



Périnatal NB

NB Perinatal Health Program
Report of Indicators | 2014–2019



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Introduction

Administrative Program Director's Message

We are pleased to provide you with our second report of indicators, representative of five years of noteworthy data. This work reflects the continuity of our efforts to provide sound data on maternal and neonatal health outcomes. Since the creation of the NB Perinatal Health Program, PerinatalNB, there has been an increased understanding of maternal and neonatal health outcomes and the quality of related services. We hope healthcare professionals and administrators will use this information to leverage their observations and experiences to guide their efforts in quality improvement initiatives. We trust the data will also inform decision and planning.

While this report includes a short list of significant indicators; healthcare leaders, administrators, clinicians and researchers are welcome to reach out to us for any additional or more in-depth data. We have data on over 18, 000 mothers and babies across the province that can provide a wealth of information on our successes and on what we can improve.

Finally, I would like to thank all who have been part of our growth and success, in particular our leadership, team members, partners, healthcare providers that submit valuable data and the health information management teams in all birthing hospital.

Through information management, leadership, knowledge mobilization and partnership, the Program aspires to fuel quality improvement initiatives and informed decisions. We believe data contributes greatly to our vision to strive for optimal health outcomes across the continuum of care of expectant mothers, babies and their families in New Brunswick.

Perinatal NB Administrative Program Director

Gaetane Leblanc-Cormier



Medical Director's Message

Perinatal NB is pleased to release the second report of perinatal indicators for New Brunswick. As a program we continue to expand on data collection related to maternal and neonatal care in New Brunswick. Ongoing development and revision of clinical documentation forms results in high quality data. It is imperative that healthcare providers use and complete the approved forms to ensure high quality data to drive meaningful changes.

The report highlights the excellence in perinatal care in NB but also indicates areas to focus on for improvement. Of note, the number of births in NB continues to decrease yearly, but the way we deliver our obstetrical and neonatal care services remains unchanged. The report also highlights that childbearing women in NB are more complicated than previously, given the increasing rates of diabetes and hypertension. The rate of caesarean section remains above the Canadian average for many hospitals and many low risks repeat caesarean sections are being done prior to 39 weeks completed gestational age.

Neonatal intensive care and special care nursery admission rates are above the national average and seventy-five percent of these admissions are term infants. Breastfeeding rates are essentially unchanged over the last five years despite concerted efforts by Health Authorities to increase these rates. There is great opportunity for overall system improvements.

Perinatal NB continues to take a leadership role in policy and program development. Currently, maternal and neonatal transport, a NB maternal serum screening program and continuing involvement in national programs are all part of our mandate. Development of a strategic plan will chart the program's course for the next five years and with additional resources, Perinatal NB will look to develop a quality program for continuing education for perinatal care providers.

In closing, I look forward to continuing to work with stakeholders to improve perinatal care in NB. Perinatal NB looks forward to continuing collaboration with our partners and stakeholders. We look forward to your feedback on the report.

Perinatal NB Medical Director

Dr. Lynn Murphy-Kaulbeck



Notes and Limitations

Data for this report was retrieved from the 3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014/15-2018/19. Please see “Data Source” for each indicator for more information.

Each fiscal year begins April 1st and ends March 31st of the following year. In this report, data within each fiscal year is based on the mother’s delivery date, newborn’s birth date, and mother’s hospital discharge date for termination of pregnancy.

The term “birth” is different from “delivery”. A delivery is a maternal indicator which refers to a completed pregnancy, regardless of the number of infants born. A birth is a newborn indicator which refers to a live or stillborn infant.

The term “live births” excludes all stillbirths and any births resulting from a therapeutic abortion.

Gestational age of a fetus or newborn is determined by Last Menstrual Period (LMP) or by Early Ultrasound (US), depending on whether or not an early ultrasound was completed. Pre-term delivery is a newborn delivered prior to 37 weeks gestation, term is a newborn delivered between 37 and 42 weeks gestation and post-term is a newborn delivered after 42 weeks gestation.

Exclusive Breastfeeding at Discharge is defined as provided by the Breastfeeding Committee of Canada. This includes all newborns that received only breast milk from birth to hospital discharge, as well as any newborns that were supplemented for a medical reason.

Size for Gestational Age is defined according to the Canadian Perinatal Surveillance System Birth Weight growth chart published by the Public Health Agency of Canada (2001). Newborns are categorized as Intrauterine Growth Restriction ($\leq 3\%$ ile), Small for Gestational Age ($\leq 10\%$ ile), or Large for Gestational Age ($\geq 90\%$ ile, $\geq 97\%$ ile) according to gestational age, sex and birth weight.

Low Birth Weight is defined as a birth weight at any gestational age under 2,500 grams, Normal Birth Weight a birth weight at any gestational age between 2,500 grams and 4,500 grams, and High Birth Weight is a birth weight at any gestational age above 4,500 grams.

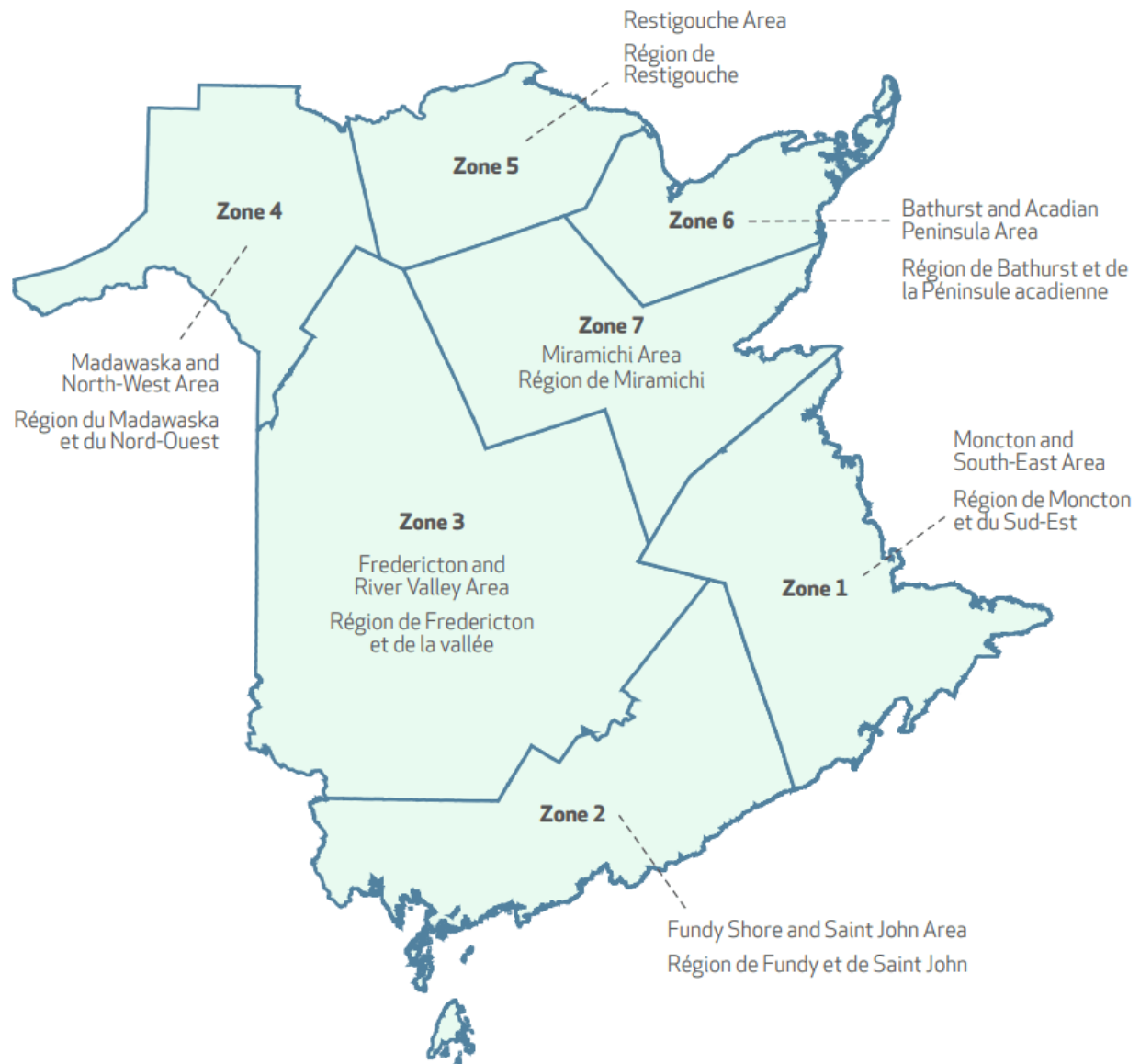
Neonatal Intensive Care Unit (NICU): Three birthing hospitals in the province have MIS-designated NICU resulting in allocation of resources, including neonatologists: The Moncton Hospital, Dr Everett Chalmers Regional Hospital, and the St John Regional Hospital.

Special Care Unit (SCU): All birthing hospitals in the province can offer some level of special care to newborns.

Please note that SCU admissions at the Dr. Georges-L. Dumont University Hospital Centre and the Miramichi Regional Hospital are only included for the 2016/17 fiscal year and onwards due to lack of capture in the 3M Health system prior to this year. As such, these hospitals are excluded from the RHA and provincial rates for NICU/SCU indicators for 2014/15 and 2015/16.

Rates derived from fewer than six reported cases are not reportable and are thereby shown as “NR” in this report.

Health Zone Map: (Retrieved from New Brunswick Health Council Website – Maps of health zones and NBHC communities <https://nbhc.ca/maps-health-zones-and-nbhc-communities>)



Health Zone 1 – Moncton and South-East Area

Health Zone 2 – Fundy Shore and Saint John Area

Health Zone 3 – Fredericton and River Valley Area

Health Zone 4 – Madawaska and North-West Area

Health Zone 5 – Restigouche Area

Health Zone 6 – Bathurst and Acadian Peninsula Area

Health Zone 7 – Miramichi Area

List of Acronyms

CIHI: Canadian Institute for Health Information

C-Section: Caesarean Section

MIS designated: Management Information System designated

NB: New Brunswick

NICU: Neonatal Intensive Care Unit

NR: Not reportable (due to ≤ 5 reported cases)

PHAC: Public Health Agency of Canada

RHA: Regional Health Authority

SCU: Special Care Unit

VBAC: Vaginal Birth after Caesarean Section

List of New Brunswick Birthing Hospitals

Campbellton: Campbellton Regional Hospital

CHU Dumont: Centre hospitalier universitaire Dr-Georges-L.-Dumont (University Hospital Centre)

Chaleur: Chaleur Regional Hospital

DECH: Dr. Everett Chalmers Regional Hospital

Edmundston: Edmundston Regional Hospital

Miramichi: Miramichi Regional Hospital

SJRH: Saint John Regional Hospital

TMH: The Moncton Hospital

URVH: Upper River Valley Hospital

Chapter 1 Maternal Health

Total Deliveries

The number of deliveries performed in New Brunswick has decreased steadily over the past five years, from 6849 to 6273 deliveries per year. This represents a decrease of 8.4% between 2014/15 and 2018/19. Due to New Brunswick's aging population it is expected that this decreasing trend will be maintained.

Definition

The total number of deliveries performed at each Regional Health Authority (RHA) and in New Brunswick. Multiple births are counted as one delivery.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 11th, 2019.

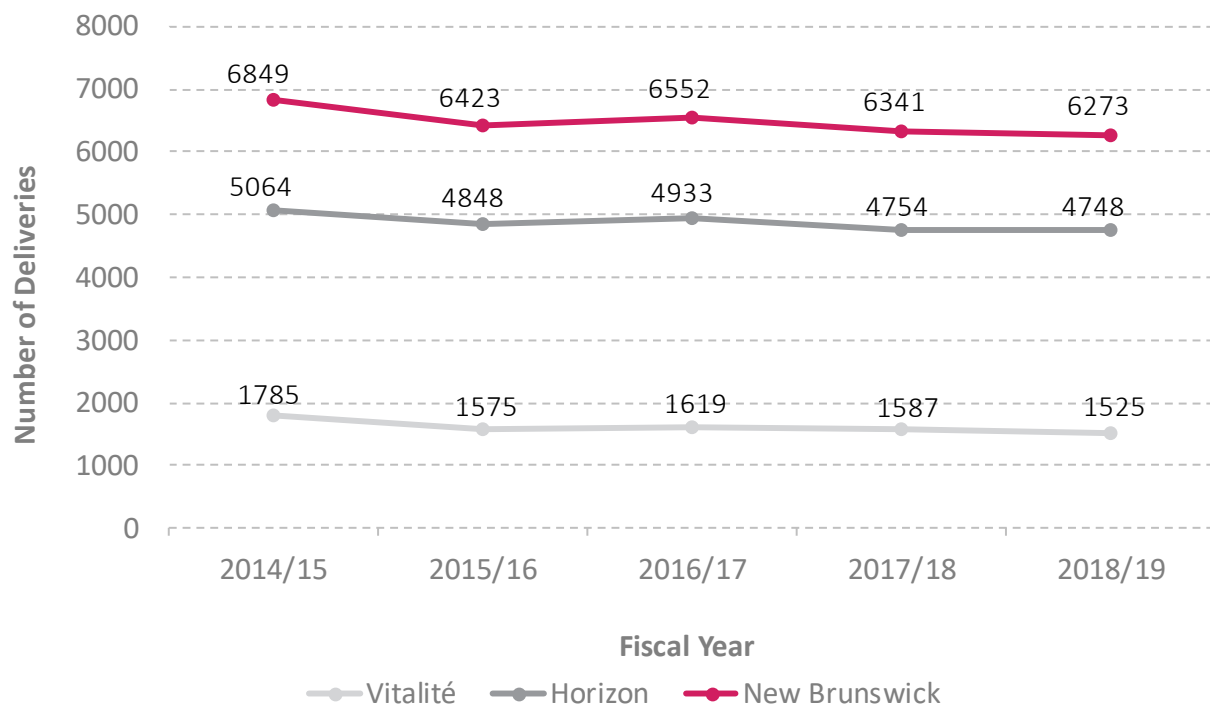


Figure 1.1: Number of deliveries, by location, 2014/15 to 2018/19

Total Deliveries by Birthing Hospital

In 2018/19, 75.7% of New Brunswick deliveries occurred in a Horizon Health Network birthing hospital and 30.3% of New Brunswick deliveries occurred in the Moncton area (Zone 1).

Note: In 2018/19, Campbellton Regional Hospital and Miramichi Regional Hospital accommodated deliveries for Chaleur Regional Hospital while the Labour and Delivery Unit was closed.

Definition

Number of deliveries performed at each birthing hospital / Total number of deliveries in New Brunswick. Births of multiples are counted as one delivery.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2018-2019. Data extracted July 11th, 2019.

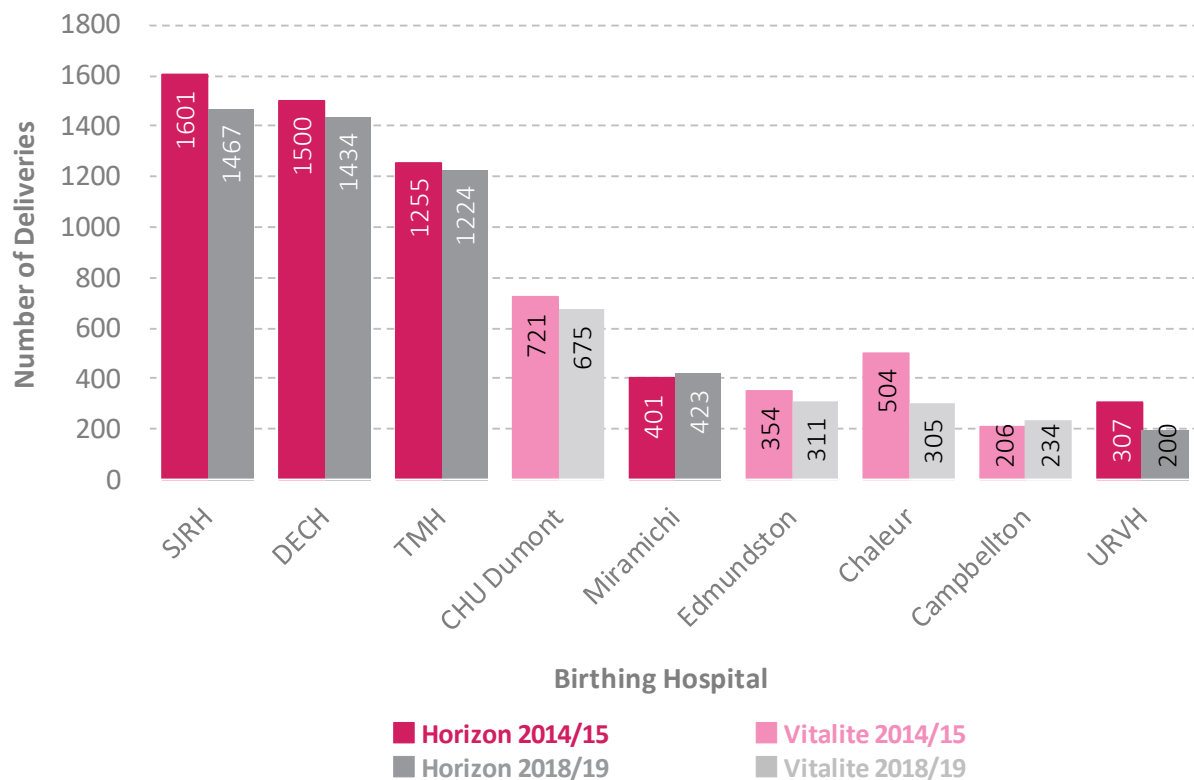


Figure 1.2: Number of deliveries, by birthing hospital, New Brunswick, 2014/15, 2018/19

Maternal Age at Delivery

Per cent deliveries to older mothers (>35 years of age) increased slightly between 2014/15 and 2018/19 from 12.7% (95% CI: 12.0-13.6%) to 14.1% (95% CI: 13.1-14.9%), while per cent deliveries to younger mothers (<20 years of age) for this time period decreased significantly from 5.1% (95% CI: 4.6-5.6%) to 3.5% (95% CI: 3.1-4.0%). In 2014, 3.8% of all live births were to women aged 10 to 19 within Canada¹. Neither, the national proportion or the provincial proportion reported represents teen pregnancy rate, as it does not include abortions, either spontaneous or therapeutic.

Definition

Number of deliveries to women within each age category at time of delivery / Total number of deliveries.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 11th, 2019.

Reference

1. Public Health Agency of Canada. Perinatal Health Indicators for Canada 2017. Ottawa, 2017.

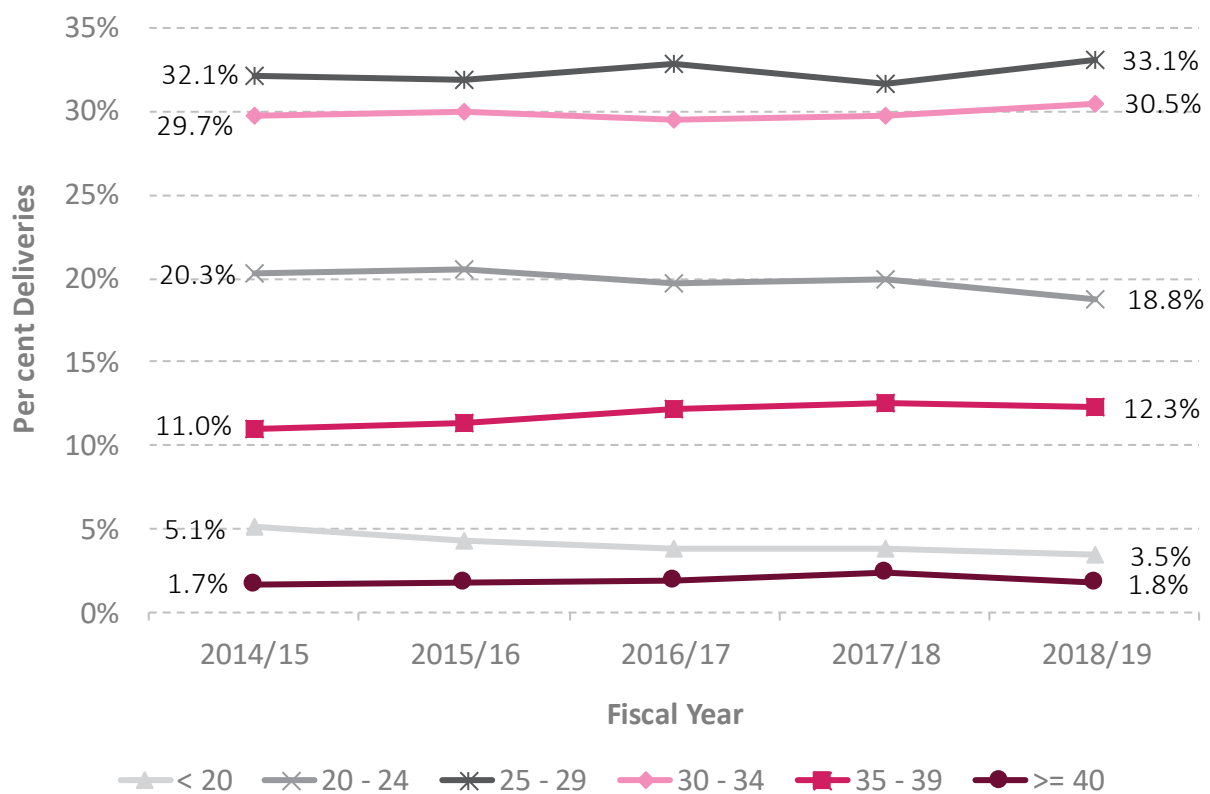


Figure 1.3: Maternal age at delivery, by age group, New Brunswick, 2014/15 to 2018/19

Diabetes Mellitus in Pregnancy

The rate of pre-existing diabetes (Type 1 and Type 2) to delivering mothers has shown a small increase over the past five years from 0.69% (CI: 0.49-0.88%) to 0.94% (CI: 0.70-1.20%), while the rate of gestational diabetes has increased significantly from 5.71% (95% CI: 5.16-6.26%) in 2014/15 to 8.11% (95% CI: 7.45-8.79%) in 2018/19. This increase may be due to an increase in women being screened during pregnancy for diabetes.

Infants of mother's with gestational diabetes is one of the leading causes for SCU/NICU admission in New Brunswick, having been listed among the top six most responsible diagnoses for SCU/NICU admission for all three birthing hospitals with a MIS-designated NICU in 2018/19. Women who experience gestational diabetes are at an increased risk of developing type 2 diabetes later in life¹. As well, diabetes in pregnancy can cause newborns to be born with hypoglycemia and large-for-gestational age¹.

Definition

Number of deliveries to women with pre-existing or gestational diabetes / Total number of deliveries.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 11th, 2019.

Reference

1. Berger, H., Gagnon, R., Sermer, M. *Diabetes in Pregnancy*. Journal of Obstetrics and Gynaecology Canada, 38(7) p 667-679.

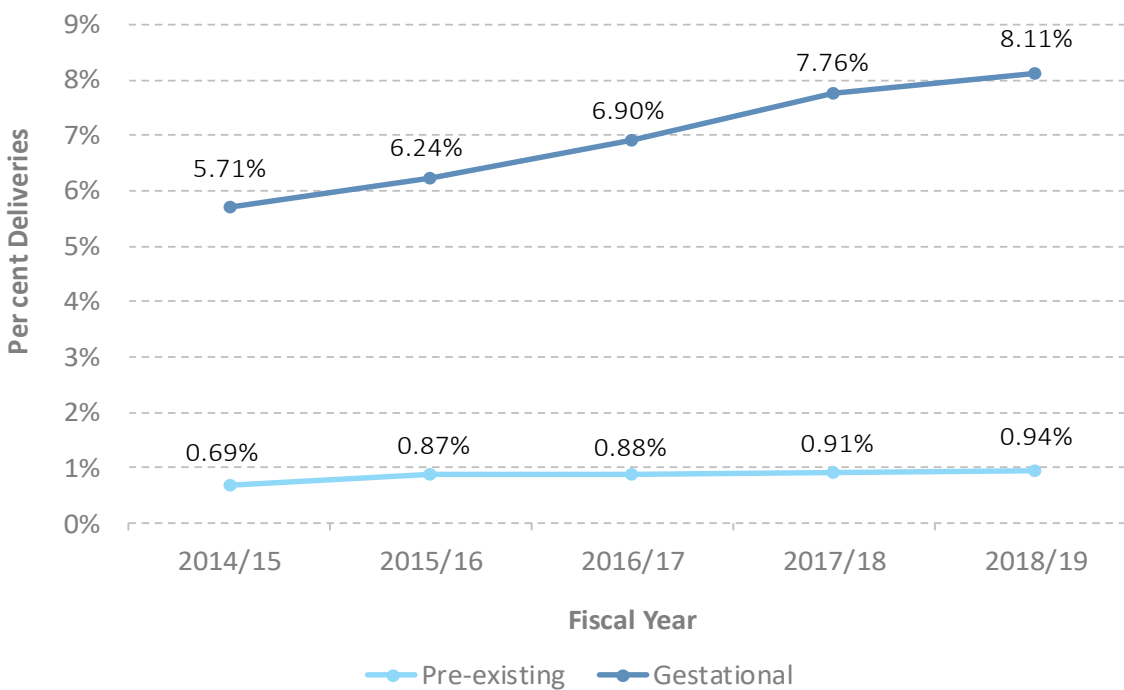


Figure 1.4: Per cent of women with diabetes during pregnancy, by type, New Brunswick, 2014/15 to 2018/19

Hypertension in Pregnancy

The proportion of women with Pre-existing Hypertension and Pre-eclampsia have remained steady from 2016/17 to 2018/19, while there has been a significant increase in the proportion of women with Gestational Hypertension from 4.36% (CI: 3.87-4.86%) to 5.58% (CI: 5.01-6.15%).

Approximately 7% of all pregnant women in Canada have hypertension (pre-existing, gestational and eclampsia)¹ during pregnancy. This proportion is lower than the overall proportion of pregnancies with hypertension disorders in New Brunswick, which was 10% in 2018/19. Hypertension in pregnancy can affect maternal, fetal and infant health during pregnancy and after delivery¹. It can cause pre-term delivery, fetal growth restriction and impact neonatal morbidity and mortality¹. As well, there is evidence that women who experience hypertension in pregnancy are at a higher risk for developing cardiovascular risk factors after pregnancy¹.

Definition

Number of deliveries to women with pre-existing or gestational hypertension or pre-eclampsia/
Total number of deliveries.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2016-2019. Data extracted July 11th, 2019.

Reference

1. Butalia, et al. *Hypertension Canada's 2018 Guidelines for the Management of Hypertension in Pregnancy*. Canadian Journal of Cardiology; (34): 526-531.

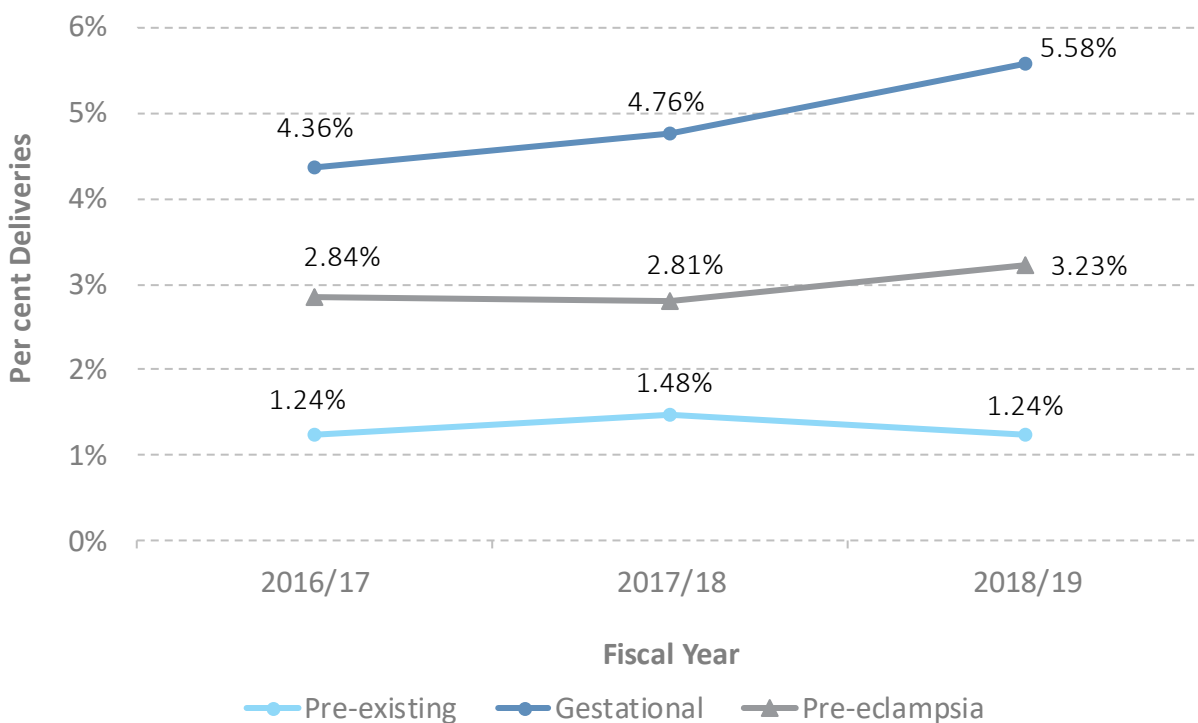


Figure 1.5: Per cent of women with hypertension during pregnancy, by type, New Brunswick, 2016/17 to 2018/19

Smoking during Pregnancy

The rate of pre-pregnancy smoking among pregnant women and women who smoked during pregnancy has remained steady across New Brunswick from 2016/17 to 2018/19. In 2012, the Canadian Smoking during Pregnancy rate for women aged 20 to 44 was 6.3% (CI: 3.8-8.8%)¹.

Smoking during pregnancy has shown to increase the risk of stillbirth and preterm delivery². As well, infants born to women who smoked during pregnancy have a higher risk of low birth weight². As shown by the data below, often women will stop smoking when they become pregnant. In 2018/19, 20.5% of women who delivered smoked before they became pregnant, while 14.6% of women smoked throughout their pregnancy. This shows approximately 30% of women stopped smoking when they became pregnant.

Definition

Number of women who smoked prior to pregnancy / Total number of deliveries.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 11th, 2019.

Reference

1. Canadian Tobacco Use Monitoring Survey (CTUMS) 2012: supplementary tables. Table 7: Smoking and pregnancy. Accessed from: <https://www.canada.ca/en/health-canada/services/publications/healthy-living/canadian-tobacco-use-monitoring-survey-2012-supplementary-tables.html#t7>. Accessed on: September 20, 2019.
2. Public Health Agency of Canada. Smoking cessation during pregnancy and relapse after childbirth in Canada Fact Sheet, 2016.

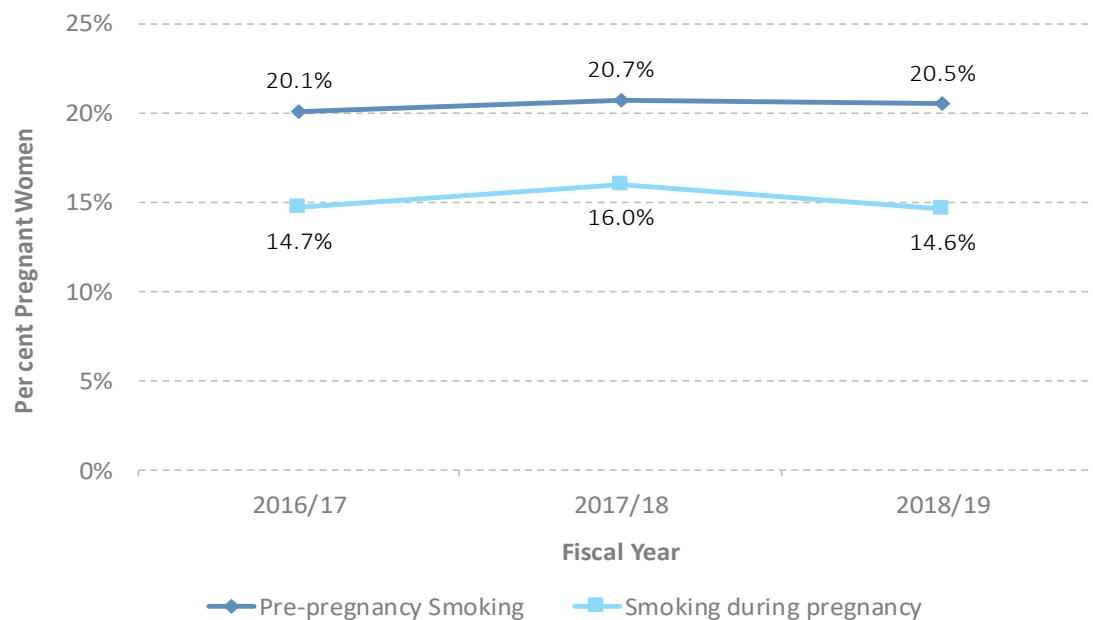


Figure 1.6: Per cent of women who smoked prior to pregnancy and during pregnancy, New Brunswick, 2016/17 to 2018/19

Smoking during Pregnancy by Health Zone

Health Zone 7 (Miramichi Area) had the highest proportion of women who smoked during pregnancy in 2018/19 at 23.7% (CI: 18.7-28.8%), while Health Zone 1 (Moncton Area) had the lowest proportion of women at 11.0% (CI: 9.5-12.5%). The rate of women who smoked during pregnancy in New Brunswick was 14.6% (CI: 13.7-15.5%) in 2018/19.

Definition

Number of women who smoked during pregnancy / Total number of deliveries.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2016-2019. Data extracted July 11th, 2019.

Table 1.1: Per cent of women who smoked during pregnancy, by Health Zone, New Brunswick, 2016/17 to 2018/19

Health Zone	Smoking During Pregnancy		
	2016/17	2017/18	2018/19
Health Zone 1 - Moncton and South-East	12.0%	11.0%	11.0%
Health Zone 2 - Fundy Shore and Saint John	14.9%	19.5%	16.0%
Health Zone 3 - Fredericton and River Valley	14.1%	14.1%	14.0%
Health Zone 4 - Madawaska and North-West	14.0%	17.4%	19.5%
Health Zone 5 - Restigouche	20.9%	21.9%	16.7%
Health Zone 6 - Bathurst and Acadian Peninsula	16.4%	22.0%	15.3%
Health Zone 7 - Miramichi	24.4%	22.0%	23.7%

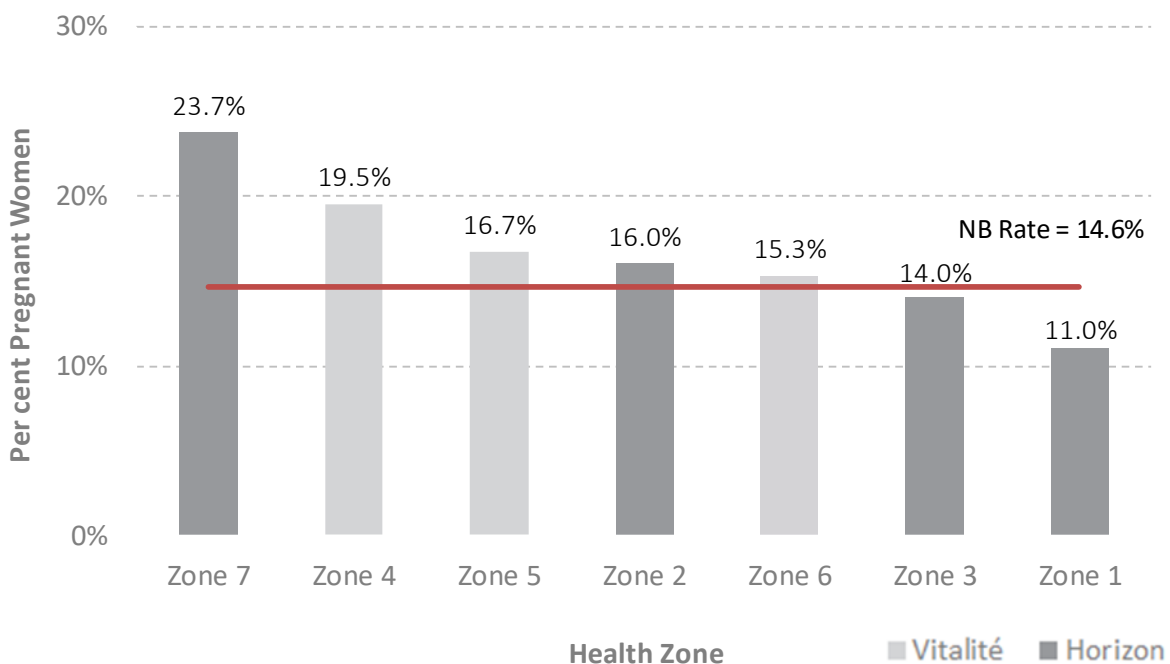


Figure 1.7: Per cent of women who smoked during pregnancy, by Health Zone, New Brunswick, 2018/19

Cannabis use during Pregnancy

In 2018/19, the proportion of women using cannabis during pregnancy was 6.7% (CI: 6.1-7.4%), this was significantly higher than the proportion in 2016/17 at 5.0% (CI: 4.5-5.6%). Note this increase could be due to the legalization of Cannabis within Canada in October of 2018, either due to increased use or increased comfort of women in disclosing cannabis use to their care provider. Currently, there is no national comparator to provide for this indicator.

At this time, little is known about the affects of cannabis use while pregnant or breastfeeding on an infant's development or on neonatal outcomes¹. There is evidence that the main psychoactive component of cannabis (THC) can cross the placenta, which indicates that it could impact the fetus². Given the limited knowledge of the impact of cannabis use during pregnancy, and the possible risks based on what is known about smoking and alcohol use during pregnancy, it is recommended by the SOGC that women should abstain from cannabis use during pregnancy².

Definition

Number of women who used cannabis during pregnancy / Total number of deliveries.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2016-2019. Data extracted July 11th, 2019.

References

1. Ontario Agency for Health Protection and Promotion (Public Health Ontario), Carsley S, Leece P. Evidence brief: Health effects of cannabis exposure in pregnancy and breastfeeding. Toronto, ON: Queen's Printer for Ontario; 2018.
2. SOGC. Cannabis and Pregnancy don't mix Fact Sheet. Accessed on: September 11, 2019.

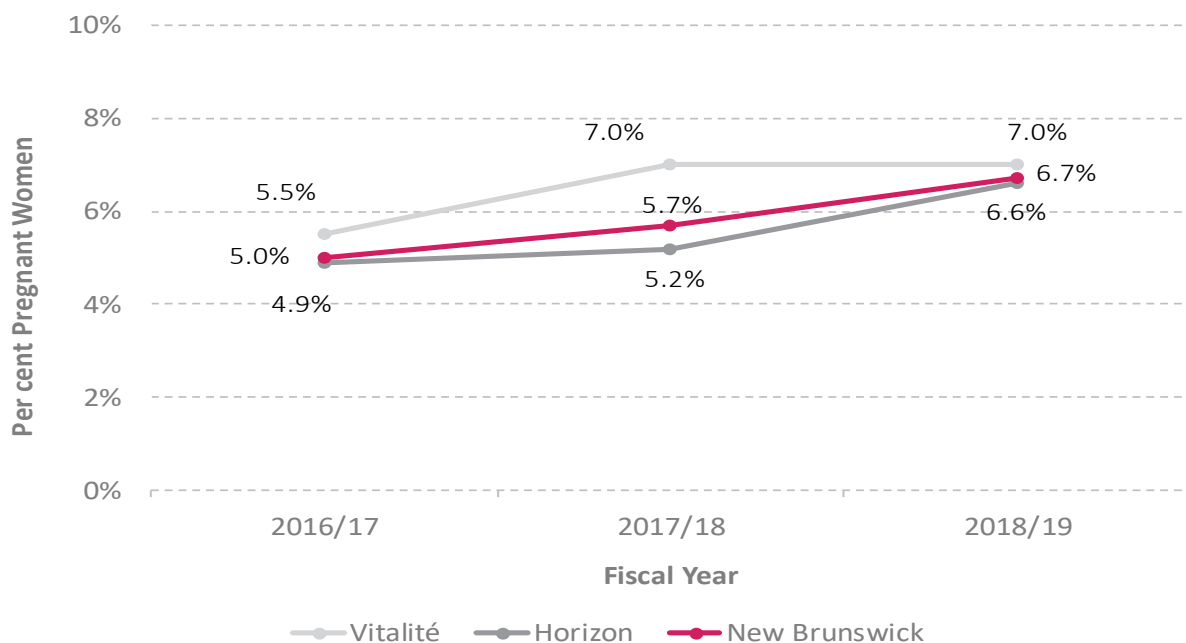


Figure 1.8: Per cent of mothers who used cannabis during pregnancy, by location, New Brunswick, 2016/17 to 2018/19

Cannabis use during Pregnancy by Health Zone

Health Zone 5 (Restigouche Area) had the highest proportion of women who used cannabis during pregnancy in 2018/19 at 8.3% (CI: 4.3-12.4%), while Health Zone 6 (Bathurst and Acadian Peninsula Area) had the lowest proportion of women using cannabis during pregnancy at 3.8% (CI: 2.0-5.5%).

Definition

Number of women who used cannabis during pregnancy / Total number of deliveries.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2016-2019. Data extracted July 11th, 2019.

Table 1.2: Per cent of women who used cannabis during pregnancy, by Health Zone, New Brunswick, 2016/17 to 2018/19

Health Zone	Cannabis Use		
	2016/17	2017/18	2018/19
Health Zone 1 - Moncton and South-East	5.4%	5.6%	7.1%
Health Zone 2 - Fundy Shore and Saint John	5.3%	6.9%	7.4%
Health Zone 3 - Fredericton and River Valley	4.8%	4.2%	6.8%
Health Zone 4 - Madawaska and North-West	3.4%	4.6%	5.5%
Health Zone 5 - Restigouche	5.1%	5.6%	8.3%
Health Zone 6 - Bathurst and Acadian Peninsula	4.0%	7.1%	3.8%
Health Zone 7 - Miramichi	5.5%	7.8%	6.1%

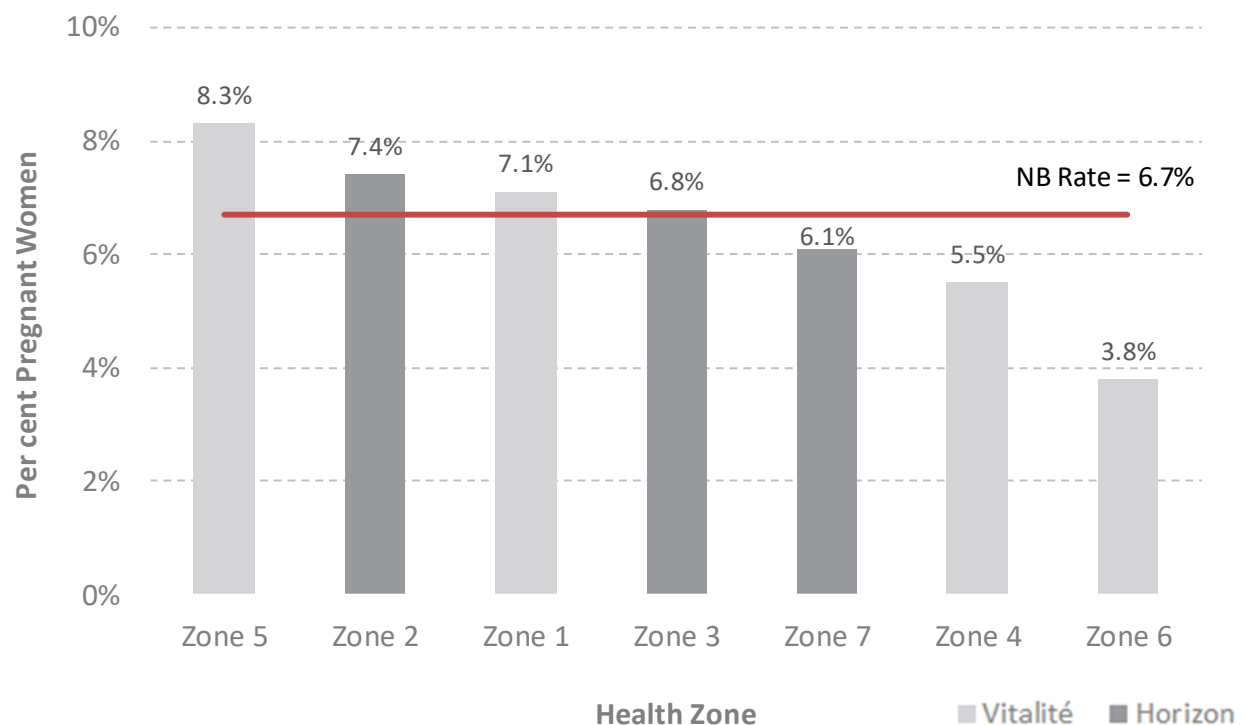


Figure 1.9: Per cent of women who used cannabis during pregnancy, by Health Zone, New Brunswick, 2018/19

Chapter 2 Labour and Delivery

C-Section Rate by Birthing Hospital

The overall provincial C-section rate has remained stable over the past 5 years, ranging from 27.4% to 28.7% from 2014/15 to 2018/19. These rates are comparable to the national rate of 28.8% reported by the Canadian Institute for Health Information (CIHI) for 2017/18.

Definition

Number of C-section deliveries performed at each birthing hospital / Total number of deliveries performed at each birthing hospital.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2018-2019. Data extracted August 27, 2019.

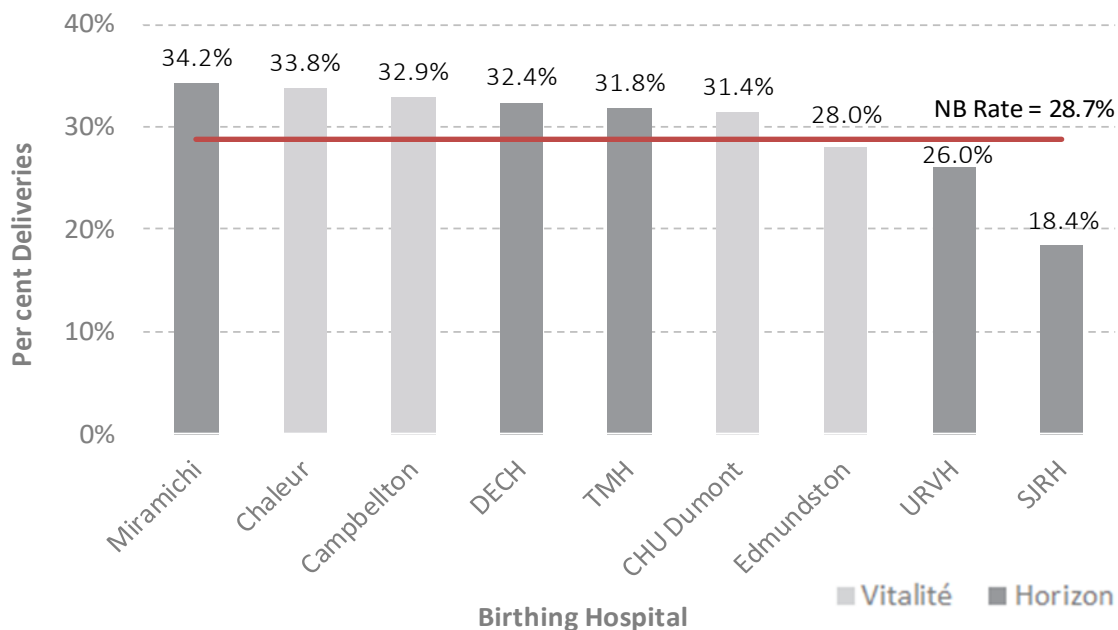


Figure 2.1: Per cent of deliveries by C-section, by birthing hospital, New Brunswick, 2018/19

Table 2.1: Percent of deliveries by C-section, by birthing hospital, New Brunswick, 2014/15 to 2018/19

Birthing Facility	C-Section Rate				
	2014/15	2015/16	2016/17	2017/18	2018/19
Campbellton Regional Hospital	30.6%	23.6%	29.3%	30.3%	32.9%
Chaleur Regional Hospital	33.3%	32.6%	33.7%	39.1%	33.8%
Dr. Everett Chalmers Regional Hospital	30.0%	30.4%	28.9%	32.2%	32.4%
Dr. Georges-L.-Dumont University Hospital Centre	30.1%	30.5%	34.5%	28.5%	31.4%
Edmundston Regional Hospital	24.0%	29.0%	28.9%	32.7%	28.0%
Miramichi Regional Hospital	34.3%	32.4%	31.9%	32.3%	34.2%
The Moncton Hospital	27.8%	31.5%	28.6%	32.2%	31.8%
Saint John Regional Hospital	21.2%	19.5%	19.9%	19.5%	18.4%
Upper River Valley Hospital	23.1%	30.7%	24.2%	26.5%	26.0%

Primary and Repeat C-Section Rate

The proportion of primary c-sections in New Brunswick has increased over the last 5 years from 17.7% (CI: 16.7-18.7%) in 2014/15 to 19.7% (CI: 18.7-20.8%) in 2018/19, while the proportion of repeat c-sections has decreased from 87.3% (CI: 85.2-89.4%) in 2014/15 to 82.7% (CI: 80.2-85.2%) in 2018/19.

The primary C-section rate for Canada in 2017/18 was 19.4%, while the Repeat C-Section Rate was 81.3%¹.

Definition

Primary C-Section Rate: Number of primary C-sections / Number of deliveries to women who have not had a previous C-section.

Repeat C-section Rate: Number of repeat C-sections / Number of deliveries to women who have had at least one previous C-section.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted August 27, 2019.

Reference

1. Quickstats – Childbirth Indicators by Place of Residence. Canadian Institute for Health Information. Accessed on: September 20, 2019.

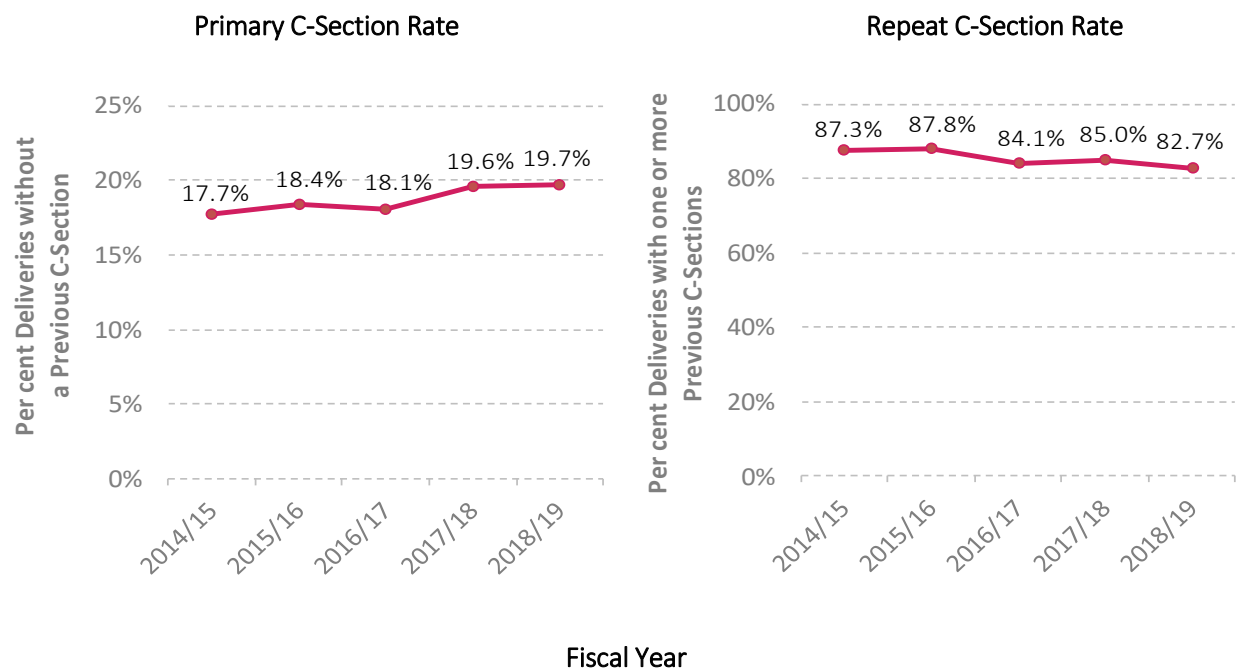


Figure 2.2: Percent of Primary and Repeat C-sections, New Brunswick, 2014/15 to 2018/19

Vaginal Birth after C-Section (VBAC)

The provincial VBAC Attempt rate increased from 16.9% (CI: 14.5-19.2%) in 2014/15 to 21.1% (CI: 18.4-23.8%) in 2018/19. As well, VBAC success rate increased from 75.3% (CI: 68.7-82.0%) in 2014/15 to 81.9% (CI: 76.4-87.4%) in 2018/19. Due to limitations in data capture, we are unable to calculate VBAC rates out of the number of VBAC eligible women.

Definition

Crude VBAC Rate: Number of VBAC deliveries / Number of deliveries with a previous C-section.

Attempted VBAC Rate: Number of attempted (failed or successful) VBAC deliveries / Number of deliveries with a previous C-section.

VBAC Success Rate: Number of VBAC deliveries / Number of attempted VBAC deliveries.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted August 27, 2019.

Table 2.2: VBAC crude rate, VBAC attempt rate, and VBAC success rate, New Brunswick, 2014/15 to 2018/19

Location	VBAC Deliveries				
	2014/15	2015/16	2016/17	2017/18	2018/19
Crude VBAC Rate	12.7%	12.2%	15.9%	14.9%	17.3%
VBAC Attempt Rate	16.9%	17.9%	19.3%	17.4%	21.1%
VBAC Success Rate	75.3%	68.0%	82.5%	85.5%	81.9%

Table 2.3: VBAC crude rate, VBAC attempt rate, and VBAC success rate, by birthing hospital, New Brunswick, 2018/19

Birthing Facility	VBAC Deliveries by Birthing Hospital		
	Crude VBAC Rate	VBAC Attempt Rate	VBAC Success Rate
Campbellton Regional Hospital	NR	NR	0.0%
Chaleur Regional Hospital	NR	14.5%	NR
Dr. Everett Chalmers Regional Hospital	13.4%	16.6%	80.9%
Dr. Georges-L. Dumont Hospital	20.0%	23.2%	86.4%
Edmundston Regional Hospital	NR	NR	NR
Miramichi Regional Hospital	NR	13.2%	NR
The Moncton Hospital	16.0%	21.7%	73.7%
Saint John Regional Hospital	39.2%	39.9%	98.4%
Upper River Valley Hospital	0.0%	0.0%	NA

Low-Risk Term Repeat C-sections Between 37 and 39 Weeks Gestation

This indicator evaluates the percent of low-risk elective repeat C-sections delivered at term, but prior to 39 weeks. ‘Low-risk’ is defined as singleton deliveries to mothers without any obstetrical or maternal complications in pregnancy, including placenta previa, malpresentation of fetus or abnormal lie, hypertension, pre-eclampsia, eclampsia, diabetes mellitus, disproportion or abnormality of maternal pelvic organs, fetal abnormalities or problems, and decreased fetal movements.

This rate has remained steady in New Brunswick over the past 5 years ranging from 31.8% (CI: 27.9-35.7%) in 2014/15 to 32.9% (CI: 28.3-37.5%) in 2018/19.

A 2009 study published in the New England Journal of Medicine found that repeat elective caesareans (with no indication for immediate or early delivery) performed between 37 and 38 weeks completed gestation had an increased rate of adverse outcomes, such as increased rate of mechanical ventilation, newborn sepsis, hypoglycemia, and admission to the neonatal ICU¹.

Definition

Number of low-risk elected repeat C-sections delivered between 37 and 39 weeks gestation (37+0 to 38+6) / Total number of low-risk elected repeat C-sections delivered at term (>=37 weeks gestation).

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 11th, 2019.

Reference

1. Tita, et al. *Timing of Elective Repeat Cesarean Delivery at Term and Neonatal Outcomes*. The New England Journal of Medicine; 360(2).

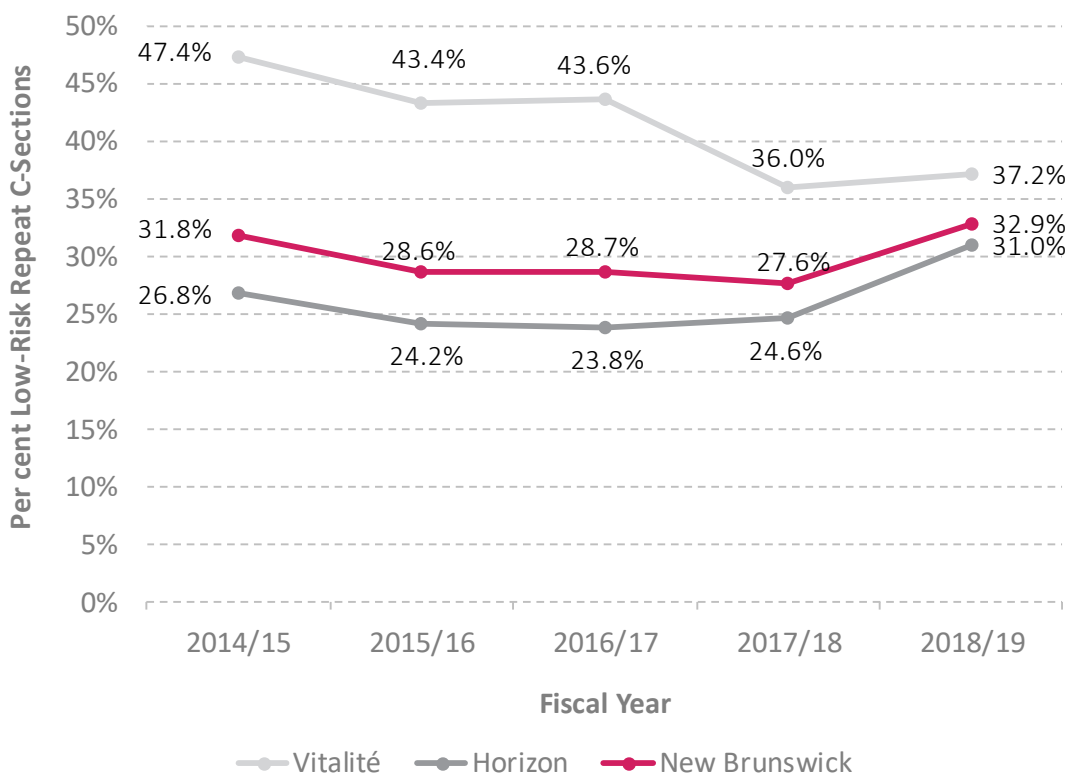


Figure 2.3: Percent of term low-risk repeat C-sections delivered between 37 and 39 weeks gestation, by location, 2011/12 to 2015/16

Low-Risk Term Repeat C-Sections Between 37 and 39 Weeks Gestation by Birthing Hospital

Table 2.4: Per cent of term low-risk repeat c-sections delivered between 37 and 39 weeks gestation, by birthing hospital, 2014/15 to 2018/19

Birthing Facility	Low-Risk Term Repeat C-Sections 37-39 Weeks				
	2014/15	2015/16	2016/17	2017/18	2018/19
Campbellton Regional Hospital	58.8%	NR	NR	NR	NR
Chaleur Regional Hospital	34.1%	52.6%	51.6%	39.0%	50.0%
Dr. Everett Chalmers Regional Hospital	22.9%	20.1%	21.0%	23.0%	28.2%
Dr. Georges-L.-Dumont University Hospital Centre	51.0%	43.6%	44.0%	44.1%	37.0%
Edmundston Regional Hospital	56.5%	29.2%	50.0%	31.8%	NR
Miramichi Regional Hospital	70.0%	45.6%	56.4%	50.0%	55.0%
The Moncton Hospital	28.8%	33.7%	25.9%	27.7%	30.0%
Saint John Regional Hospital	14.3%	14.3%	11.9%	20.0%	19.5%
Upper River Valley Hospital	21.2%	NR	NR	NR	NR

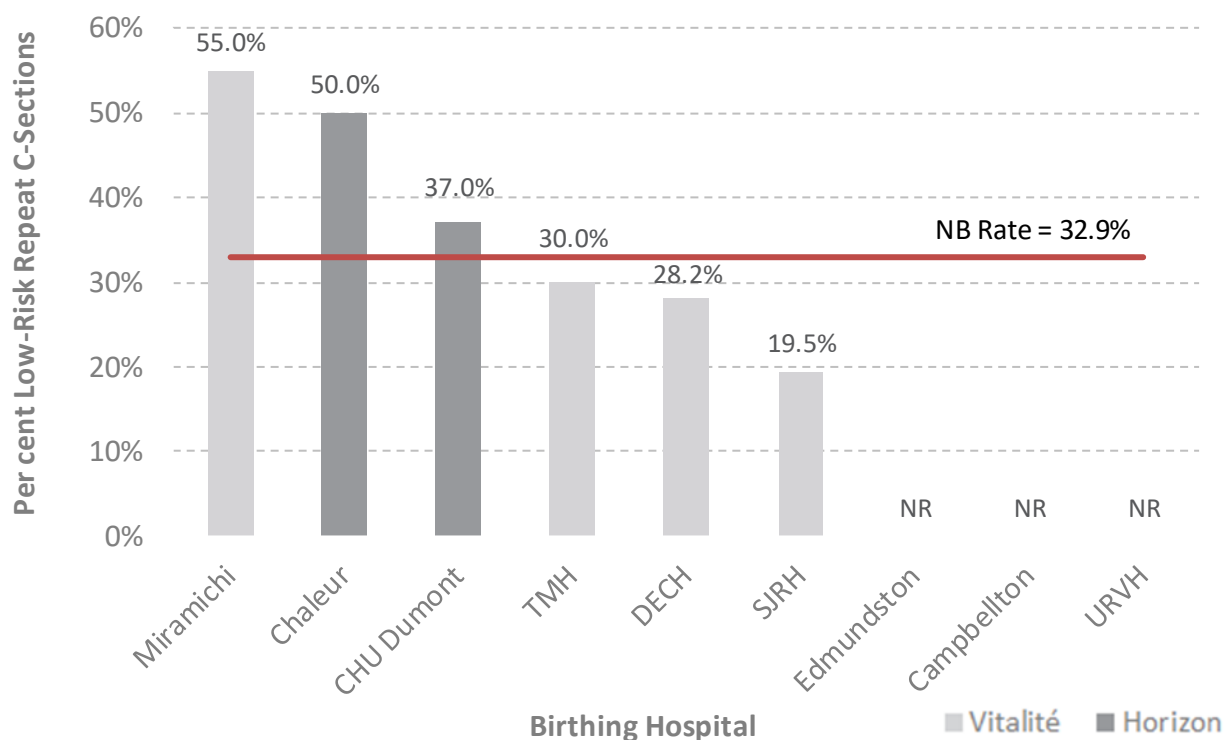


Figure 2.4: Per cent of term low-risk repeat c-sections delivered between 37 and 39 weeks gestation, by birthing hospital, 2018/19

Episiotomy Rate in Singleton Vaginal Deliveries

The provincial rate of episiotomy has remained relatively stable in the past 5 years. An episiotomy is an incision made in the perineum during childbirth, often used during an operative vaginal delivery such as the use of forceps or vacuum. Research has shown that there is no evidence supporting routine use of episiotomy¹.

Definition

Number of singleton vaginal deliveries that received an episiotomy / Total number of singleton vaginal deliveries.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 11th, 2019.

References

1. SOGC joint policy statement on normal childbirth, 2008; Carroli G, Mignini L. *Episiotomy for vaginal birth*. Cochrane Database Syst Rev 2009; (1): CD000081

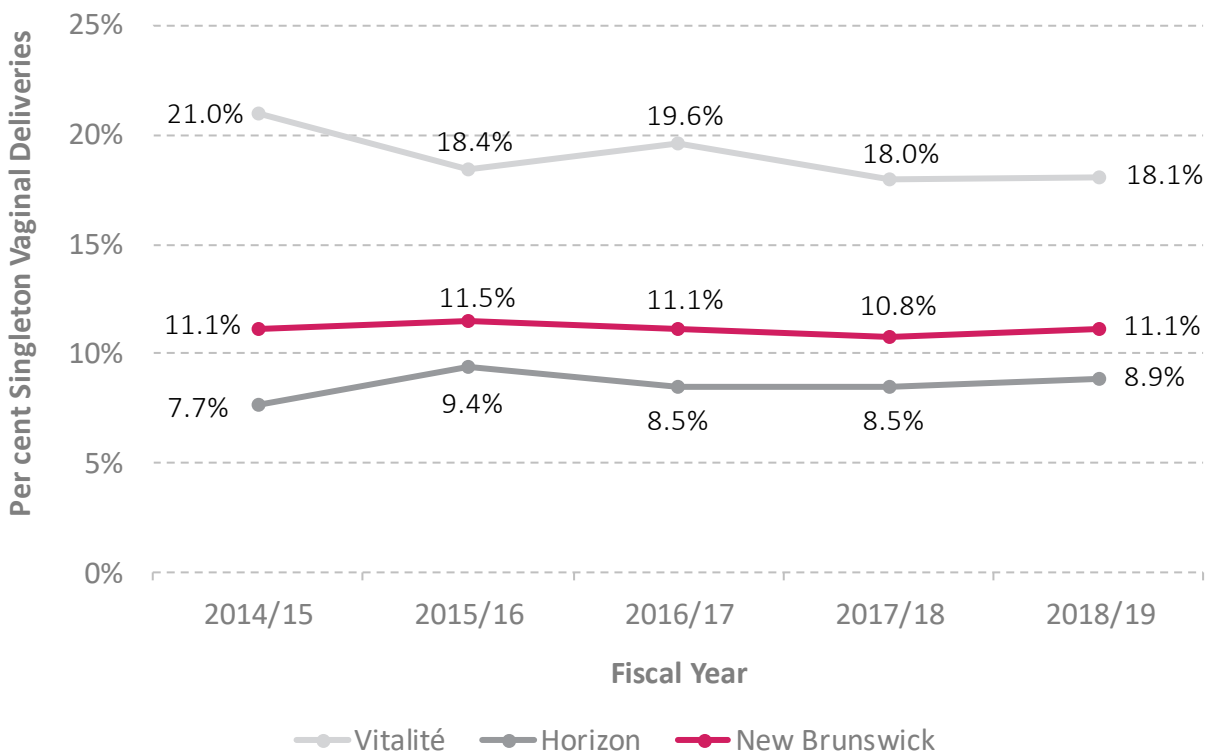


Figure 2.5: Rate of episiotomy in singleton vaginal deliveries, by location, 2014/15 to 2018/19

Episiotomy Rate in Singleton Vaginal Deliveries by Birthing Hospital

Table 2.5: Episiotomy rate in singleton vaginal deliveries, by birthing hospital, 2014/15 to 2018/19

Birthing Facility	Episiotomy				
	2014/15	2015/16	2016/17	2017/18	2018/19
Campbellton Regional Hospital	55.2%	51.1%	47.6%	51.3%	46.1%
Chaleur Regional Hospital	22.8%	20.4%	18.4%	15.9%	15.1%
Dr. Everett Chalmers Regional Hospital	6.9%	9.8%	8.5%	8.1%	9.2%
Dr. Georges-L.-Dumont University Hospital Centre	6.6%	6.0%	6.7%	6.5%	5.0%
Edmundston Regional Hospital	27.3%	20.2%	27.4%	21.2%	28.7%
Miramichi Regional Hospital	17.5%	17.3%	9.5%	8.6%	9.9%
The Moncton Hospital	9.0%	11.7%	12.9%	12.9%	12.8%
Saint John Regional Hospital	6.7%	6.9%	5.9%	6.7%	6.5%
Upper River Valley Hospital	NR	NR	NR	NR	NR

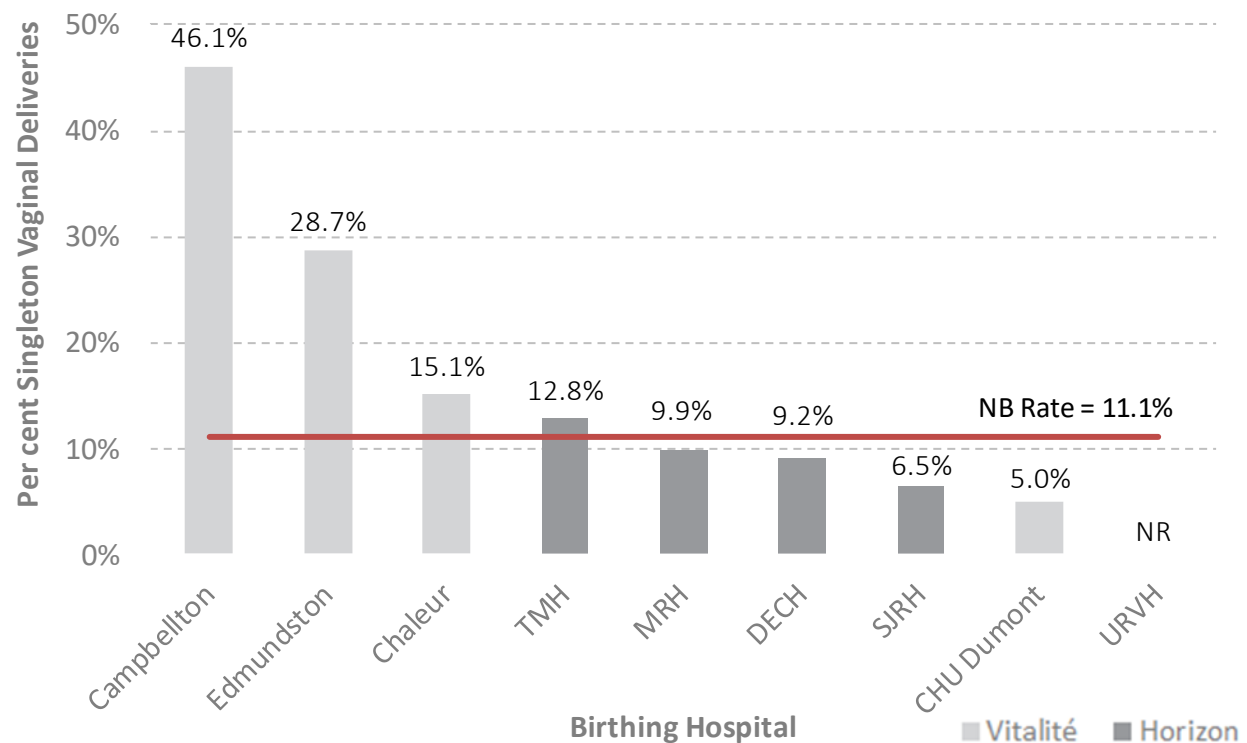


Figure 2.6: Episiotomy rate in singleton vaginal deliveries, by birthing hospital, 2018/19

Induction Rate

The induction rate in New Brunswick has steadily increased from 31.5% (CI: 30.4-32.6%) in 2016/17 to 35.8% (CI: 34.6-37.0%) in 2018/19. Miramichi Regional Hospital had the highest induction rate in 2018/19 at 44.4% (CI: 39.7-49.2%), while Campbellton Regional Hospital had the lowest rate at 20.9% (CI: 15.7-26.2%).

Induction of labour is the use of artificial means to start the labour process¹. There are risks associated with induction of labour, such as, bacterial infection of the uterus, birth of a preterm baby when dating is inaccurate, and in some cases caesarean section¹.

Definition

Number of women who are induced for delivery / Total number of deliveries.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2016-2019. Data extracted July 11th, 2019.

References

1. Induction. SOGC Information website www.pregnancyinfo.ca/birth/labor/induction. Accessed on: September 11, 2019.

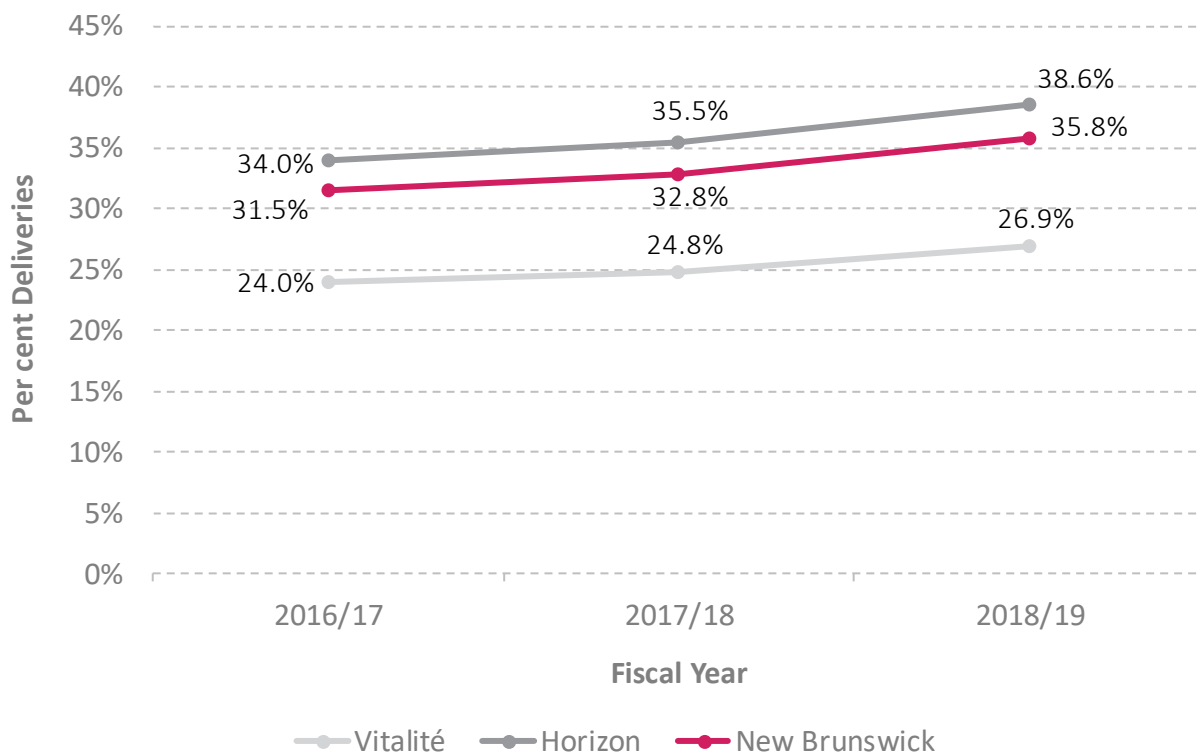


Figure 2.7: Rate of induction for delivery, by location, 2014/15 to 2018/19

Induction Rate by Birthing Hospital

Table 2.6: Induction rate, by birthing hospital, 2014/15 to 2018/19

Birthing Facility	Induction Rate		
	2016/17	2017/18	2018/19
Campbellton Regional Hospital	11.5%	19.9%	20.9%
Chaleur Regional Hospital	30.5%	28.3%	29.5%
Dr. Everett Chalmers Regional Hospital	41.9%	43.0%	44.1%
Dr. Georges-L.-Dumont University Hospital Centre	22.2%	24.6%	29.9%
Edmundston Regional Hospital	26.5%	23.8%	22.2%
Miramichi Regional Hospital	40.3%	45.9%	44.4%
The Moncton Hospital	28.3%	28.4%	32.8%
Saint John Regional Hospital	30.7%	32.8%	37.8%
Upper River Valley Hospital	22.5%	29.4%	28.5%

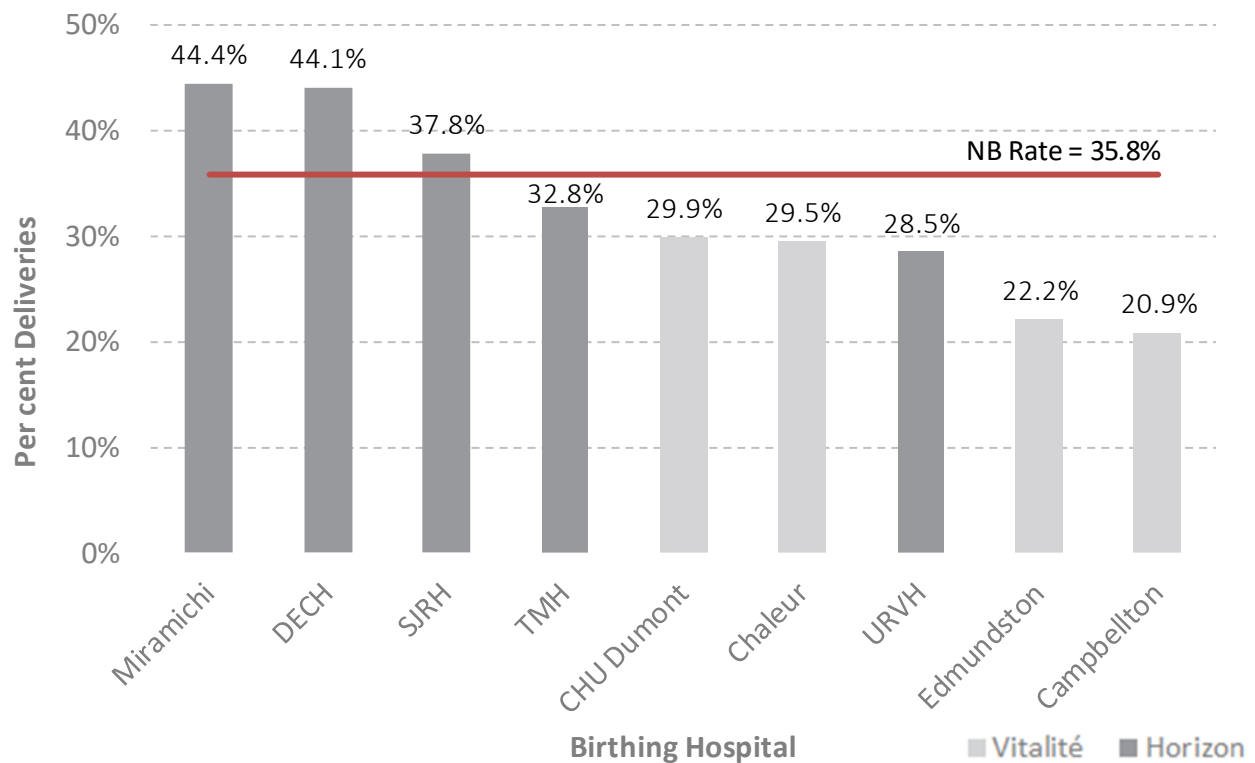


Figure 2.8: Induction rate, by birthing hospital, 2018/19

Chapter 3 Newborn Health

Total Births

In accordance with the number of deliveries, the total number of live births has decreased over the past five years, from 6931 to 6355. The number of stillbirths has fluctuated over the past five years and refers to deliveries equal or greater than 20 weeks gestation without signs of life. Note, these numbers include stillbirths and livebirths that resulted from an Interruption of Pregnancy at 20 weeks or greater.

Definition

The total number of live births and stillbirths in New Brunswick.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 8th, 2019.

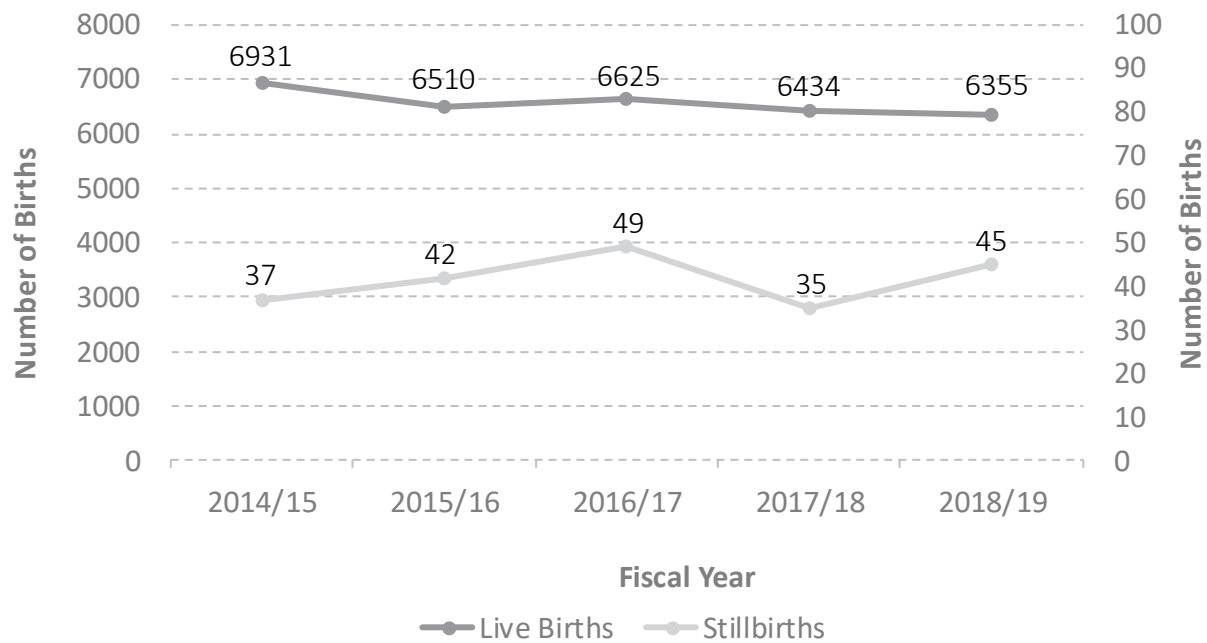


Figure 3.1: Total number of live births and stillbirths, New Brunswick, 2014/15 to 2018/19

Pre-Term Birth Rate

The pre-term birth rate has remained relatively stable in the past 5 years, ranging from a low of 7.4% (CI: %) in 2015/16 and a high of 8.3% (CI: %) in 2017/18. The provincial rate is in keeping with the national rate, reported at 8.0% for 2017/18¹.

Definition

Number of live births that were born pre-term (prior to 32 and 37 weeks gestation) / Total number of live births.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 8th, 2019.

Reference

1. Quickstats – Childbirth Indicators by Place of Residence. Canadian Institute for Health Information. Accessed on: September 20, 2019.

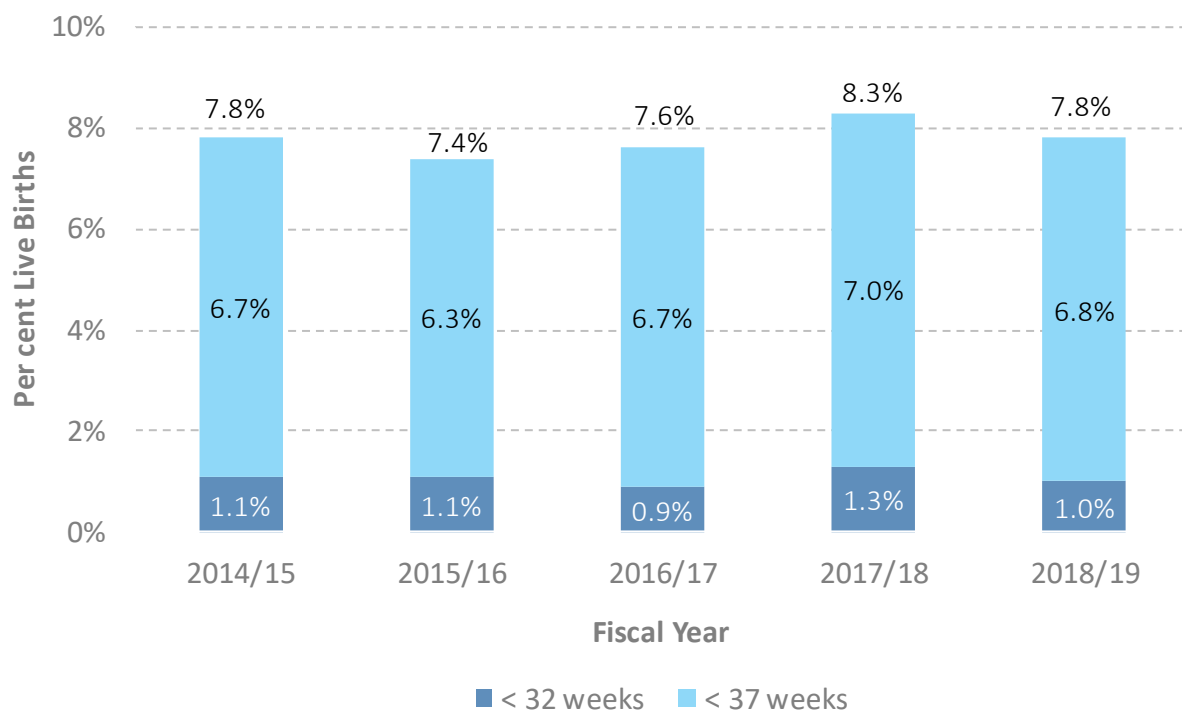


Figure 3.2: Per cent of babies born prior to 32 weeks gestation and 37 weeks gestation, New Brunswick, 2014/15 to 2018/19

Birth Weight Percentile for Gestational Age

Infants born in the 90th percentile are considered to be large for gestational age. At a rate of 11.1% in 2018/19, this indicates a shift towards babies being born larger in New Brunswick than in an average population. This is possibly due to the increased rates of Diabetes during pregnancy within the province. Diabetes, if uncontrolled during pregnancy, can lead to newborns being born large for gestational age. It is of note that PHAC reported a Canadian National Rate of 10.2% of babies born in the 90th percentile in 2014, following a nine year decreasing trend¹.

Definition

Number of births in the 3rd, 10th, 90th, and 97th percentiles for sex and birth weight (according to the Canadian Perinatal Surveillance System Birth Weight growth chart²) / Total number of live births.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 8th, 2019.

References

1. Public Health Agency of Canada. Perinatal Health Report, 2017 edition. Ottawa, 2017.
2. Public Health Agency of Canada, 2001. *Birth Weight for Gestational Age*. Retrieved from http://www.phac-aspc.gc.ca/rhs-ssg/bwga-pnag/pdf/bwga-pnag_e.pdf (accessed September 29th, 2016.).

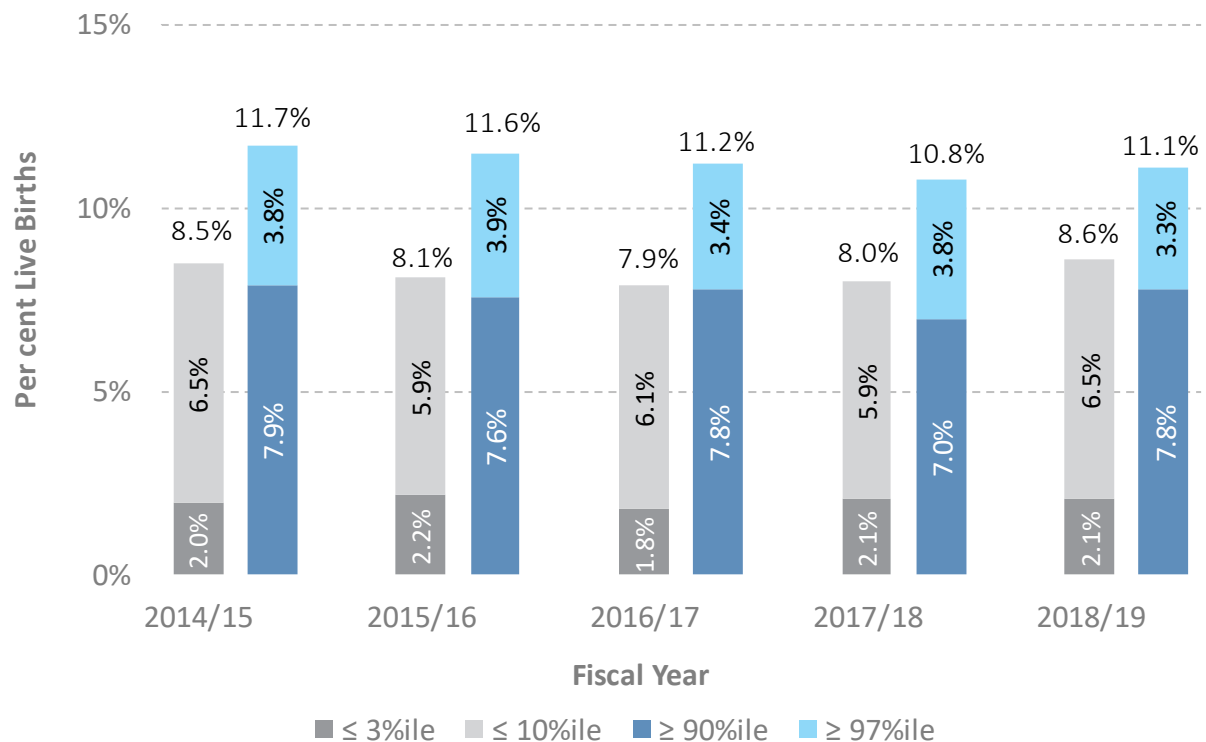


Figure 3.3: Size percentile for gestational age at time of delivery, New Brunswick, 2014/15 to 2018/19

Primary SCU/NICU Admission by Regional Health Authority

The number of SCU/NICU admissions was counted differently at the provincial, RHA and hospital level. The provincial rate counted each infant as one SCU/NICU admission regardless of the number of transfers, and is therefore the true rate of SCU/NICU admissions per live births in New Brunswick. At the RHA level, SCU/NICU admissions were counted only once if the infant was transferred within the same RHA, however they were counted once per RHA if they were transferred between Horizon and Vitalité.

Please note that Special Care Unit (SCU) admissions at the Dr. Georges-L. Dumont University Hospital Centre and the Miramichi Regional Hospital are not included in reported rates for Vitalité, Horizon and New Brunswick prior to 2016/17 due to lack of data capture in the 3M Health Data Management System. The denominator of 'total live births' was also adjusted to exclude any births occurring at these two hospitals for these years. Please see "Notes and Limitations" (page 4) for definitions of SCU and NICU.

Definition

Number of infants equal or less than 28 days of age with at least one SCU/NICU admission / Total number of live-born infants admitted to hospital in the first 28 days of life. This includes all hospital births and any admissions to pediatrics, an SCU or a NICU.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 16th, 2019.

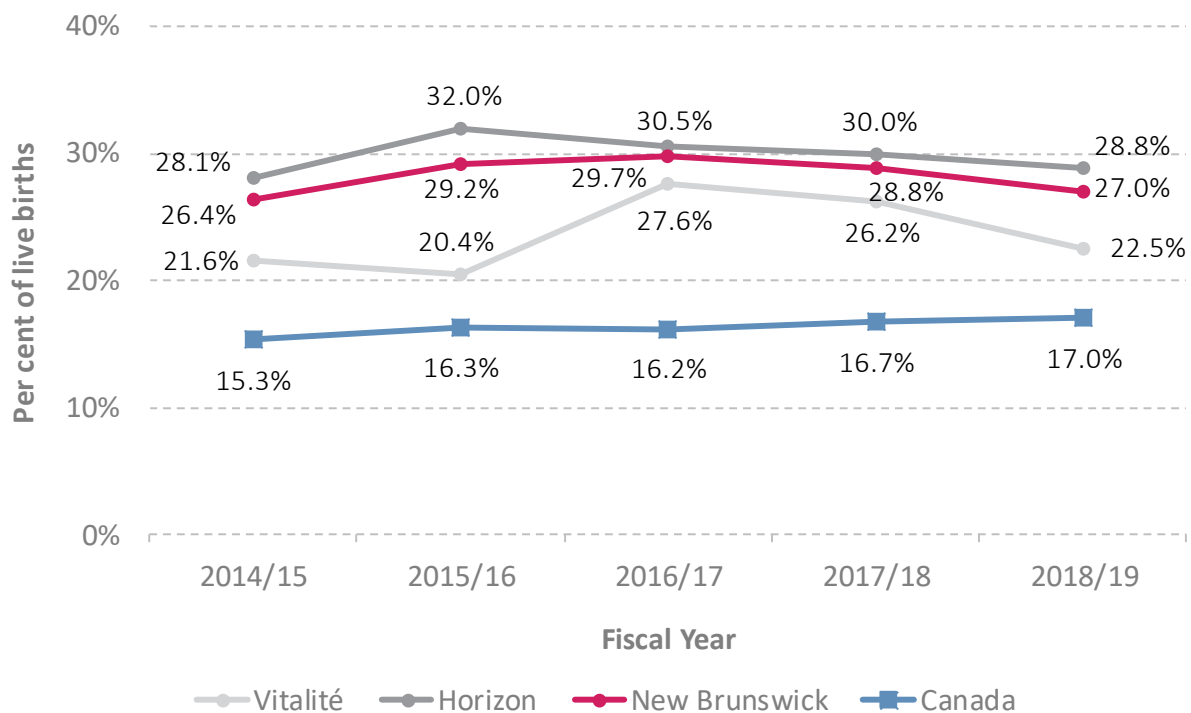


Figure 3.4: Per cent of live born infants admitted to SCU/NICU in the first 28 days of life, by location, New Brunswick and Canada, 2014/15 to 2018/19

Primary SCU/NICU Admissions by Birthing Hospital

SCU/NICU admissions were counted once per hospital, even if a transfer occurred. Given that the three MIS designated NICUs (The Moncton Hospital, Dr. Everett Chalmers Regional Hospital, and Saint John Regional Hospital) are able to take care of infants requiring a higher level of care, we would expect to see their rates higher than the other facilities with a SCU. The only facility without a NICU or SCU within New Brunswick is Upper River Valley Hospital.

Definition

Number of infants equal or less than 28 days of age with at least one SCU/NICU admission / Total number of live born infants admitted to hospital in the first 28 days of life.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 16th, 2019.

Table 3.1: Per cent of live born infants admitted to SCU/NICU within the first 28 days of life, by birthing hospital, New Brunswick, 2014/15 to 2018/19

Birthing Facility	Primary Special Care Nursery/NICU Admission				
	2014/15	2015/16	2016/17	2017/18	2018/19
Campbellton Regional Hospital	29.2%	19.6%	19.8%	26.6%	21.9%
Chaleur Regional Hospital	49.8%	53.7%	58.6%	51.3%	46.7%
Dr. Everett Chalmers Regional Hospital	36.5%	45.4%	40.9%	35.0%	39.1%
Dr. Georges-L.-Dumont University Hospital Centre	NA	NA	14.8%	13.2%	14.1%
Edmundston Regional Hospital	19.8%	16.3%	11.0%	18.6%	17.4%
Miramichi Regional Hospital	NA	NA	2.9%	4.3%	5.1%
The Moncton Hospital	32.8%	35.4%	32.9%	37.0%	26.0%
Saint John Regional Hospital	28.1%	29.4%	30.0%	31.0%	31.8%

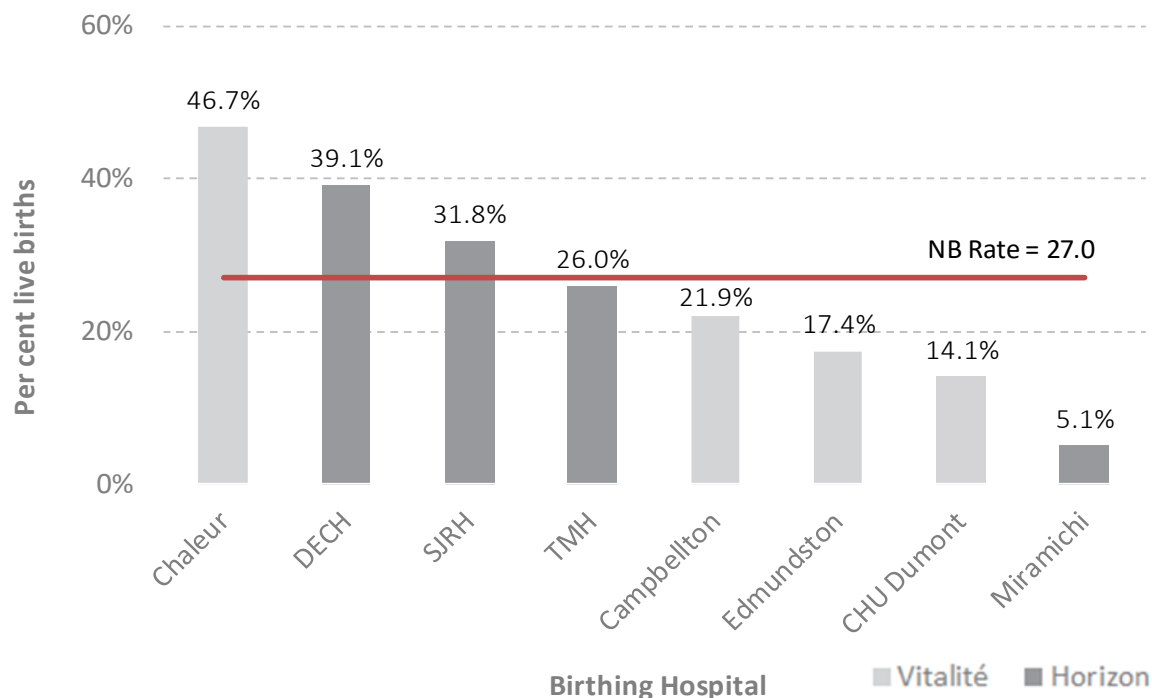


Figure 3.5: Per cent of live born infants admitted to SCU/NICU in the first 28 days of life, by birthing hospital, New Brunswick, 2018/19

Most Responsible Diagnosis for SCU/NICU Admission

These diagnoses relate to specific ICD10 codes in the 3M Health Data Management System and are not intended to capture rates of neonatal health conditions in New Brunswick. These codes are reflective of the practices of New Brunswick hospitals and what health professionals record as the most responsible diagnosis for any SCU/NICU admission. Please note that this list includes only the top 15 most frequently used “most responsible diagnosis” codes out of 128 codes used in 2018/19.

Infants with a most responsible diagnosis of “other preterm infants” is top reason for admission to NICU in 2018/19 at 15.0%, infants with “observation for other suspected diseases and conditions is the second reason at 10.8%.

Definition

Count of each primary diagnosis for SCU/NICU admission / Number of infants equal or less than 28 days of age with at least one SCU/NICU admission.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 16th, 2019.

Table 3.2: The top 15 most responsible diagnoses (defined by specific ICD-10 codes) for SCU/NICU admission, New Brunswick, 2018/19

Most Responsible Diagnosis for SCU/NICU Admission			
Rank	Diagnosis	Number	Rate
1	Examination and Observation	272	15.7%
2	Preterm Infant	259	15.0%
3	Low birth weight	166	9.6%
4	Transient tachypnoea of newborn (TTN)	102	5.9%
5	Respiratory distress of newborn	98	5.7%
6	Infant of mother with gestational diabetes	96	5.6%
7	Heavy for gestational age infants (Birth weight >4000g)	69	4.0%
8	Condition originating in the perinatal period	56	3.2%
9	Neonatal jaundice	40	2.3%
10	Singleton born in hospital	32	1.9%
11	Neonatal hypoglycaemia (not associated with diabetic mother)	31	1.8%
12	Exceptionally large baby (birth weight >4500g)	30	1.7%
	Neonatal withdrawal symptoms from maternal illicit drug use	30	1.7%
14	Bacterial sepsis of newborn	25	1.4%
15	Respiratory failure of newborn	23	1.3%
	Intrauterine growth restriction (IUGR)	23	1.3%

Term and Pre-term Newborns in NICU/SCU Admissions

The rate of NICU admissions that are term and pre-term has remained relatively stable over the last 5 years. In 2018/19, 24.8% of NICU admissions were pre-term infants, while 75.2% of admissions were term infants for the same year.

Definition

Number of pre-term or term infants equal or less than 28 days of age with at least one SCU/NICU admission / Total number of SCU/NICU admissions.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 16th, 2019.

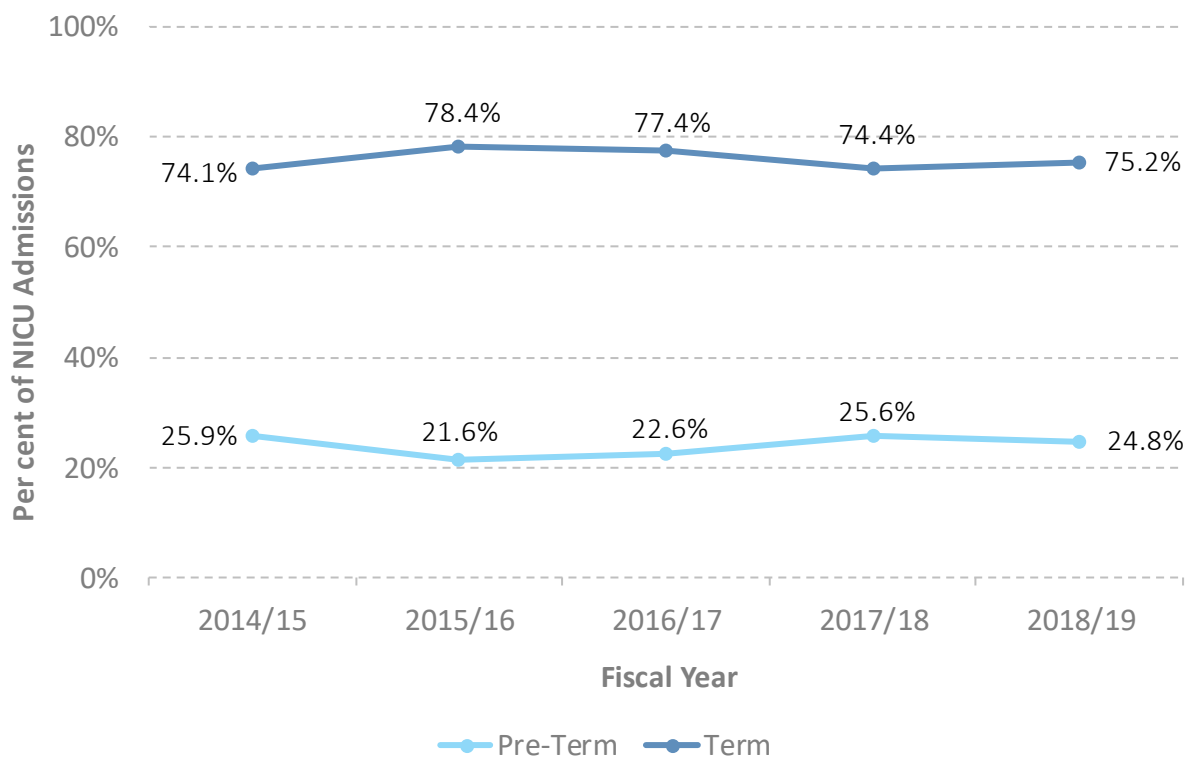


Figure 3.6: Per cent of NICU/SCU admissions, by gestational age, New Brunswick, 2014/15 to 2015/16

Neonatal Mortality Rate

Please note that these rates do not include any infant deaths that occur outside of a New Brunswick hospital, specifically this rate does not include any infants born outside of the province because they required a higher level of care than could be provided by a New Brunswick hospital.

Definition

Number of live-born infant deaths within the first 28 days of life / Total number of live-born infants admitted to hospital in the first 28 days of life.
This includes all hospital births and any admissions to pediatrics, an SCU or a NICU.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 8th, 2019.

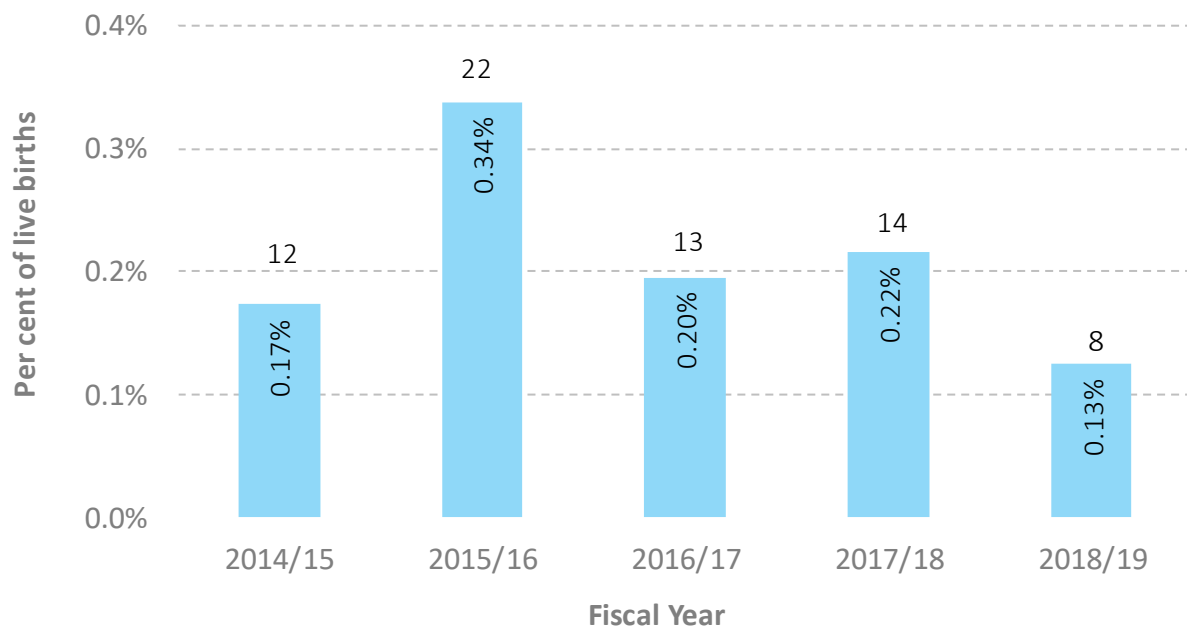


Figure 3.7: Number and per cent of neonatal deaths at 28 days of age or less, New Brunswick, 2014/15 to 2018/19

Exclusive Breastfeeding Rate at Discharge

The Office of the Chief Medical Officer of Health implemented a breastfeeding data collection form in 2006, with revision in 2012 and 2014, to better evaluate breastfeeding rates for all newborns born in New Brunswick. While some hospital rates have remained relatively stable, a decreasing trend is noted for others. The government of New Brunswick has adopted the Baby-Friendly Initiative as a strategy to protect, promote and support breastfeeding. In this capacity, they have designated BFI Coordinators for both RHAs to help implement the BFI strategy within all birthing hospitals. The goal of this work is for each birthing hospital to become BFI accredited through the Breastfeeding Committee of Canada (BCC). One of the designation criteria as per the BCC is an exclusive breastfeeding rate at hospital discharge of 75% or more. Given this criterion, there is still much work to be done across all facilities in the province to achieve BFI accreditation.

Definition

Number of infants that were exclusively breastfed or were supplemented for a medical reason at time of discharge / Total number of live births.

Data Source

3M Health Data Management System, Horizon Health Network and Réseau de Santé Vitalité, 2014-2019. Data extracted July 8th, 2019.

Table 3.3: Per cent of babies that were exclusively breastfed at time of discharge or were supplemented for a medical reason, by birthing hospital, New Brunswick, 2014/15 to 2018/19

Birthing Facility	Exclusive Breastfeeding Rate				
	2014/15	2015/16	2016/17	2017/18	2018/19
Campbellton Regional Hospital	57.2%	53.0%	50.9%	52.0%	48.3%
Chaleur Regional Hospital	55.0%	58.4%	52.4%	50.2%	60.5%
Dr. Everett Chalmers Regional Hospital	60.2%	59.5%	54.1%	47.6%	41.9%
Dr. Georges-L.-Dumont University Hospital Centre	73.4%	60.9%	56.9%	56.4%	60.1%
Edmundston Regional Hospital	52.0%	45.5%	47.6%	52.4%	56.8%
Miramichi Regional Hospital	53.1%	46.9%	51.8%	50.4%	55.3%
The Moncton Hospital	55.7%	52.6%	57.6%	56.6%	60.5%
Saint John Regional Hospital	59.1%	60.2%	52.8%	49.3%	43.8%
Upper River Valley Hospital	58.8%	57.8%	62.9%	52.3%	66.7%

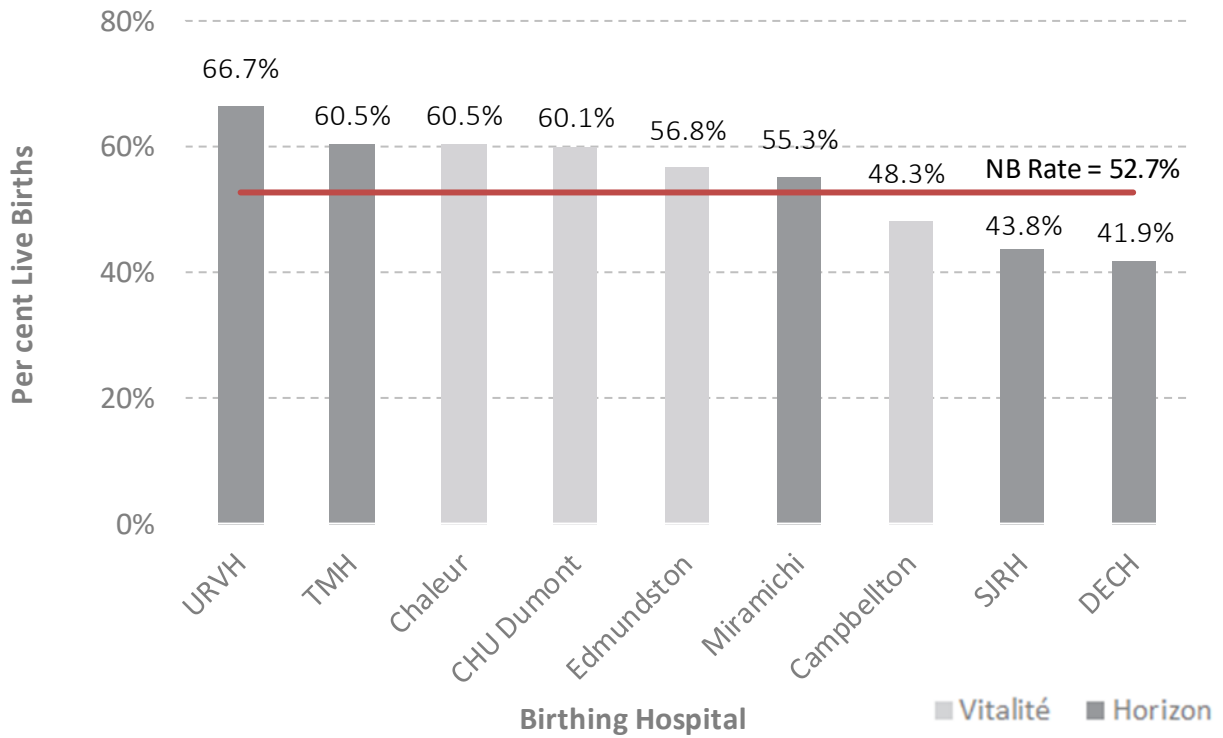


Figure 3.8: Per cent of babies that were exclusively breastfed at time of discharge or were supplemented for a medical reason, by birthing hospital, New Brunswick, 2018/19