury

• Baby sustained a confirmed or suspected injury to the skeleton, organs, or nerves during birth.

#### **Neonatal Morbidity**

Morbidity may be documented during any Baby Admission.

- Other Respiratory Condition baby had a confirmed or suspected respiratory condition (other than respiratory distress syndrome or transient tachypnea).
- Transient Tachypnea baby had confirmed or suspected transient tachypnea.
- Respiratory Distress Syndrome baby had confirmed or suspected respiratory distress syndrome.
- Sepsis baby had confirmed or suspected sepsis.
- <u>Intracranial Hemorrhage</u> baby had a confirmed or suspected brain bleed.

#### **Congenital Anomalies**

Anomaly may be diagnosed during any Baby Admission.

- Baby has a confirmed or suspected congenital anomaly noted by a care provider.
  - <u>Chromosomal</u> includes Trisomy 13, 18, and 21; sex chromosome abnormalities (i.e. Turner's syndrome, Kleinfelter's syndrome); and other monosomies, deletions, and chromosomal reattangements.
  - <u>Circulatory System</u> includes malformations of the heart chambers, septa, valves, veins and arteries.
  - o Cleft Lip or Palate
  - <u>Digestive System</u> includes malformation of the tongue, mouth, pharynx, esophagus, stomach, intestines, liver, gallbladder, bild ducts, and pancreas.
  - Eye, Ear, Face, or Neck includes malformations of the eye and its structures, tear ducts, internal and external ear, neck, and lips.
  - Genital Organs includes malformations of male or female genitals, and indeterminate sex or hermaphroditism.
  - Musculoskeletal System includes malformations of hip, feet, fingers, limbs, skull, spine, diaphragmatic hernia, and other malformations of the abdominal wall (including gastroschisis).
  - Nervous System includes anencephaly, microcephaly, hydrocephalus, spina bifida, and other malformations of the brain and spinal cord.
  - Respiratory System includes malformation of the nose, larynx, trachea, bronchus, and lung.
  - o Urinary System includes malformation of the kidneys, bladder, and ureter.
  - Other Specific Anomaly includes disorders of the skin, breast, hair, nails, syndromes affecting multiple systems, malformations due to outside causes (including alcohol and drugs), and all malformations not otherwise classified.

#### **Length of Stay for the Birth Episode of Care**

• Hours between a baby's birth at an acute care facility and his/her discharge from the Birth Episode of Care.

#### Breastfeeding

Reflects feeding during the Birth Admission only, including at time of discharge.

- <u>Exclusive Breastfeeding</u> baby received only breast milk (via the breast, a bottle, or other feeding method).
- No Breastfeeding baby received only breast milk substitute.
- <u>Non-Exclusive Breastfeeding</u> baby received both breast milk and breast milk substitute.
- Any Breastfeeding baby received breast milk (via the breast, a bottle, or other feeding method) at any time during the Birth Admission. Baby may also have received breast milk substitute.

#### **Neonatal Intensive Care Use During Birth Episode of Care**

- During the Birth Episode of Care, baby required Level 2a, 2b, 3a, OR 3b care (as
  defined by the PSBC Neonatal Daily Classification Tool) for at least one day.
  - Length of stay in days is calculated as (discharge date admission date). If admission and discharge are on the same date, length of stay is one day.
  - Click here to access resources on the PSBC Neonatal Daily Classification Tool.

#### **Transfer to Another Hospital**

- Babies may be transferred to another hospital for either maternal or neonatal indications.
  - NOTE: Effective April 1, 2014, babies transferred directly to acute care from a birth at home may be included in these transfer indicators. See page vii for more information.
- Any Transfer baby was transferred from the Birth Admission to a different acute care facility.

#### **Post-Neonatal Admissions**

- <u>Post-Neonatal Admission</u> total number of baby transfer or readmission episodes. A
  baby can have more than one Post-Neonatal Admission. Ratio of Post-Neonatal
  Admissions per 100 live births.
  - Admissions with a most responsible diagnosis of Health supervision and care of other healthy infant and child, Healthy person accompanying sick person, or Other boarder in health-care facility (Z76.2, Z76.4, or Z76.4) are excluded.
- <u>Diagnosis Associated with Post-Neonatal Admission</u> the diagnosis that accounted for the majority of time the baby stayed in hospital. May not be the reason for admission. Per 100 Post-Neonatal Admissions.
  - The following account for the majority of diagnoses associated with Post-Neonatal Admissions for 2015/16 to 2019/20, inclusive:
    - Jaundice
    - Low Birth Weight or Preterm Birth
    - <u>Feeding Problems</u> includes reflux, feeding difficulties, abnormal weight loss, and dehydration.
    - <u>Congenital Anomalies</u> includes all congenital malformations, deformations, and chromosomal abnormalities.
    - Respiratory Infections includes whooping cough, pneumonias, and upper and lower respiratory tract infections.
    - Other Infections major inclusions are bacterial and viral infections, sepsis, external and middle ear infections, select abscesses, impetigo, cellulitis, osteomyelitis, congenital infections, and post-procedural infection.
    - Isoimmunization
    - Apnea obstructed sleep apnea or apnea of the newborn.
    - Urinary Tract Infections

#### **Perinatal Mortality**

Death occurred during any Baby Admission. Includes only deaths that occurred at an acute care facility. Complete pregnancy terminations are included only in the Crude Stillbirth Rate.

- Crude Stillbirths baby was born deceased.
  - o Crude Stillbirth Rate = stillbirths / (live births + stillbirths) x 1,000.
- Stillbirths >=500q baby weighing ≥500g was born deceased.
  - o Stillbirth Rate = stillbirths ≥500g / (live births + stillbirths ≥500g) x 1,000.
- Early Neonatal Death baby born alive died in hospital between 0 and 6 days after birth.
  - Early Neonatal Mortality Rate = early neonatal death / live births x 1,000.
- Perinatal Death stillbirth ≥500g OR baby born alive died in hospital between 0 and 6 days after birth.
  - Perinatal Mortality Rate = (stillbirths ≥500g + early neonatal deaths) / (live births + stillbirths ≥500g) x 1,000.

- <u>Late Neonatal Death</u> baby born alive died in hospital between 7 and 27 days after birth.
  - o <u>Late Neonatal Mortality Rate</u> = late neonatal death / live births x 1,000.
- <u>Post Neonatal Death</u> baby born alive died in hospital between 28 and 364 days after birth.
  - Post Neonatal Mortality Rate = post neonatal death / live births x 1,000.
- Infant Death baby born alive died in hospital before 365 days after birth.
  - Infant Mortality Rate = (early neonatal + late neonatal + post-neonatal deaths) / live births x 1,000.

### Section 4: 'Normal Labour'

Women with 'Normal Labour' are identified in accordance with the <u>Joint Policy Statement on Normal Childbirth</u>. Women with 'Normal Labour' deliver a singleton infant with the head as the presenting part between 37 and 41 estimated weeks' gestation after spontaneous onset of labour. Women with 'Normal Labour' do not have a history of cesarean delivery.

#### **Cervical Dilation at Admission**

 Dilation, in centimetres, of the cervix at the time the woman was admitted to acute care for delivery.

#### **Duration of Labour Stages**

- <u>Length of First Stage of Labour</u> hours between the onset of regular contractions and complete cervical dilation (10cm).
- <u>Length of Second Stage of Labour</u> hours between complete cervical dilation and the delivery of the baby.

#### 'Normal Childbirth'

• According to the <u>Joint Policy Statement on Normal Childbirth</u>, 'Normal Childbirth' excludes the following: spinal anesthesia, general anesthesia, vacuum-assisted delivery, forceps-assited delivery, cesarean delivery, or episiotomy.

#### Low 5 Minute Apgar Score

• Babies whose Apgar score – a composite of five criteria that assesses an infant's need for medical attention – is below 7 out of 10 at five minutes after birth.

# Episodes Included in the Perinatal Health Report This report is based on delivery admissions meeting the following minimum criteria:

**Delivery Admission** 

Include:	
Delivery	MOTHER_ADMISSION.screen_source = "DL" AND
	April 1, 2015 ≤ discharge_date ≤ March 31, 2020
Linked maternal-newborn records	BABY_ADMISSION.screen_source = "NB" AND BABY_ADMISSION.mother_id is not null
Exclude from all but Crude Stillbirth Rate:	
Complete termination of pregnancy	(DIAGNOSES.diagnosis_cd begins with O04 (Mother) or     (PROCEDURES_PERFORMED.procedure_code begins with 5CA88 OR 5CA89     (Mother) and woman delivered a singleton pregnancy)) OR DIAGNOSES.diagnosis cd begins with P96.4 (Baby) for all babies linked to mother

**Other Maternal Admissions** 

Admission t	ype	Criteria
Maternal Adn	<u>nission</u>	MOTHER_ADMISSION.screen_source = "DL" or "PP"
		For any woman whose Delivery Admission meets the inclusion criteria, above.
Post-Delivery	<u>/ Admission</u>	MOTHER_ADMISSION.screen_source = "PP" or (MOTHER_ADMISSION.screen_source =
		"DL" and actual_place_of_delivery=2)
		AND
		most responsible diagnosis is not Z76.3
		For any woman whose Delivery Admission meets the inclusion criteria, above.
<u>Delivery</u>	Episode start	MOTHER_ADMISSION.screen_source = "DL" and April 1, 2015 ≤ discharge_date ≤ March
Episode of		31, 2020
<u>Care</u>	Include all admissions	MOTHER_ADMISSION.screen_source = "PP" and 101 ≤ institution_to <973
	linked to the delivery where:	
	Episode end	(MOTHER_ADMISSION.screen_source = "DL" or "PP") and institution_to <101
		For any woman whose Delivery Admission meets the inclusion criteria, above.

# **Baby Admissions**

Admission t	ype	Criteria
Birth Admiss	<u>on</u>	BABY_ADMISSION.screen_source = "NB"
		For any baby linked to a woman whose Delivery Admission meets the inclusion criteria, above.
Newborn Adı	<u>mission</u>	BABY_ADMISSION.screen_source = "NB" or "XF"
		For any baby linked to a mother whose Delivery Admission meets the inclusion criteria, above.
Post-Neonata	al Admission	(BABY_ADMISSION.screen_source = "NB" and MOTHER.actual_place_of_delivery=2) or BABY_ADMISSION.screen_source = "XF" AND
		most responsible diagnosis is not Z76.2, Z76.3, or Z76.4
		For any baby linked to a mother whose Delivery Admission meets the inclusion criteria, above.
<u>Birth</u>	Episode start	BABY_ADMISSION.screen_source = "NB"
Episode of	Include all admissions	BABY_ADMISSION.screen_source = "XF" and
<u>Care</u>	linked to the birth where:	discharge_to = "O" and
		101 ≤ institution_to <973
	Episode end	BABY_ADMISSION.screen_source = "NB" or "XF" AND
		(discharge_to ≠ "O" or institution_to = 973 or 974)
		For any baby linked to a mother whose Delivery Admission meets the inclusion criteria, above.

# **Detailed Specifications for Selected Variables**

	PDR variables	CIHI Codes
Fiscal year		
2015/16	screen_source = "DL" AND April 1, 2015 ≤ MOTHER_ADMISSION.discharge_date ≤ March 31, 2016	
2016/17	screen_source = "DL" AND April 1, 2016 ≤ MOTHER_ADMISSION.discharge_date ≤ March 31, 2017	
2017/18	screen_source = "DL" AND April 1, 2017 ≤ MOTHER_ADMISSION.discharge_date ≤ March 31, 2018	
2018/19	screen_source = "DL" AND April 1, 2018 ≤ MOTHER_ADMISSION.discharge_date ≤ March 31, 2019	
2019/20	screen_source = "DL" AND April 1, 2019 ≤ MOTHER_ADMISSION.discharge_date ≤ March 31, 2020	
Parity		
Nulliparous	(term = 0 and premature = 0 and prev_cesarian_deliv = 0 and prev_vaginal_deliv = 0)  OR (term = null and premature = null and prev_cesarian_deliv = null and prev_vaginal_deliv = null and living = 0)  OR (any of term, premature, prev_cesarian_deliv, or prev_vaginal_deliv = null and gravida = 1)	
Parous	(term ≥ 1 or premature ≥1 or prev_cesarian_deliv ≥1 or prev_vaginal_deliv ≥1) OR (term = null and premature = null and prev_cesarian_deliv = null and prev_vaginal_deliv = null and living ≥1)	

	PDR variables		CIHI Codes
Hypertensive Disorders of Pregnancy			
(hierarchy)			
Eclampsia			diagnosis code begins with O15
HELLP syndrome	pp_hellp_syndrome = "Y"		***************************************
•	discharge date ≥ April 1, 2012	AND	diagnosis_code begins with O142
Pre-Existing Hypertension with Pre-Eclampsia			diagnosis code begins with O11
Pre-Eclampsia	discharge_date < April 1, 2012 AND pp_hellp_syndrome ≠ "Y"	AND	diagnosis_code begins with O14
	discharge_date ≥ April 1, 2012 AND pp_hellp_syndrome ≠ "Y"	AND	diagnosis_code begins with O140, O141, or O149
Pre-Existing Hypertension			diagnosis_code begins with O10
Gestational Hypertension			diagnosis_code begins with O13
(includes mild pre-eclampsia for discharges before April 1, 2012)			
Unspecified Hypertension			diagnosis_code begins with O16
Diabetes Mellitus in Pregnancy			
Gestational Diabetes	risk_code = 13 or 14	OR	diagnosis_code begins with O248
Pre-Existing Diabetes	risk_code = 15 or 16	OR	diagnosis_code begins with O245, O246, or O247
Artificial Reproductive Technology	ivf = "Y"	OR	diagnosis_code for mother = Z37xx1 or baby = Z38xx1
Augmentation of Labour	labour_aug_flg = "Y"		
Induction of Labour	labour_ind_flg = "Y"		
Method of Fetal Surveillance During Labour			
Auscultation Only	auscultation = "Y" and		
	elec_fetal_monitor_external ≠ "Y" and		
	elec_fetal_monitor_internal ≠ "Y" and		
	no_fetal_monitoring ≠ "Y"		
Auscultation and External Electronic	auscultation = "Y" and		
Monitoring	elec_fetal_monitor_external = "Y" and		
	elec_fetal_monitor_internal ≠ "Y" and		
	no_fetal_monitoring ≠ "Y"		
External Electronic Monitoring Only	auscultation ≠ "Y" and		
	elec_fetal_monitor_external = "Y" and		
	elec_fetal_monitor_internal ≠ "Y" and		
	no_fetal_monitoring ≠ "Y"		
Internal Electronic Monitoring Only	auscultation ≠ "Y" and		
	elec_fetal_monitor_external ≠ "Y" and		
	elec_fetal_monitor_internal = "Y" and no fetal_monitoring ≠ "Y"		
No Estal Manitarina	no_letal_monitoring ≠ Y (auscultation ≠ "Y" and		
No Fetal Monitoring	elec fetal monitor internal ≠ "Y" and		
	elec_letal_monitor_internal ≠ Y and elec fetal monitor external ≠ "Y" and		
	no_fetal_monitoring= "Y")		
	OR		

	PDR variables		CIHI Codes
	(auscultation ≠ "Y" and		
	elec_fetal_monitor_internal ≠ "Y" and		
	elec_fetal_monitor_external ≠ "Y" and		
	no_fetal_monitoring ≠ "Y")		
Delivery Provider			
Obstetrician	delivered_by = 2 or 6 for any infant		
Surgeon	else if delivered_by = 12		
Family Practice + Cesarean	else if delivered by = 1 or 8	AND	procedure_code begins with 5MD60 (cesarean delivery)
Family Practice + Vaginal	else if delivered by = 1 or 8	AND	procedure code does not begin with 5MD60
Midwife	else if delivered by = 3 or 7		<u> </u>
Nurse	else if delivered by = 4		
Other	else if delivered_by = 5, 9, 10, or 11		
Deliveries with Midwifery-Involved Care	institution_id = 976 or 977 or	OR	doctor service = 11004
,	midwife case = "Y" or		on DOCTORS or PROCEDURES PERFORMED for
	delivered_by = 3 or 7 for any infant or		mother or baby record
	actual_place_of_delivery = 1 or 2		,,
Delivery at Home	institution_id = 976 or 977 or		
•	actual place of delivery = 2		
Anesthesia or Analgesia			
Entonox	entonox_flg = "Y"		
Epidural	epidural_flg = "Y"	OR	anesthetic_type = 3 for a procedure_code beginning with 5MD
General	general flg = "Y"	OR	anesthetic type = 1 or 4 for a procedure_code beginning
General	general_lig = 1	UK	with 5MD
Local	local flg = "Y"	OR	anesthetic type = 7 for a procedure code beginning with
Local	local_lig = 1	OK	5MD
Narcotic	narcotic flg = "Y"		JWD
Spinal	spinal flg = "Y"	OR	anesthetic type = 2 for a procedure code beginning with
<b>Οριπα</b> ί	spirial_lig = 1	OIX	5MD
Combined Spinal and Epidural			Anesthetic_type = C for a procedure code beginning with 5MD
Other	other flg = "Y" or pudendal flg = " Y"		
No Anesthetic	none flg = "Y"		
Perineal Trauma	12-19		
Third or Fourth Degree Laceration	laceration flg = "Y" AND	OR	diagnosis code begins with O702 or O703
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	laceration degree = 3 or 4		
Episiotomy	episiotomy_flg = "Y"		
Cervical Tear	cervical tear flg = "Y"	OR	diagnosis code begins with O713
Mode of Delivery			<u> </u>
Spontaneous Vaginal			procedure_code begins with 5MD50, 5MD51, 5MD52, 5MD56AA, 5MD56NL, 5MD56NP, 5MD56NU, 5MD56NM,

	PDR variables		CIHI Codes
			5MD56NQ, 5MD56NV, 5MD56GH, 5MD56PA, 5MD56PD,
			5MD56PG, 5MD56PB, 5MD56PE, or 5MD56PH
Assisted Vaginal			procedure_code begins with 5MD53, 5MD54, 5MD55,
			5MD56NN, 5MD56NR, 5MD56NW, 5MD56PC, 5MD56PF,
			or 5MD56PJ
Vacuum			procedure_code begins with 5MD54
Forceps			procedure_code begins with 5MD53, 5MD56NN,
			5MD56NR, 5MD56NW, 5MD56PC, 5MD56PF, or
			5MD56PJ
Forceps and Vacuum			procedure_code begins with 5MD55
			procedure_code begins with 5MD54
			AND
			any of the following procedure codes is also on the
			abstract: 5MD53, 5MD55, 5MD56NN, 5MD56NR,
0			5MD56NW, 5MD56PC, 5MD56PF, or 5MD56PJ
Cesarean		AND	procedure_code begins with 5MD60
	csection_type = 1, 2, 3, or 4	AND	no procedure code begins with 5MD5 or 5MD60
Emergency Primary	csection_type = 2	AND	procedure_code begins with 5MD60
Emergency Repeat	csection_type = 4	AND	procedure_code begins with 5MD60
Elective Primary	csection_type = 1	AND	procedure_code begins with 5MD60
Elective Repeat	csection_type = 3	AND	procedure_code begins with 5MD60
Vaginal Birth After Cesarean (VBAC)	(.l		
VBAC Eligible	(vbac_eligible = "Y" and		
	prev_cesarian_deliv ≥1) OR		
	(vbac eligible = "U" or " " and		
	baby presentation delivery = 6 and		
	prev cesarian deliv≥1 and		
	Maximum(baby sequence) = 1)		
	(vbac eligible = "U" or " " and	AND	procedure code begins with 5MD5
	baby presentation delivery = 9 and	7.110	procedure_code begins with onibe
	gestational age ≥ 37 and		
	prev cesarian deliv ≥1 and		
	Maximum(baby sequence) = 1)		
VBAC Attempted	(vbac attempted = "Y" and		
,	prev cesarian deliv is ≥1)		
	OR		
	(vbac_attempted = "U", "A", or " " and		
	prev_cesarian_deliv ≥1 and		
	((labour_ind_flg = "Y") or (labour_spont_flg = "Y"		
	and labour_aug_flg = "Y")))		
VBAC Success	Woman VBAC Eligible and VBAC Attempted	AND	procedure_code begins with 5MD5
	(above)		

	PDR variables		CIHI Codes
Maternal Morbidity			
Liver Complications (updated 2016)	pp fatty liver = "Y" or pp liver hematoma = "Y"	OR	diagnosis code begins with K760, O266, or O904
Urinary Tract Infection (updated 2016)	pp_uti = "CY", "PY", "OT", "UN"	OR	diagnosis code begins with N10, N11, N12, N15, N30,
, , ,			N34, N390, O23, O861, O862, or O863
Sepsis (updated 2016)	pp_pos_blood_culture = "Y"	OR	diagnosis_code begins with A40, A41, O753, or O85
Wound Infection	pp_wound_infection = "Y"	OR	diagnosis_code begins with O860 or T814
Postpartum Hemorrhage with Transfusion	blood_transfusion_flg = "Y"	AND	diagnosis_code begins with O72
Postpartum Hemorrhage with Hysterectomy			diagnosis_code begins with O72 AND (procedure_code begins with 5MD60CB, 5MD60KE, 5MD60RC, or 5MD60RD; OR procedure_code begins with 1RM87LAGX and extent = SU; OR procedure_code begins with 1RM89 AND there is no procedure_code beginning with 1PL74, 1RS74, or 1RS80)
Antepartum Hemorrhage with Transfusion	blood transfusion flg = "Y" and risk code = 8		
	blood_transfusion_flg = "Y"	AND	diagnosis_code begins with O441, O45, O46, O67, or O694
Eclampsia			diagnosis code begins with O15
HELLP	pp_hellp_syndrome = "Y"		
	discharge_date ≥ April 1, 2012	AND	diagnosis_code begins with O142
Anesthetic Complications			diagnosis_code begins with O29, O740, O741, O742, O743, O744, O747, O748, O749, O89, or T885
Shock			diagnosis code begins with O751
Stroke			diagnosis code begins with G459, I6, or I7
Pulmonary Embolism			diagnosis code begins with O88
Adverse Outcome of Labour or Delivery			
Moderate Maternal Adverse Outcome	screen_source = "DL" AND blood_transfusion_flg = "Y" OR (laceration_flg = "Y" AND laceration_degree = 3 or 4)	OR	diagnosis_code begins with O702 or O703 OR procedure_code begins with 5PC73JT, 5PC80JM, 5PC91GA, or 5PC91GC OR (diagnosis_code begins with O722 AND procedure_code begins with 1KT51, 1RM13, 1RM87LAGX, 1RM89, 5MD60CB, 5MD60KE, 5MD60RC, 5MD60RD, 5PC91HT, or 5PC91LA)
Moderate Neonatal Adverse Outcome	screen_source = "NB" and admission_weight ≥ 2,500 and gestational age ≥ 37 and ((nicu_ii+nicu_iii ≥ 2)	AND	diagnosis_code does not begin with P832 or Q

	PDR variables		CIHI Codes
	OR (Length of stay <24 hours and institution_to = 104, 202, 109, 116, 703, 609, 501, 401, 302, 130, 115, 112, or 102) OR (0 ≤ apgar_5 minutes <7))		
Severe Maternal Adverse Outcome	screen_source = "DL"	AND	diagnosis_code begins with O7118, O95 or O97 OR procedure_code begins with 1GZ30CJ, 1GZ30JH, 1GZ31CAND, 1GZ31CBND, 1GZ31CRND, 1GZ31GPND, 1GZ38JAND, 1GZ38JANE, 1GJ50CANG, or 1GJ50CATS
Severe Neonatal Adverse Outcome	screen_source = "NB" and admission_weight ≥ 2,500 and gestational age ≥ 37 and (discharge_to = "D" or stillbirth = "A")	AND	diagnosis_code does not begin with P832 or Q
	screen_source = "NB" and admission_weight ≥ 2,000	AND	diagnosis_code begins with P100, P101, P104, P108, P109, P113, P114, P115, P122, P13 (excluding P134), P140, P141, P142, P143, P148, or P149
Maternal Length of Stay			3/
Antepartum Length of Stay	For the Delivery Episode of Care, hours between (delivery_date  delivery_time – admission_date  admission_time) where institution_id for the Delivery Admission ≠ 976 or 977		
Postpartum Length of Stay	For the Delivery Episode of Care, hours between (discharge_date  discharge_time – delivery_date  delivery_time) where institution_id for the Delivery Admission ≠ 976 or 977		
Total Length of Stay	For the Delivery Episode of Care, hours between (discharge_date  discharge_time - admission_date  admission_time) where institution_id for the Delivery Admission ≠ 976 or 977		
Maternal Transfers			
Transferred to Acute Care	screen_source= "DL" and institution_to = 101, 102, 104, 105, 106, 107, 109, 111, 112, 113, 115, 116, 121, 123, 128, 130, 131, 134, 135, 136, 201, 202, 203, 204, 206, 217, 301, 302, 303, 305, 309, 401, 402, 403, 404, 405, 406,		

	PDR variables		CIHI Codes
	408, 409, 417, 419, 501, 502, 507, 508, 510, 511,		
	601, 602, 603, 604, 606, 609, 651, 654, 655, 701,		
	702, 703, 704, 705, 707, 708, 713, 714, 715, 716,		
	717, 752, 753, 754, 755, 756, 801, 803, 804, 851,		
	854, 859, 901, 902, 903, 904, 906, 907, 912, 917,		
	918, 929, 973, or 974		
Post-Delivery Admission Diagnoses			
Routine Postpartum Care (updated 2016)	Post-Delivery Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with Z390, Z392, or Z488
Postpartum Hemorrhage	Post-Delivery Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with O72
Postpartum Infection (updated 2016)	Post-Delivery Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with A40, A41, N10, N11, N12, N15, N30, N34, N390, O753, O85, O86, or T814
Other Diseases Complicating Pregnancy	Post-Delivery Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with O99
Hypertension or Eclampsia (updated 2016)	Post-Delivery Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with I100, O10, O11, O13, O14, O15, or O16
Other Wound Issues	Post-Delivery Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with O70, O71, O75404, O900, O901, O902, or T813
Care of Breasts	Post-Delivery Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with O91, O92, or Z391
Retained Placenta Without Hemorrhage	Post-Delivery Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with O73
Pregnancy-Associated Mental Health	Post-Delivery Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with F53
Complications of Anesthesia	Post-Delivery Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with O74, O89, or T885
Multiple Gestation	multiple birth count >1		
In-Hospital Perinatal Mortality			
Crude Stillbirths (includes complete late pregnancy terminations)	stillbirth = "A", "P", or "U"		
Stillbirth >=500g	stillbirth = "A", "P", or "U" and admission_weight ≥ 500		
Early Neonatal Death	stillbirth = "N" and discharge_to = "D" and (discharge_date – date_of_birth ) <7 days		
Late Neonatal Death	stillbirth = "N" and discharge_to = "D" and 7 days ≤ (discharge_date – date_of_birth) ≤ 27 days		
Post Neonatal Death	stillbirth = "N" and discharge_to = "D" and 28 days ≤ (discharge_date – date_of_birth) ≤ 364 days		

	PDR variables		CIHI Codes
Birth Injury			diagnosis code begins with P100, P101, P104, P108,
• •			P109, P11, P12, P13, P14, or P15
Neonatal Morbidity			
Sepsis	baby_pos_blood_culture = "Y"	OR	diagnosis_code begins with A40, A41, or P36
Intracranial Hemorrhage			diagnosis code begins with P10 or P52
Respiratory Distress Syndrome			diagnosis code begins with P220
Transient Tachypnea			diagnosis code begins with P221
Other Respiratory Condition			diagnosis code begins with A481, J, P228, P229, P23-
•			P27, P280, P281, P282, P283, P284, P288, P289, Q30-
			Q34, Q791, R091, or Z902
	0 ≤ apgar_5_minutes <7	AND	diagnosis_code begins with P285
Any Neonatal Morbidity			diagnosis_code begins with A40, A41, A481, J, P10, P220,
			P221, P228, P229, P23-P27, P36, P280, P281, P282,
			P283, P284, P288, P289, P52, Q30-Q34, Q791, R091, or
			Z902
	0 ≤ apgar_5_minutes <7	AND	diagnosis_code begins with P285
Congenital Anomalies			
Any Congenital Anomaly			diagnosis_code begins with Q
Chromosomal			diagnosis_code begins with Q90-Q99
Circulatory System			diagnosis_code begins with Q20-Q28
Cleft Lip or Palate			diagnosis_code begins with Q35-Q37
Digestive System			diagnosis_code begins with Q38-Q45
Eye, Ear, Face, or Neck			diagnosis_code begins with Q10-Q18
Genital Organs			diagnosis_code begins with Q50-Q56
Musculoskeletal System			diagnosis_code begins with Q65-Q79
Nervous System			diagnosis_code begins with Q00-Q07
Respiratory System			diagnosis_code begins with Q30-Q34
Urinary System			diagnosis_code begins with Q60-Q64
Other Specific Anomaly			diagnosis_code begins with Q80-Q89
Newborn Length of Stay	For the Birth Episode of Care, hours between		
	(discharge_date  discharge_time –		
	admission_date  admission_time)		
	where		
	institution_id for the Birth Admission ≠ 976 or 977		
Newborn Feeding			
Exclusive Breastfeeding	newborn_feeding = "BR"		
Non-Exclusive Breastfeeding	newborn_feeding = "BF"		
No Breastfeeding	newborn_feeding = "FR"		
Any Breastfeeding	newborn_feeding = "BR" or "BF"		
Weight for Gestational Age			
Small for Gestational Age	Baby's weight is below the 10 <sup>th</sup> percentile for		
	gestational age and sex		

	PDR variables		CIHI Codes
	Based on gestational age, sex,		
	multiple_birth_count, and admission_weight		
	where		
	screen_source = "NB" and sex = "M" or "F"		
Large for Gestational Age	Baby's weight is above the 90 <sup>th</sup> percentile for		
	gestational age and sex		
	Based on gestational age, sex,		
	multiple_birth_count, and admission_weight		
	where		
	screen_source = "NB" and sex = "M" or "F"		
Low Birthweight Singletons	screen source = "NB" and		
	5 ≤ admission weight < 2500 and		
	stillbirth = "N" and		
	multiple birth count = 1		
Premature Birth			
Spontaneous Preterm	gestational age <37 and labour spont flg = "Y"		
•	gestational age <37 and		
	labour none flg = "Y" and		
	(cesarean type = 0	OR	Mother does not have a procedure code beginning with
			5MD60)
latrogenic Preterm	gestational age <37 and		<u>'</u>
•	labour ind flg = "Y"		
	gestational age <37 and		
	labour none flg = "Y" and		
	cesarean_type = 1, 2, 3, or 4		
Neonatal Intensive Care Use	nicu ii > 0 or nicu iii > 0 for the Birth Episode of		
	Care		
Neonatal Transfer			
Transferred to Acute Care	screen source= "NB" and		
	discharge to= "O" and		
	institution to = 101, 102, 104, 105, 106, 107, 109,		
	111, 112, 113, 115, 116, 121, 123, 128, 130,		
	131, 134, 135, 136, 201, 202, 203, 204, 206,		
	217, 301, 302, 303, 305, 309, 401, 402, 403,		
	404, 405, 406, 408, 409, 417, 419, 501, 502,		
	507, 508, 510, 511, 601, 602, 603, 604, 606,		
	609, 651, 654, 655, 701, 702, 703, 704, 705,		
	707, 708, 713, 714, 715, 716, 717, 752, 753,		
	754, 755, 756, 801, 803, 804, 851, 854, 859,		
	901, 902, 903, 904, 906, 907, 912, 917, 918,		
	929, 973, or 974		
Resuscitation After Birth	ippv_mask_flg = "Y" or		
	ippv ett flg = "Y" or		

	PDR variables		CIHI Codes
	chest_compress_flg = "Y" or		
	drugs = "Y"		
Post-Neonatal Admission Diagnoses			
Jaundice	Post-Neonatal Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with P58, P59, or R17
Low Birth Weight or Preterm Birth	Post-Neonatal Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with P07
Congenital Anomalies	Post-Neonatal Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with G901, P293, or Q
Feeding Problems	Post-Neonatal Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with K21, P741, P7881, P92, R633, or R634
Respiratory Infections	Post-Neonatal Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with A37, J00-J06, J12-J18, J20-J22, or P23
Respiratory Distress	Post-Neonatal Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with P22
Other Infections	Post-Neonatal Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with A (except A37), B, H60-H66, K61, L0, M86, P027, P35-P38, P39 (except P393), P77, R572, T802, T814, T827, or T835
Apnea	Post-Neonatal Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with G4730, P283, P284, or R068
Urinary Tract Infections	Post-Neonatal Admission	AND	diagnosis_type = "M" and diagnosis_cd begins with N390 or P393
Isoimmunization			diagnosis_type = "M" and diagnosis_cd begins with P55
"Normal Labour"	labour_spont_flg = "Y" and prev_cesarian_deliv = 0 and multiple_birth_count = 1 and baby_presentation_delivery = 6 and gestational age is between 37 and 41		
"Normal Childbirth"	general_flg ≠ "Y" and spinal_flg ≠ "Y" and episiotomy_flg ≠ "Y"	AND	procedure_code does not begin with 5MD53, 5MD54, 5MD55, 5MD56NN, 5MD56NR, 5MD56NW, 5MD56PC, 5MD56PF, 5MD56PJ, or 5MD60 AND anesthetic_type ≠ 1, 2, or 4 for a procedure_code beginning with 5MD
Cervical Dilation on Admission			
0-3cm	0 ≤ cervical_dilation_on_admis < 4		
4-10cm	cervical_dilation_on_admis ≥ 4		
Unknown	cervical_dilation_on_admis = null		
Duration of Labour Stages			
Duration of First Stage	hours between (second_stage_date  second_stage_time - first_stage_date  first_stage_time) where first_stage_date and second_stage_date ≠ null and labour_none_flg ≠ "Y"		

	PDR variables	CIHI Codes
Duration of Second Stage	hours between (delivery_date  delivery_time -	
_	second_stage_date  second_stage_time)	
	where	
	second_stage_date ≠ null and	
	labour_none_flg ≠ "Y"	
Low Apgar Score	0 ≤ apgar_5_minutes <7	

# **Gestational Age Algorithm**

Gestational age at delivery is calculated using an algorithm consistent with that recommended by the Society of Obstetricians and Gynaecologists of Canada. The algorithm takes into account the last menstrual period (LMP), early ultrasound (EUS) before 20 weeks, newborn clinical exam, and chart documented estimate of gestational age. Accurate documentation of each of these on patient charts, including the estimated weeks and days gestation at early ultrasound, permits the most accurate calculation by PSBC.

Gestational age in completed weeks<sup>§</sup> based on LMP and EUS is calculated as follows:

- 1. If LMP\* is recorded and there is no EUS, use GA from LMP.
- 2. If LMP is recorded, there is no EUS^, but clinical exam of baby gives a GA at least 3 weeks different than LMP, use GA from newborn clinical exam.
- 3. If LMP is recorded and equal to GA in weeks from EUS at <14 weeks, use GA from LMP. If estimates are not equal, use GA from EUS.
- 4. If LMP is recorded and within 1 week of GA from EUS at 14-20 weeks, use GA from LMP. If difference is more than 1 week, use GA from EUS.
- 5. If LMP is not recorded but GA from EUS <20 weeks is recorded, use GA from EUS.
- 6. If LMP and EUS are not recorded, use GA from newborn clinical exam.
- 7. If LMP, EUS, and newborn clinical exam are not recorded, use GA from chart documentation.
- 8. If all are missing or out of range, GA is missing.

- \* only LMP estimates of 15-45 weeks are considered. All others are treated as missing.
- ^ only GA estimates of 17-43 weeks from EUS are considered. All others are treated as missing.

<sup>§</sup> Completed weeks of gestation is a term used in the estimated age of the fetus calculated from the first day of the LMP or US. A completed week increments at 7-day intervals. For instance 37 completed weeks includes the time span from 37 weeks and 0 days to 37 weeks and 6 days.