

Nova Scotia Atlee Perinatal Database

Report of Indicators: 2011-2020



Reproductive Care Program of Nova Scotia

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Dedication

We would like to dedicate this year's report to Becky Attenborough. The Nova Scotia Atlee Perinatal Database (NSAPD), upon which this report of perinatal indicator is based, has been managed since its inception in 1980 by the Reproductive Care Program (RCP) of Nova Scotia. Rebecca (Becky) Attenborough has managed RCP for the past 30 years. We say good-bye to Becky in this role with sadness but, on the other hand, with the greatest wishes for a well-earned and happy retirement.

Becky's tireless dedication to the role has contributed to the success of the NSAPD in immeasurable ways. On the technical side, Becky shepherded the transition from legacy software into a modern relational database. To do so required the utmost administrative skill to ensure facilities were willing and able to contribute uninterrupted data despite reorganizations and resource reallocation. At the heart of her success is Becky's decade of experience with vulnerable newborns from across the province as a neonatal intensive care nurse and later as head nurse. The knowledge and compassion that she accumulated was incorporated into the development of the NSAPD with substantial influence on the amount and relevance of clinical information captured and incorporating standardized reporting. Most importantly, Becky has been the single biggest user of the NSAPD to guide the planning and management of perinatal care provision, facilitate research, and support the invaluable quality review work that she and her team of perinatal nurse consultants have undertaken across the province alongside RCP's medical advisors. Her encyclopedic knowledge of the perinatal care provided throughout the province, keen eye for detail, relentless work ethic, and indefatigable good humour have been essential in the survival and success of the NSAPD.

We sincerely thank Becky for her substantial contributions. They have and will continue to benefit all Nova Scotians by ensuring optimal health and well-being of mothers and their newborns.





Acknowledgements

This Nova Scotia Atlee Perinatal Database Report was developed and prepared by members of the Perinatal Epidemiology Research Unit in collaboration with the Reproductive Care Program (RCP) of Nova Scotia. All members of RCP provided valuable input, but we would like to especially acknowledge John Fahey (Research Analyst), Becky Attenborough (Manager), LeeAnne Lauzon (Perinatal Nurse Consultant), and Irene Gagnon (Clinical Data Coordinator). We would also like to thank Alexa MacDonald, Brian Maguire, and Colleen O’Connell who helped to set up the compilation to allow reports to be generated on an ongoing basis. Of course, all of the health information professionals, health care providers, and administrators at participating hospitals are invaluable to maintaining the high quality data found within the Atlee Perinatal Database.

Members of the Perinatal Epidemiology Research Unit Departments of Obstetrics & Gynaecology and Pediatrics

- Dr. Alexander Allen (deceased)
- Azar Mehrabadi, PhD, Assistant Professor
- Stefan Kuhle, MD, PhD, Associate Professor
- Christy Woolcott, PhD, Director, Associate Professor
- Linda Dodds, PhD, Past Director, Professor





Introduction

Purpose of Report

The data presented in this Report are meant to provide a quick reference to the sentinel indicators of perinatal health and care among Nova Scotia residents. In addition, we hope that the data in this Report will assist with the development and monitoring of standards of care and will trigger research questions that can be pursued by researchers and trainees. With the COVID19 pandemic, the results from this report may be particularly invaluable for hypothesis generation.

Nova Scotia Atlee Perinatal Database

The Nova Scotia Atlee Perinatal Database (NSAPD) is a population-based database that contains detailed province-wide clinical and demographic information from 1988 onwards. Data are abstracted on-site in Nova Scotia health care facilities by health information professionals and are contributed to the NSAPD by these facilities. The Reproductive Care Program (RCP), a program of the IWK Health Centre, is the NSAPD custodian.

The population in the NSAPD includes all reported liveborn and stillborn infants at a gestational age of at least 20 weeks or having a birth weight of at least 500 g. Every effort is made to ensure that the NSAPD includes perinatal events for all Nova Scotia residents. Events that occurred in Nova Scotia facilities that do not have active maternity services are collected, as are events that occur in New Brunswick facilities where Nova Scotia residents regularly seek care. Home births have been included in the NSAPD since the introduction of regulated midwifery in 2009.

Important Notes Regarding Definitions and Figures

A Glossary of all terms can be found at the end of this report.

The term “birth” is differentiated from “delivery”. A delivery refers to the completed pregnancy, regardless of the number of infants born. Birth refers to the live born or stillborn infant. For example, when a woman delivers twins, one delivery and two births are represented.

The definition of gestational age, which is detailed in the Glossary, incorporates information on ultrasound measurements, as well as last menstrual period date and clinical estimate of gestational age.

It is important to note the scale that is used in the Figures. In some instances, the rate of a particular indicator will appear to vary greatly from year to year, but the apparent variation may be due to a narrow range for the scale.

Future Reports

We plan to produce similar reports on a regular basis. Updated reports will be posted on the RCP web site (<http://rcp.nshealth.ca>). As always, we welcome comments and suggestions for additional indicators to be included in these future reports (peru@dal.ca).

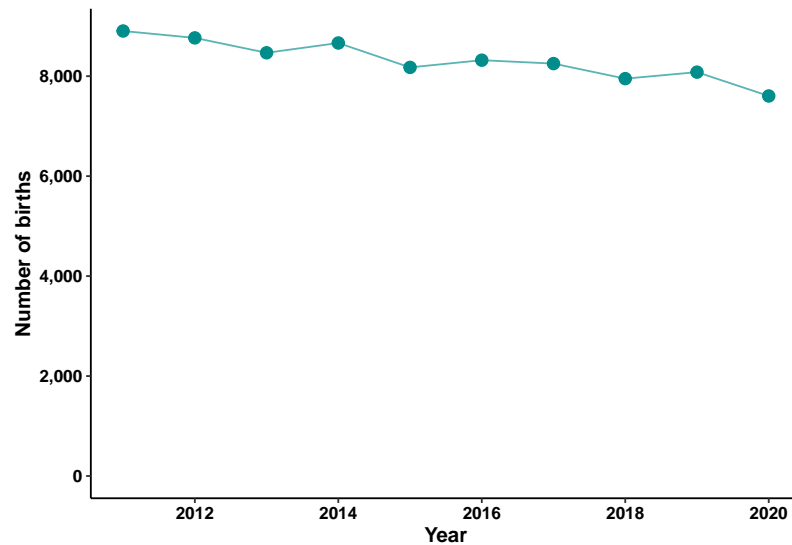
1

Deliveries and Births

1.1 Number of deliveries (live births and stillbirths) to residents by year, Nova Scotia, 2011-2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Multiple	139	146	139	149	124	123	140	120	140	108
Singleton	8625	8472	8186	8365	7927	8071	7971	7712	7798	7383
Total	8764	8618	8325	8514	8051	8194	8111	7832	7938	7491

1.2 Number of births by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total births	8,904	8,766	8,468	8,664	8,176	8,320	8,252	7,951	8,081	7,604

1.3 Number of births by outcome, sex, and year, Nova Scotia, 2011-2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Female live births	4349	4246	4090	4244	3971	4082	3932	3849	3931	3730
Female stillbirths	23	21	17	23	16	13	23	23	17	12
Total Female births	4372	4267	4107	4267	3987	4095	3955	3872	3948	3742
Male live births	4514	4475	4344	4367	4166	4212	4284	4062	4113	3837
Male stillbirths	16	22	17	27	21	12	13	16	18	24
Total Male births	4530	4497	4361	4394	4187	4224	4297	4078	4131	3861
Total live births	8863	8722	8434	8612	8138	8294	8216	7911	8046	7567
Total stillbirths	41	44	34	52	38	26	36	40	35	37
Total births	8904	8766	8468	8664	8176	8320	8252	7951	8081	7604

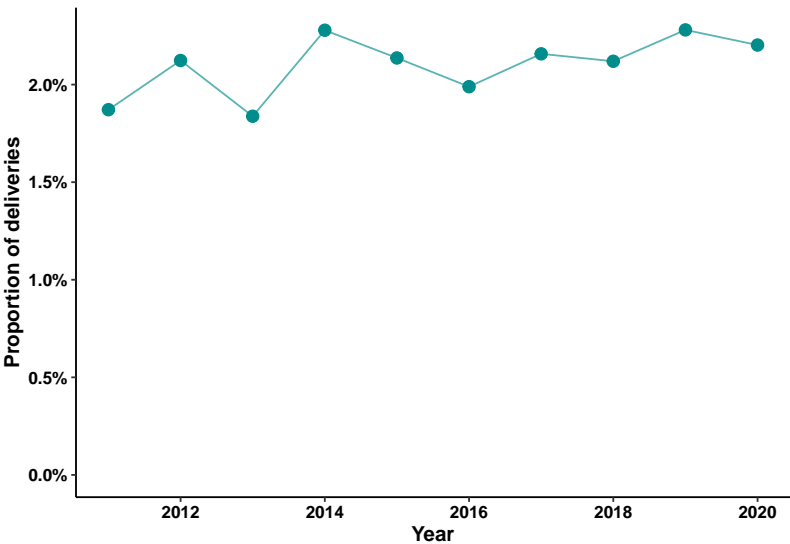
Note:

Sex could not be determined in some infants and these infants are not included in the male or female categories.

Stillbirth refers to the complete expulsion or extraction from its mother after at least 20 weeks pregnancy, or after attaining a weight of 500 g or more, of a fetus in whom, after such expulsion or extraction, there is no breathing, beating of the heart, pulsation of the umbilical cord, or unmistakable movement of voluntary muscle.

1.4 Deliveries resulting from assisted reproductive technology, Nova Scotia, 2011-2020 3

1.4 Deliveries resulting from assisted reproductive technology, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,764	8,618	8,325	8,514	8,051	8,194	8,111	7,832	7,938	7,491
Assisted reproduction	1.9%	2.1%	1.8%	2.3%	2.1%	2.0%	2.2%	2.1%	2.3%	2.2%

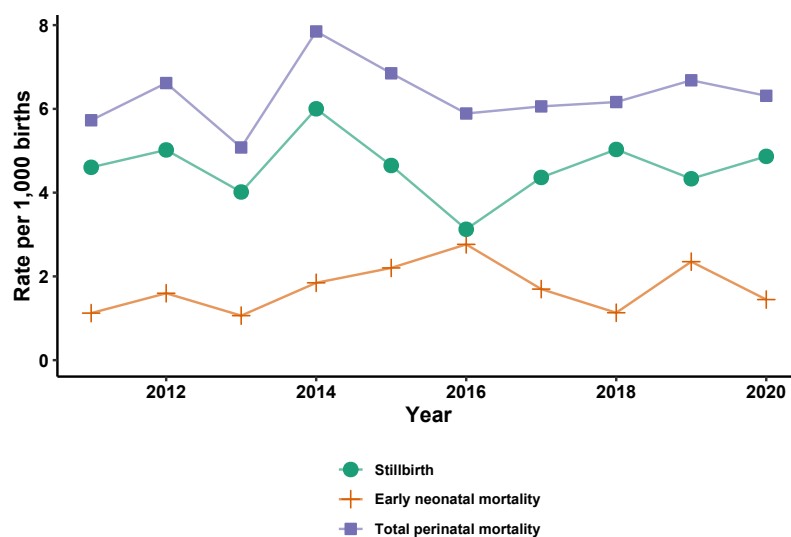
Note:
Assisted reproductive technology can include ovulation induction, intracytoplasmic sperm injection (ICSI), embryo transfer, or in vitro fertilization (IVF).



2

Perinatal and Infant Mortality

2.1 Perinatal mortality by year, Nova Scotia, 2011-2020

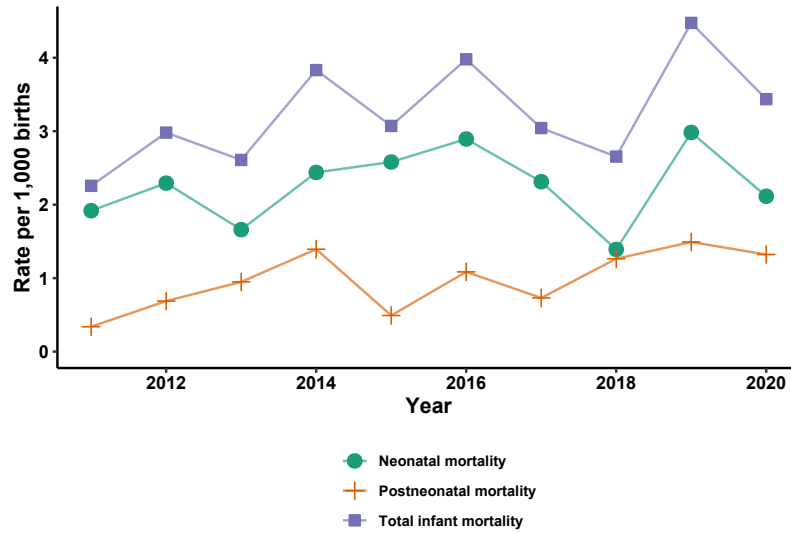


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total births	8,904	8,766	8,468	8,664	8,176	8,320	8,252	7,951	8,081	7,604
Rate per 1,000 births										
Stillbirth	4.6	5.0	4.0	6.0	4.6	3.1	4.4	5.0	4.3	4.9
Early neonatal mortality	1.1	1.6	1.1	1.8	2.2	2.8	1.7	1.1	2.4	1.4
Total perinatal mortality	5.7	6.6	5.1	7.8	6.8	5.9	6.1	6.2	6.7	6.3

Note:

Stillbirth refers to the complete expulsion or extraction from its mother after at least 20 weeks pregnancy, or after attaining a weight of 500 g or more, of a fetus in whom, after such expulsion or extraction, there is no breathing, beating of the heart, pulsation of the umbilical cord, or unmistakable movement of voluntary muscle. Early neonatal mortality refers to the death of a liveborn infant, occurring up to the sixth completed day of life (6 days, 23 hours and 59 minutes). Perinatal mortality includes both stillbirths and early neonatal deaths.

2.2 Infant mortality by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total live births	8,863	8,722	8,434	8,612	8,138	8,294	8,216	7,911	8,046	7,567
Rate per 1,000 births										
Neonatal mortality	1.9	2.3	1.7	2.4	2.6	2.9	2.3	1.4	3.0	2.1
Postneonatal mortality	0.3	0.7	0.9	1.4	0.5	1.1	0.7	1.3	1.5	1.3
Total infant mortality	2.3	3.0	2.6	3.8	3.1	4.0	3.0	2.7	4.5	3.4

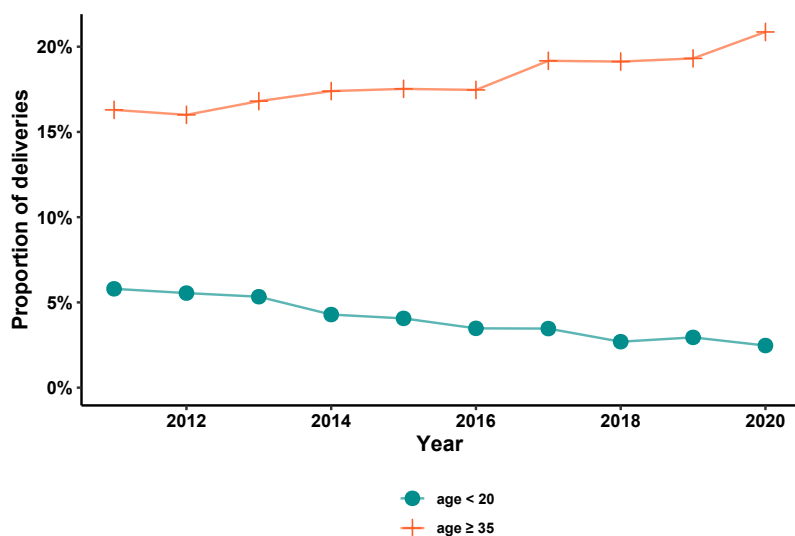
Note:

Neonatal mortality refers to the death of a liveborn infant, occurring up to the 27th completed day of life (27 days, 23 hours and 59 minutes). Postneonatal mortality denotes the death of a liveborn infant weighing 500 g or more at birth, occurring from 28 days to 1 year of life. Infant mortality encompasses both neonatal and postneonatal mortality, that is, the death of a liveborn infant occurring within the first year of life.

3

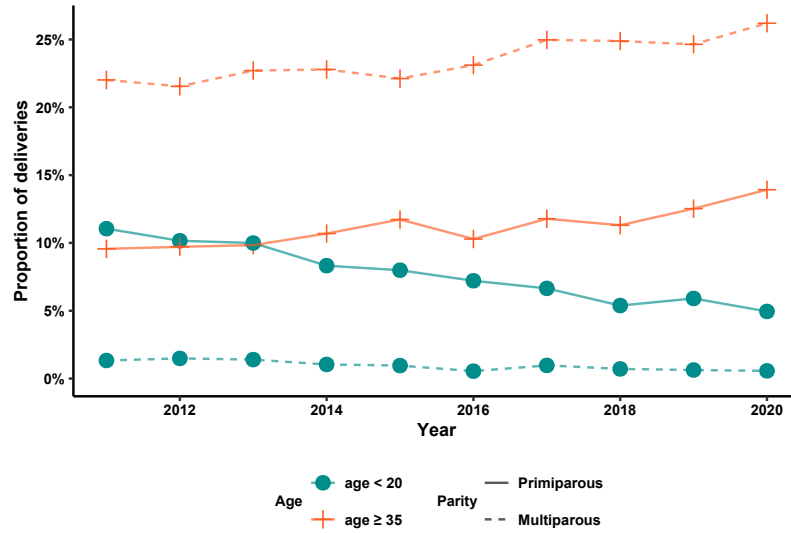
Determinants of Maternal, Fetal, and Infant Health

3.1 Maternal age by year, Nova Scotia, 2011-2020



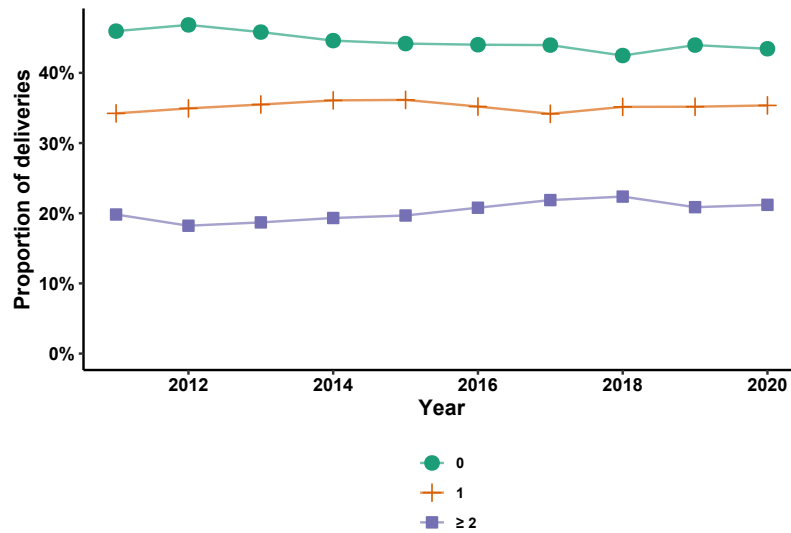
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,764	8,618	8,325	8,514	8,051	8,194	8,111	7,832	7,938	7,491
age < 20	5.8%	5.5%	5.3%	4.3%	4.1%	3.5%	3.5%	2.7%	2.9%	2.5%
age ≥ 35	16.3%	16.0%	16.8%	17.4%	17.5%	17.5%	19.2%	19.1%	19.3%	20.9%

3.2 Maternal age by parity and year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Primiparous										
Total deliveries	4,027	4,036	3,813	3,797	3,556	3,606	3,565	3,326	3,489	3,254
age < 20	11.1%	10.2%	10.0%	8.3%	8.0%	7.2%	6.6%	5.4%	5.9%	4.9%
age ≥ 35	9.6%	9.7%	9.8%	10.7%	11.7%	10.3%	11.8%	11.3%	12.5%	13.9%
Multiparous										
Total deliveries	4,737	4,581	4,510	4,717	4,494	4,587	4,545	4,505	4,448	4,237
age < 20	1.3%	1.5%	1.4%	1.0%	1.0%	0.5%	1.0%	0.7%	0.6%	0.6%
age ≥ 35	22.0%	21.5%	22.7%	22.8%	22.1%	23.1%	25.0%	24.9%	24.6%	26.2%

3.3 Maternal parity by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	8,764	8,617	8,323	8,514	8,050	8,193	8,110	7,831	7,937	7,491
0	45.9%	46.8%	45.8%	44.6%	44.2%	44.0%	44.0%	42.5%	44.0%	43.4%
1	34.2%	34.9%	35.5%	36.1%	36.1%	35.2%	34.2%	35.2%	35.2%	35.4%
≥ 2	19.8%	18.2%	18.7%	19.3%	19.7%	20.8%	21.9%	22.4%	20.9%	21.2%

^a With known parity.

3.4 Maternal partner status by year, Nova Scotia, 2011-2020



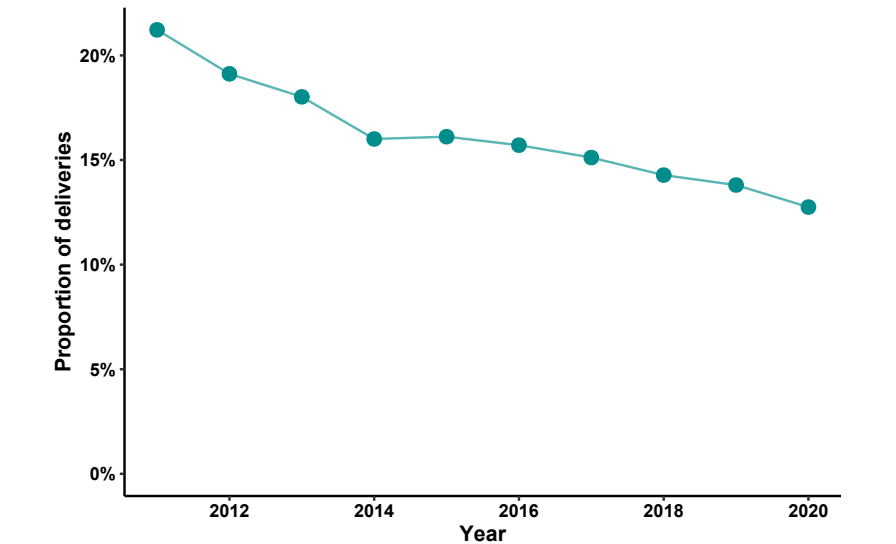
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	8,320	8,090	7,734	7,807	7,160	7,424	7,430	7,174	7,315	6,806
Partnered	72.2%	73.2%	72.5%	73.2%	76.8%	76.0%	73.6%	76.4%	77.7%	81.2%
Unknown	5.3%	6.5%	7.6%	9.1%	12.4%	10.4%	9.2%	9.2%	8.5%	10.1%

Note:

Partnered denotes women who are married or in a common-law relationship.

^a With known partner status.

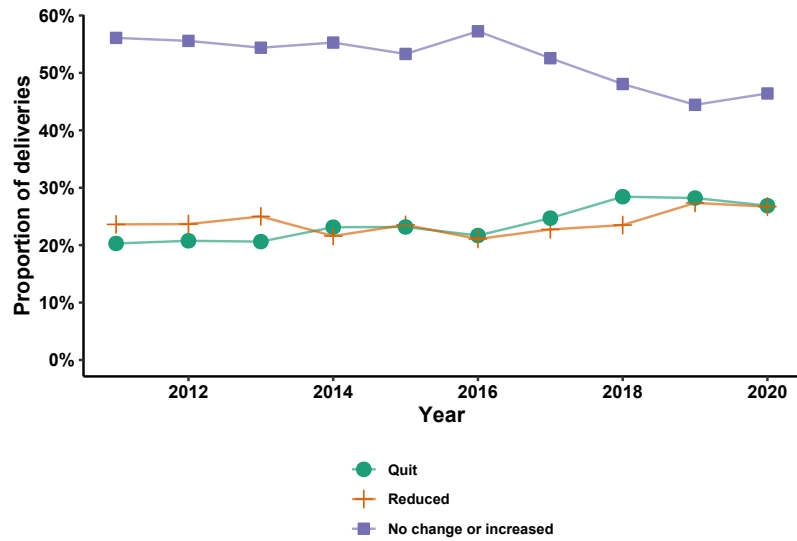
3.5 Maternal smoking during pregnancy by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	8,713	8,541	8,219	8,441	8,018	8,154	8,044	7,802	7,911	7,467
Smoking	21.2%	19.1%	18.0%	16.0%	16.1%	15.7%	15.1%	14.3%	13.8%	12.7%

^a With known smoking status.

3.6 Reduction in amount smoked among women who smoked at their first prenatal visit by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	1,173	1,031	912	843	803	821	761	749	702	614
Quit	20.3%	20.8%	20.6%	23.1%	23.2%	21.7%	24.7%	28.4%	28.2%	26.9%
Reduced	23.6%	23.7%	25.0%	21.6%	23.5%	21.1%	22.7%	23.5%	27.4%	26.7%
No change or increased	56.1%	55.6%	54.4%	55.3%	53.3%	57.2%	52.6%	48.1%	44.4%	46.4%

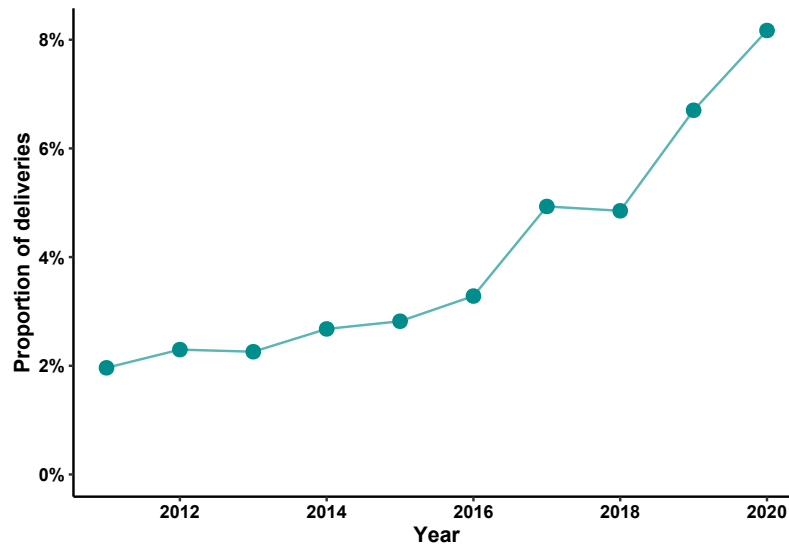
^a Among women who were known to be smokers at the time of their first prenatal visit, and for whom amount smoked was known at both the first prenatal visit and at delivery.

3.9 Missing information about smoking in pregnancy by year, Nova Scotia, 2011-2020 13

3.7 Missing information about smoking in pregnancy by year, Nova Scotia, 2011-2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Pre-pregnancy										
Missing amount	7.2%	7.0%	6.5%	6.6%	5.5%	5.1%	5.2%	4.0%	5.0%	4.1%
No information	3.8%	4.0%	4.6%	4.5%	3.7%	4.2%	3.6%	2.3%	2.7%	1.1%
First visit										
Missing amount	4.1%	3.5%	3.6%	3.4%	3.0%	2.7%	2.9%	2.5%	2.4%	3.0%
No information	4.0%	4.2%	4.5%	4.5%	3.6%	4.2%	3.5%	2.5%	3.0%	1.3%
Delivery										
Missing amount	2.5%	2.5%	2.6%	2.2%	2.3%	2.3%	2.1%	1.6%	1.4%	1.5%
No information	1.1%	1.7%	1.9%	1.3%	0.8%	0.9%	1.4%	1.0%	1.1%	0.7%

3.8 Cannabis use recorded during pregnancy by year, Nova Scotia, 2011-2020

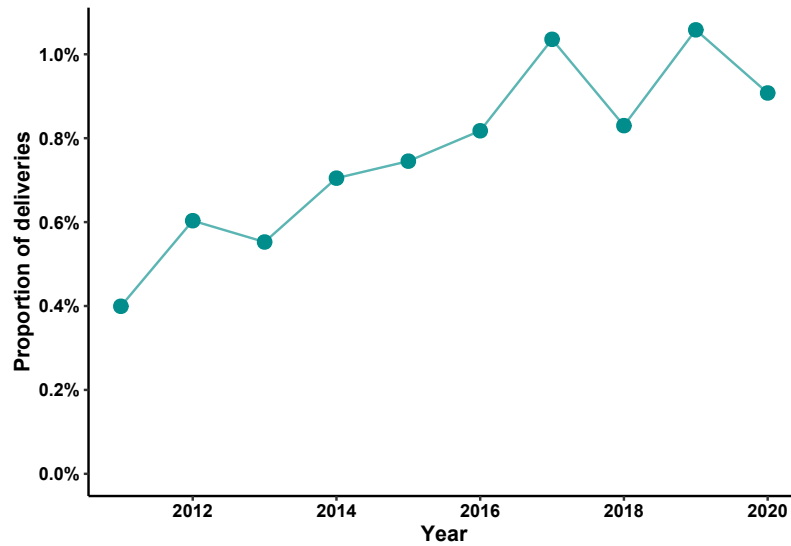


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,764	8,618	8,325	8,514	8,051	8,194	8,111	7,832	7,938	7,491
Reported cannabis	2.0%	2.3%	2.3%	2.7%	2.8%	3.3%	4.9%	4.9%	6.7%	8.2%

Note:

If recorded on the Nova Scotia Prenatal Record.

3.9 Maternal opioid agonist maintenance therapy during pregnancy by year, Nova Scotia, 2011-2020

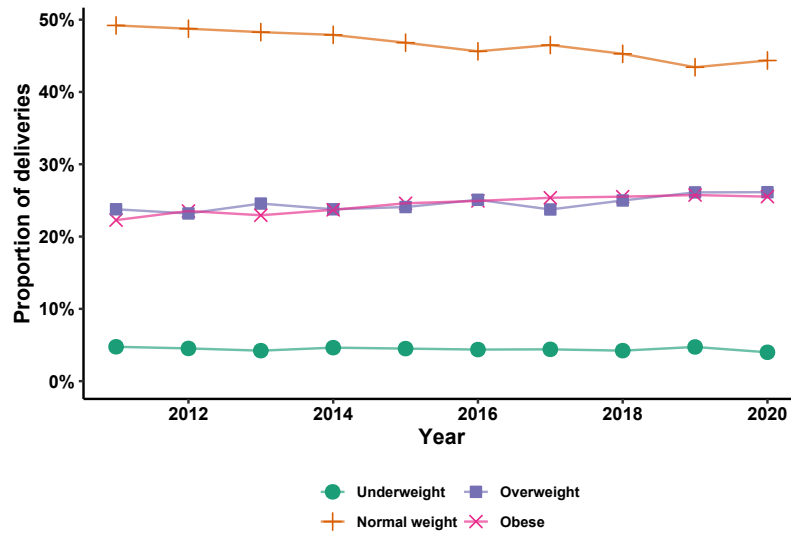


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,764	8,619	8,325	8,514	8,051	8,194	8,111	7,832	7,938	7,491
Opioid agonist	0.40%	0.60%	0.55%	0.70%	0.75%	0.82%	1.04%	0.83%	1.06%	0.91%

Note:

Methadone use as recorded on the Nova Scotia Prenatal Record.

3.10 Pre-pregnancy body mass index by year, Nova Scotia, 2011-2020



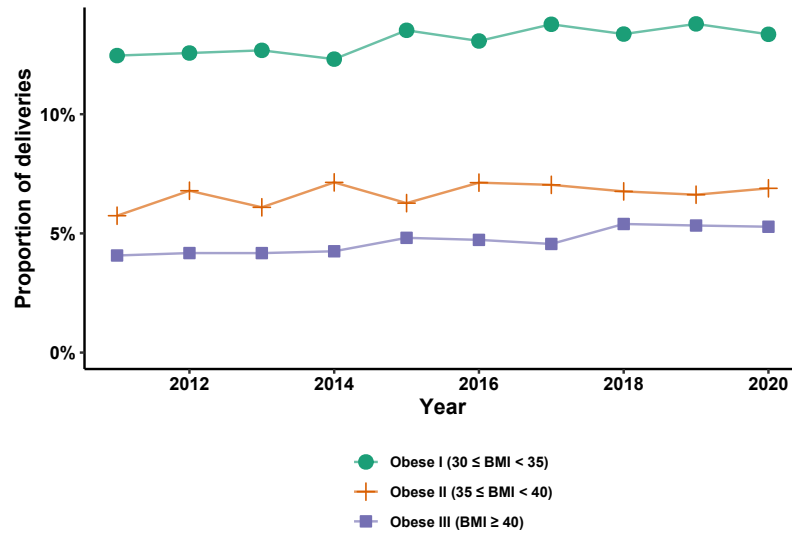
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	7,071	7,114	6,925	7,059	6,731	6,916	6,978	6,803	6,810	6,516
Underweight	4.8%	4.5%	4.2%	4.6%	4.5%	4.4%	4.4%	4.2%	4.7%	4.0%
Normal weight	49.2%	48.7%	48.3%	47.9%	46.8%	45.6%	46.5%	45.3%	43.4%	44.4%
Overweight	23.8%	23.2%	24.6%	23.8%	24.1%	25.1%	23.7%	25.0%	26.1%	26.1%
Obese	22.3%	23.5%	22.9%	23.7%	24.6%	24.9%	25.4%	25.5%	25.7%	25.5%

^a With known pre-pregnancy weight and height.

Note:

Body mass index (BMI) is calculated as weight in kilograms divided by the square of height in metres: Underweight, < 18.5 kg/m² ; Normal weight, 18.5 to 24.9 kg/m² ; Overweight, 25 to 29.9 kg/m² ; Obese, ≥ 30 kg/m².

3.11 Pre-pregnancy obesity class by year, Nova Scotia, 2011-2020

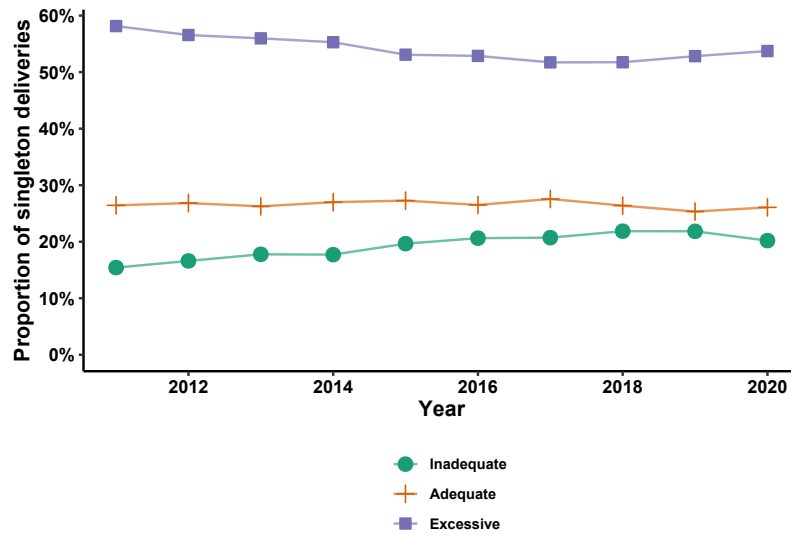


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	7,071	7,114	6,925	7,059	6,731	6,916	6,978	6,803	6,810	6,516
Obese I (30 ≤ BMI < 35)	12.5%	12.6%	12.7%	12.3%	13.5%	13.1%	13.8%	13.4%	13.8%	13.4%
Obese II (35 ≤ BMI < 40)	5.7%	6.8%	6.1%	7.1%	6.3%	7.1%	7.0%	6.8%	6.6%	6.9%
Obese III (BMI ≥ 40)	4.1%	4.2%	4.2%	4.2%	4.8%	4.7%	4.6%	5.4%	5.3%	5.3%

^a With known pre-pregnancy status.

3.13 Gestational weight gain according to recommendations by year, Nova Scotia, 2011-2020 17

3.12 Gestational weight gain according to recommendations by year, Nova Scotia, 2011-2020



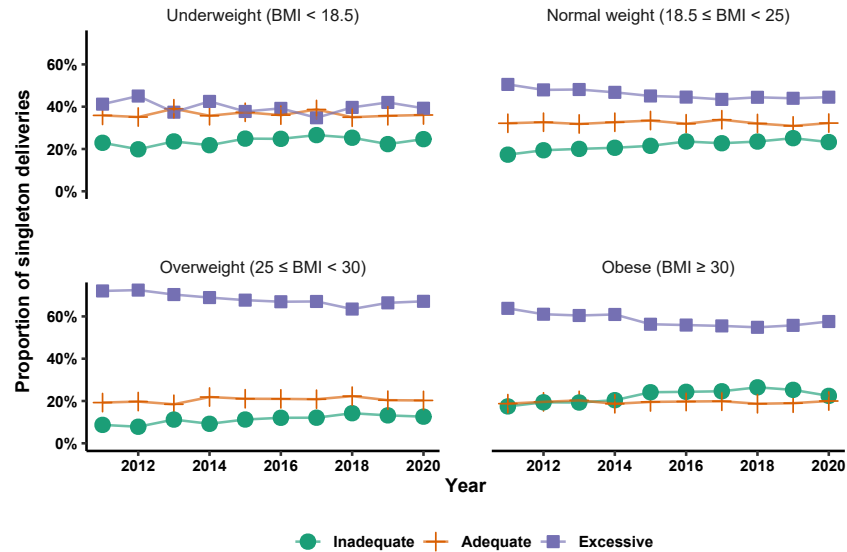
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	6,185	6,151	6,060	6,068	5,699	5,773	5,657	5,598	5,636	5,645
Inadequate	15.4%	16.6%	17.8%	17.7%	19.7%	20.6%	20.7%	21.9%	21.8%	20.2%
Adequate	26.4%	26.8%	26.3%	27.0%	27.3%	26.5%	27.6%	26.4%	25.3%	26.1%
Excessive	58.1%	56.6%	56.0%	55.3%	53.1%	52.9%	51.7%	51.8%	52.8%	53.7%

Note:

Gestational weight gain according to recommendations made by Health Canada. See section 3.13 for the amounts that are recommended according to pre-pregnancy BMI category.

^a Singleton deliveries with known pre-pregnancy and delivery weights and height.

3.13 Gestational weight gain by pre-pregnancy body mass index and year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Underweight										
Total deliveries ^a	301	282	246	280	257	250	256	237	269	219
Inadequate (gain < 12.5 kg)	22.9%	19.9%	23.6%	21.8%	24.9%	24.8%	26.6%	25.3%	22.3%	24.7%
Adequate (12.5 kg ≤ gain ≤ 18 kg)	35.9%	35.1%	39.0%	35.7%	37.4%	36.0%	38.7%	35.0%	35.7%	36.1%
Excessive (gain > 18 kg)	41.2%	45.0%	37.4%	42.5%	37.7%	39.2%	34.8%	39.7%	42.0%	39.3%
Normal weight										
Total deliveries ^a	3,038	2,995	2,934	2,873	2,625	2,609	2,619	2,493	2,413	2,450
Inadequate (gain < 11.5 kg)	17.3%	19.4%	20.0%	20.6%	21.5%	23.5%	22.7%	23.5%	25.1%	23.3%
Adequate (11.5 kg ≤ gain ≤ 16 kg)	32.2%	32.7%	31.8%	32.6%	33.4%	31.9%	33.8%	32.0%	30.9%	32.2%
Excessive (gain > 16 kg)	50.5%	47.9%	48.1%	46.8%	45.1%	44.5%	43.5%	44.4%	44.0%	44.5%
Overweight										
Total deliveries ^a	1,470	1,419	1,490	1,454	1,396	1,476	1,339	1,413	1,462	1,500
Inadequate (gain < 7 kg)	8.7%	7.8%	11.2%	9.2%	11.2%	12.1%	12.1%	14.2%	13.2%	12.6%
Adequate (7 kg ≤ gain ≤ 11.5 kg)	19.3%	19.7%	18.5%	21.9%	21.1%	21.0%	20.8%	22.3%	20.4%	20.3%
Excessive (gain > 11.5 kg)	72.0%	72.4%	70.3%	68.9%	67.7%	66.9%	67.1%	63.5%	66.4%	67.1%
Obese										
Total deliveries ^a	1,376	1,455	1,390	1,461	1,421	1,438	1,443	1,455	1,492	1,476
Inadequate (gain < 5 kg)	17.4%	19.4%	19.3%	20.4%	24.1%	24.3%	24.6%	26.5%	25.3%	22.4%
Adequate (5 kg ≤ gain ≤ 9 kg)	18.8%	19.6%	20.3%	18.7%	19.6%	19.7%	19.9%	18.7%	19.0%	20.0%
Excessive (gain > 9 kg)	63.8%	61.0%	60.4%	60.9%	56.3%	55.9%	55.5%	54.8%	55.8%	57.6%

Note:

Gestational weight gain according to recommendations made by Health Canada.

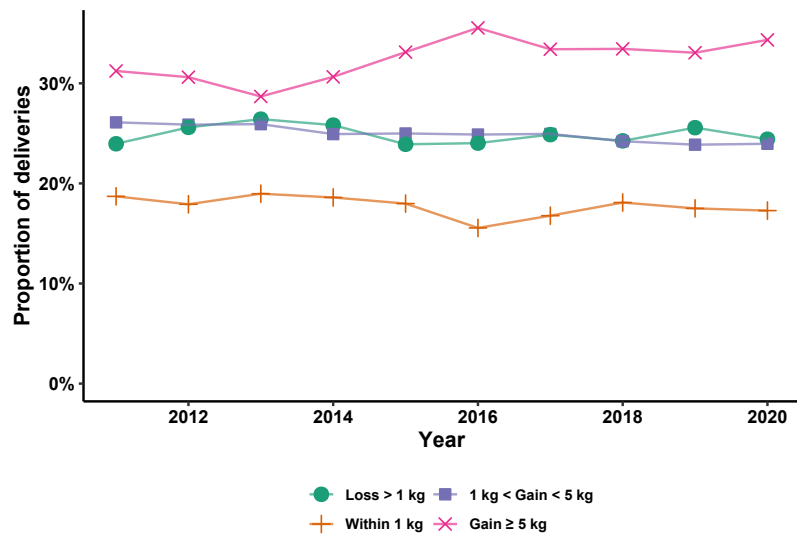
^a Number of singleton deliveries in this body mass index category with known pre-pregnancy and delivery weights and height.

3.16 Missing information about maternal weight and height by year, Nova Scotia, 2011-2020 19

3.14 Missing information about maternal weight and height by year, Nova Scotia, 2011-2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Pre-pregnancy weight	17.4%	16.0%	15.4%	15.7%	15.2%	14.5%	13.1%	12.5%	13.4%	12.3%
Delivery weight	16.3%	17.4%	15.8%	16.5%	17.1%	18.3%	20.2%	18.4%	17.5%	14.1%
Height	12.9%	11.1%	11.2%	10.5%	7.8%	7.9%	6.5%	5.9%	5.9%	4.2%

3.15 Interpregnancy weight change by year, Nova Scotia, 2011-2020



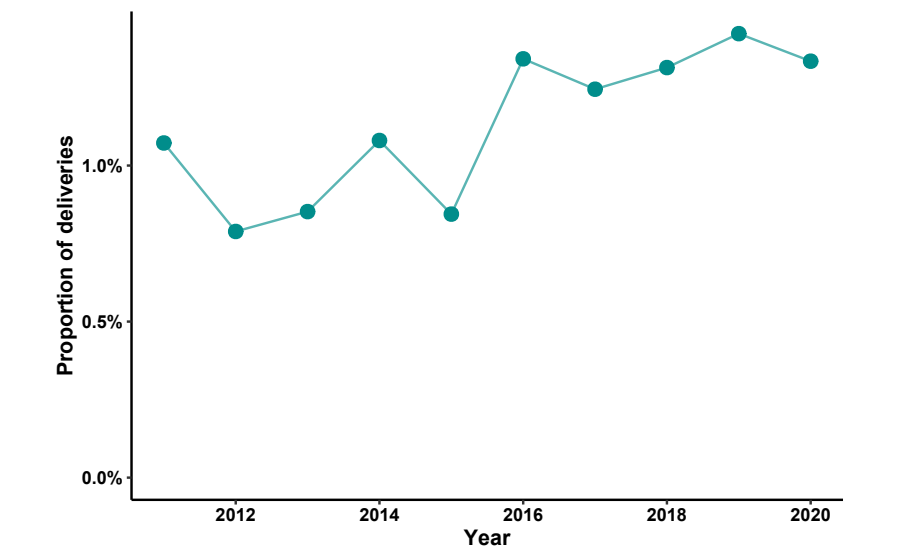
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	2,475	2,551	2,604	2,780	2,769	2,797	2,778	2,775	2,765	2,621
Loss > 1 kg	24.0%	25.6%	26.4%	25.8%	23.9%	24.0%	24.9%	24.3%	25.6%	24.4%
Within 1 kg	18.7%	17.9%	19.0%	18.6%	18.0%	15.6%	16.8%	18.1%	17.5%	17.3%
1 kg < Gain < 5 kg	26.1%	25.9%	25.9%	24.9%	25.0%	24.9%	24.9%	24.2%	23.9%	24.0%
Gain ≥ 5 kg	31.2%	30.6%	28.7%	30.6%	33.1%	35.5%	33.4%	33.4%	33.1%	34.3%

Note:

Interpregnancy weight change is calculated as the pre-pregnancy weight in the index pregnancy minus the pre-pregnancy weight in the woman's preceding pregnancy.

^a With known pre-pregnancy weight in index and preceding pregnancies.

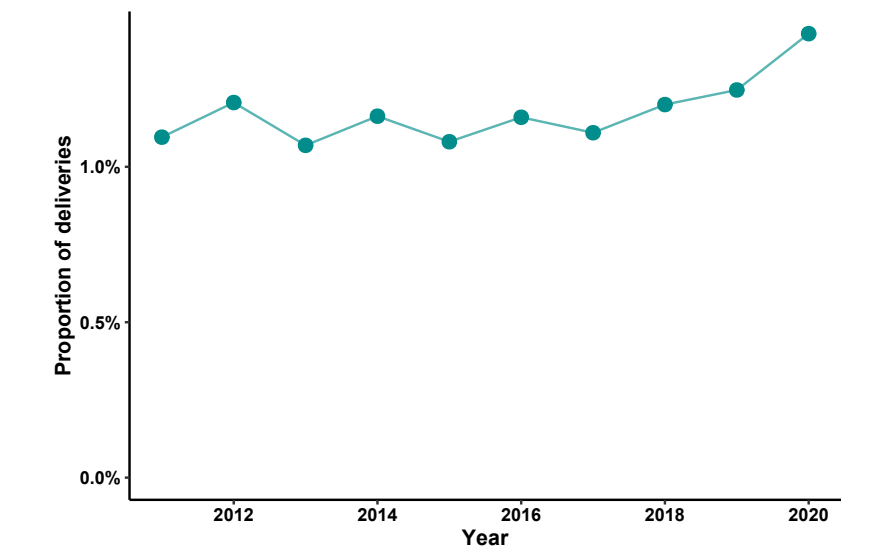
3.16 Pre-existing diabetes by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,766	8,621	8,329	8,516	8,053	8,197	8,115	7,839	7,943	7,494
Pre-existing diabetes	1.07%	0.79%	0.85%	0.84%	1.34%	1.24%	1.31%	1.42%	1.42%	1.33%

Note:
Maternal history of either Type 1 or Type 2 diabetes mellitus prior to the current pregnancy.

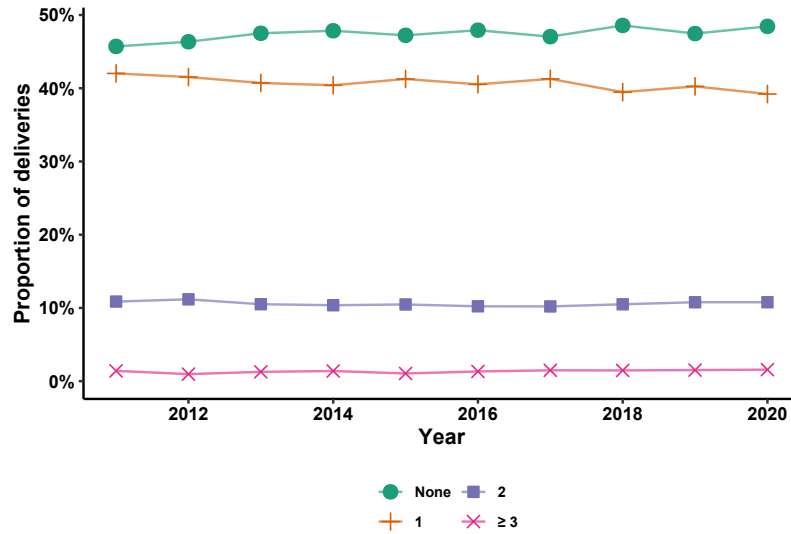
3.17 Pre-existing hypertension by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,764	8,618	8,325	8,514	8,051	8,194	8,111	7,832	7,938	7,491
Pre-existing hypertension	1.10%	1.21%	1.07%	1.16%	1.07%	1.16%	1.11%	1.20%	1.25%	1.43%

Note:
Maternal history of hypertensive disease prior to the current pregnancy or prior to 20 weeks gestation in the current pregnancy.

3.18 Number of pre-pregnancy risk factors by year, Nova Scotia, 2011-2020

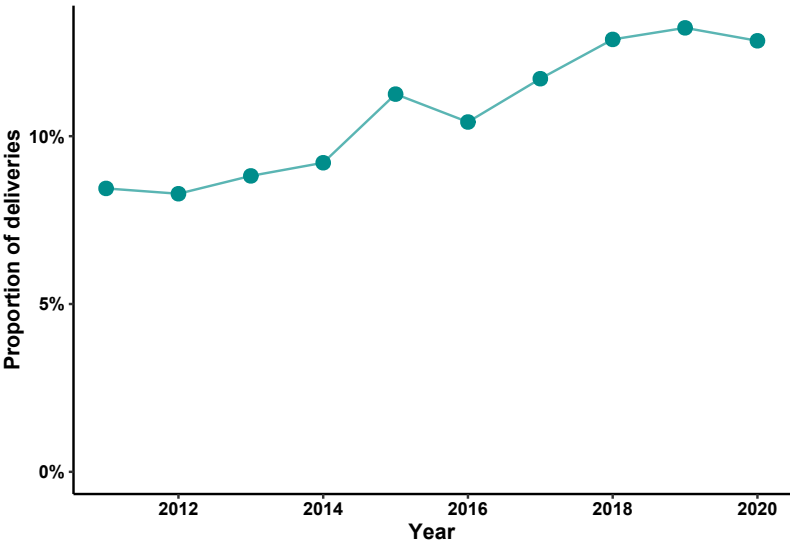


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	6,858	6,883	6,690	6,800	6,505	6,644	6,765	6,624	6,626	6,431
None	45.7%	46.3%	47.5%	47.9%	47.2%	47.9%	47.1%	48.6%	47.5%	48.5%
1	42.0%	41.5%	40.7%	40.4%	41.3%	40.5%	41.3%	39.5%	40.3%	39.2%
2	10.9%	11.2%	10.5%	10.4%	10.5%	10.2%	10.2%	10.5%	10.8%	10.8%
≥ 3	1.4%	1.0%	1.2%	1.4%	1.0%	1.3%	1.5%	1.5%	1.5%	1.5%

Note:

Pre-pregnancy risk factors included maternal age ≥ 35 years, BMI ≥ 30 kg/m², smoking, pre-existing diabetes, and pre-existing hypertension.

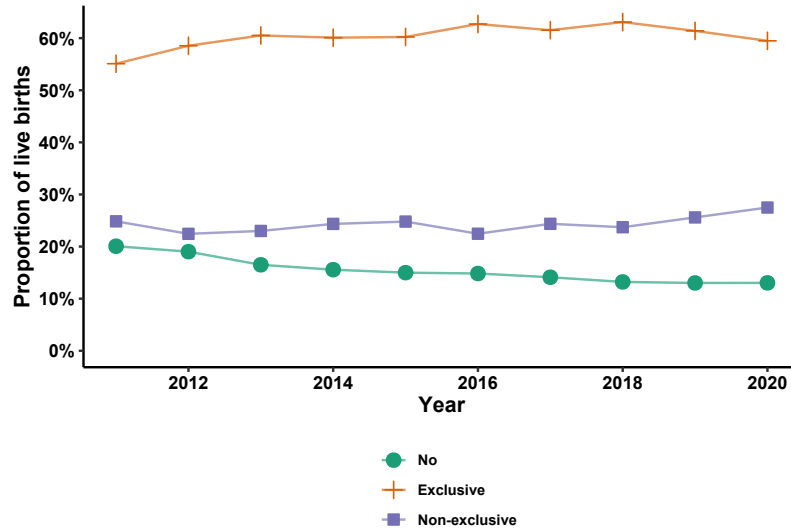
3.19 Use of medication for depression or anxiety during pregnancy by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,764	8,618	8,325	8,514	8,051	8,194	8,111	7,832	7,938	7,491
Medication use	8.4%	8.3%	8.8%	9.2%	11.3%	10.4%	11.7%	12.9%	13.2%	12.8%

Note:
If recorded on the Nova Scotia Prenatal Record.

3.20 Breastfeeding status during hospital stay by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	8,849	8,704	8,423	8,592	8,119	8,271	8,199	7,903	8,024	7,551
Exclusive	54.9%	58.3%	60.3%	59.9%	60.1%	62.5%	61.3%	62.8%	61.1%	59.2%
Non-exclusive	24.7%	22.4%	22.9%	24.3%	24.7%	22.4%	24.3%	23.6%	25.5%	27.3%

Note:

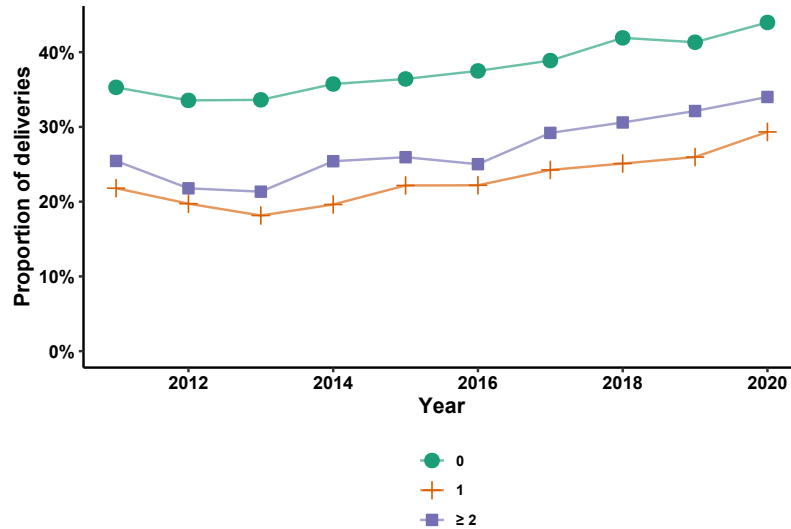
Describes the method of infant feeding during the hospital stay. Breastfeeding refers to when the infant was given breast milk; Exclusive denotes that the infant received only breast milk and non-exclusive denotes that the infant received breast milk with supplementation.

^a With known breastfeeding status.

4

Labour and Birth Processes

4.1 Labour induction by parity and year, Nova Scotia, 2011-2020

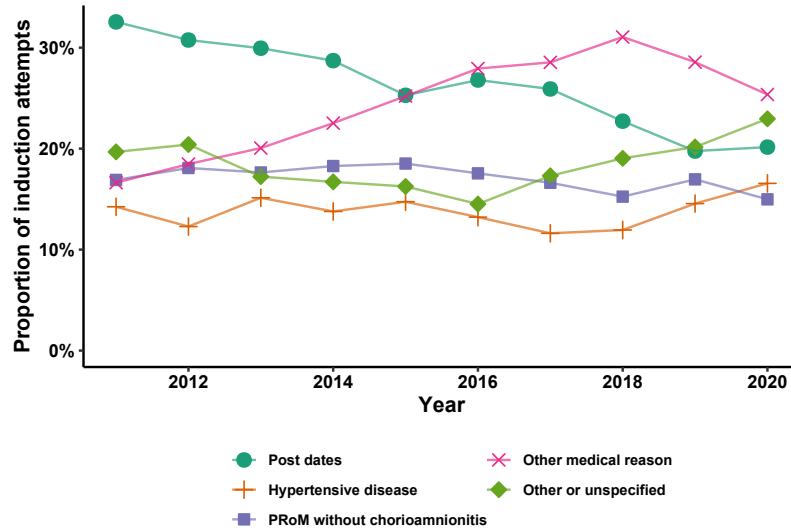


Parity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
0										
Total deliveries	4,093	4,110	3,880	3,878	3,618	3,672	3,632	3,370	3,550	3,303
Induction attempted (%)	35.2%	33.6%	33.7%	35.7%	36.2%	37.6%	38.8%	41.9%	41.2%	43.8%
1										
Total deliveries	3,039	3,058	3,000	3,109	2,951	2,926	2,812	2,804	2,840	2,687
Induction attempted (%)	21.8%	19.7%	18.4%	19.6%	22.1%	22.4%	24.1%	25.1%	26.2%	29.3%
≥ 2										
Total deliveries	1,772	1,597	1,586	1,677	1,606	1,720	1,807	1,776	1,690	1,614
Induction attempted (%)	25.5%	21.6%	21.2%	25.6%	26.1%	25.1%	29.2%	30.8%	32.1%	34.0%

Note:

The initiation of contractions in a pregnant woman who is not in labour to help her achieve a vaginal birth within 24 to 48 hours.

4.2 Indication for labour induction by year, Nova Scotia, 2011-2020



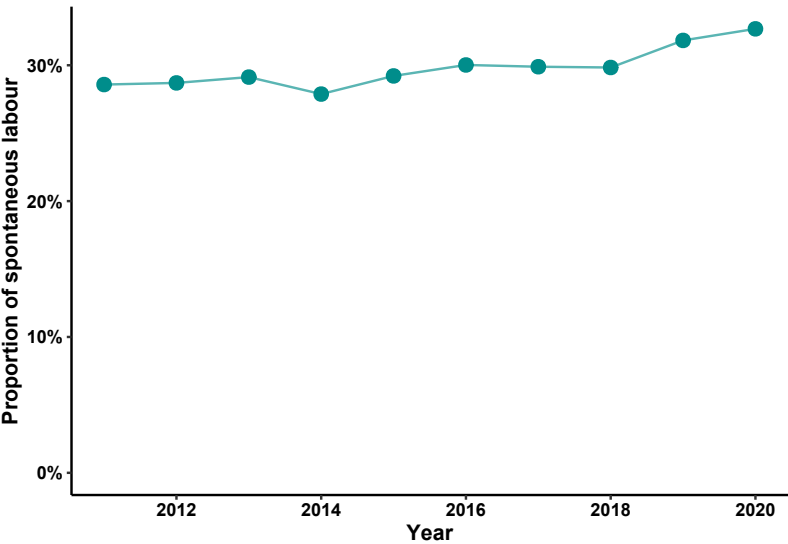
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total induction attempts	2,556	2,328	2,194	2,424	2,381	2,467	2,617	2,663	2,748	2,784
Post dates	32.6%	30.8%	29.9%	28.7%	25.3%	26.8%	25.9%	22.7%	19.8%	20.2%
Hypertensive disease	14.2%	12.3%	15.1%	13.8%	14.7%	13.2%	11.6%	11.9%	14.6%	16.6%
PRoM ^a without chorioamnionitis	16.9%	18.1%	17.6%	18.3%	18.5%	17.6%	16.6%	15.2%	17.0%	15.0%
Other medical reason ^b	16.6%	18.5%	20.1%	22.5%	25.2%	27.9%	28.5%	31.1%	28.6%	25.4%
Other or unspecified	19.7%	20.4%	17.2%	16.7%	16.3%	14.5%	17.3%	19.0%	20.2%	23.0%

^a PRoM: Prelabour rupture of membranes.

^b Please see Glossary under 'Indication for labour induction' for complete list.

4.4 Medical augmentation of labour among women with spontaneous onset of labour by year, Nova Scotia, 2011-2020

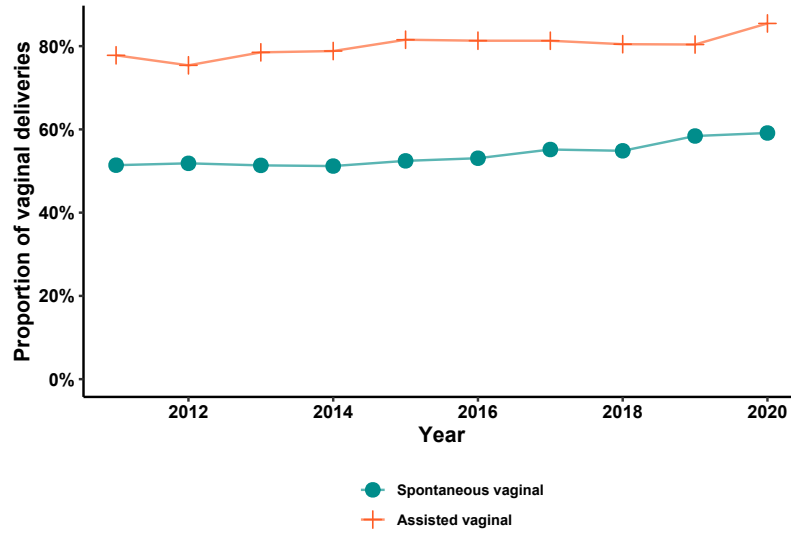
4.3 Medical augmentation of labour among women with spontaneous onset of labour by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total spontaneous labour	5,119	5,209	4,995	4,975	4,686	4,650	4,416	4,136	4,141	3,623
Augmented	28.6%	28.7%	29.1%	27.9%	29.2%	30.0%	29.9%	29.8%	31.8%	32.7%

Note:
Use of oxytocin to improve contractions after labour has started spontaneously.

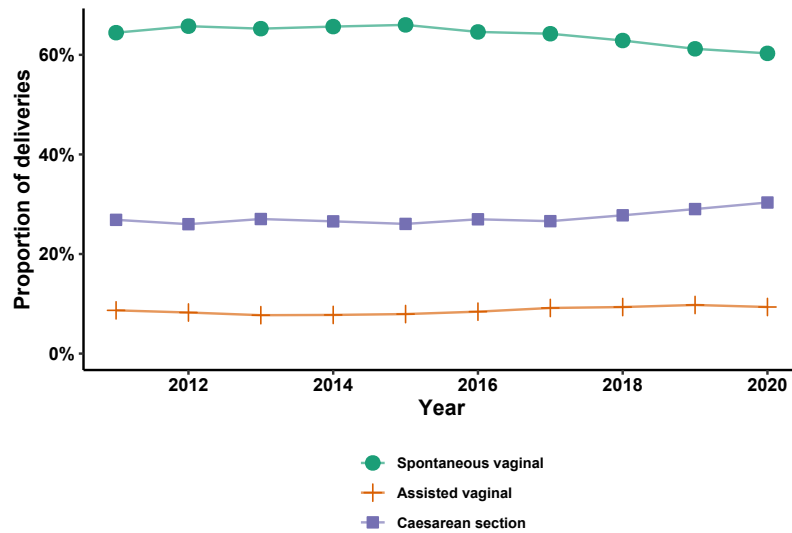
4.4 Use of regional anesthesia with vaginal delivery by year, Nova Scotia, 2011-2020



Type of delivery	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Spontaneous										
Total deliveries	5,648	5,667	5,433	5,591	5,315	5,293	5,210	4,924	4,859	4,517
Anesthesia (%) ^a	51.4%	51.8%	51.4%	51.2%	52.4%	53.1%	55.2%	54.9%	58.4%	59.1%
Assisted										
Total deliveries	761	711	642	661	639	690	743	732	775	701
Anesthesia (%) ^a	77.8%	75.4%	78.5%	78.8%	81.5%	81.3%	81.3%	80.5%	80.4%	85.4%

^a Regional anesthesia including epidural, spinal, and/or pudendal anesthesia during labour and/or delivery.

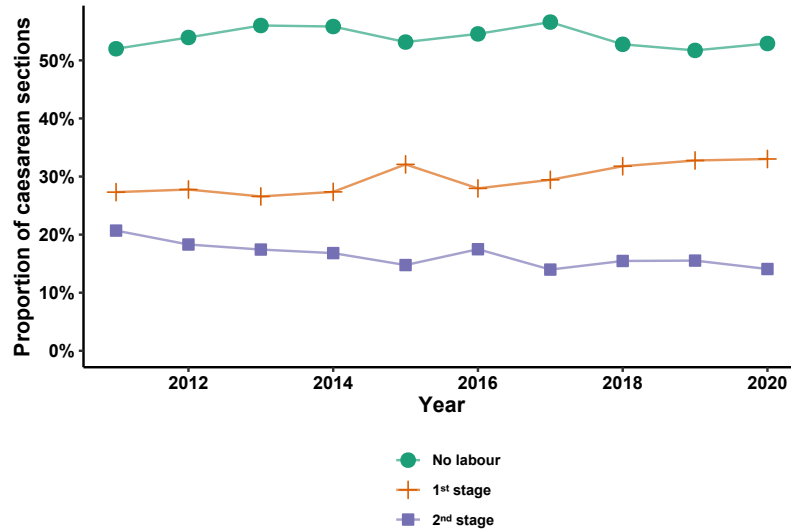
4.5 Type of delivery by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	8,763	8,618	8,325	8,513	8,051	8,193	8,110	7,831	7,938	7,491
Spontaneous vaginal	64.5%	65.8%	65.3%	65.7%	66.0%	64.6%	64.2%	62.9%	61.2%	60.3%
Assisted vaginal	8.7%	8.3%	7.7%	7.8%	7.9%	8.4%	9.2%	9.3%	9.8%	9.4%
Caesarean section	26.9%	26.0%	27.0%	26.6%	26.0%	27.0%	26.6%	27.8%	29.0%	30.3%

^a With known type of delivery.

4.6 Stage of labour before Caesarean delivery by year, Nova Scotia, 2011-2020

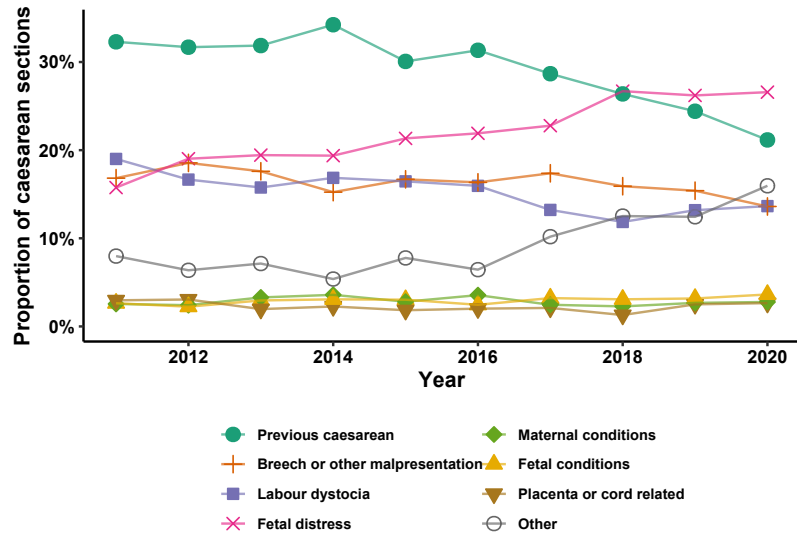


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total caesarean sections	2,431	2,323	2,341	2,343	2,175	2,282	2,239	2,244	2,396	2,344
No labour	52.0%	53.9%	56.0%	55.8%	53.1%	54.6%	56.6%	52.8%	51.7%	52.9%
1 st stage	27.3%	27.8%	26.6%	27.4%	32.1%	28.0%	29.4%	31.8%	32.8%	33.0%
2 nd stage	20.7%	18.3%	17.4%	16.8%	14.8%	17.5%	14.0%	15.5%	15.5%	14.1%

Note:

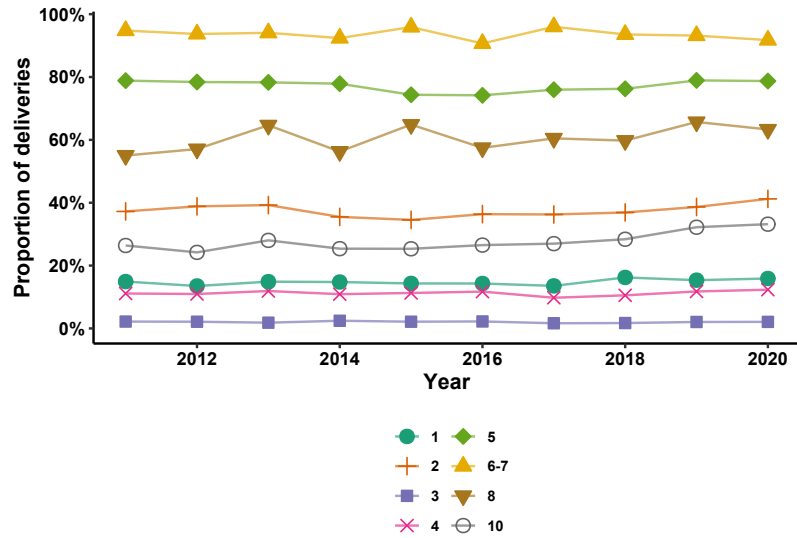
The 1st stage is the period from the onset of labour until the cervix is fully dilated (10 cm). The 2nd stage is the period from 10 cm dilation of the cervix until the baby is delivered.

4.7 Primary indication for Caesarean delivery by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total caesarean sections	2,431	2,323	2,341	2,343	2,175	2,282	2,239	2,244	2,396	2,344
Previous caesarean	32.3%	31.7%	31.9%	34.2%	30.1%	31.3%	28.7%	26.4%	24.4%	21.2%
Breech or other malpresentation	16.8%	18.6%	17.6%	15.2%	16.7%	16.3%	17.4%	15.9%	15.4%	13.6%
Labour dystocia	19.0%	16.7%	15.8%	16.9%	16.5%	16.0%	13.2%	11.9%	13.2%	13.7%
Fetal distress	15.8%	19.0%	19.4%	19.4%	21.3%	21.9%	22.8%	26.7%	26.2%	26.6%
Maternal conditions	2.6%	2.4%	3.3%	3.6%	2.8%	3.5%	2.5%	2.3%	2.7%	2.8%
Fetal conditions	2.6%	2.2%	2.9%	3.1%	3.0%	2.5%	3.2%	3.1%	3.2%	3.6%
Placenta or cord related	3.0%	3.1%	2.0%	2.3%	1.8%	2.0%	2.1%	1.3%	2.5%	2.6%
Other	8.0%	6.4%	7.1%	5.4%	7.8%	6.4%	10.2%	12.5%	12.4%	16.0%

4.8 Caesarean delivery by Robson group and year, Nova Scotia, 2011-2020

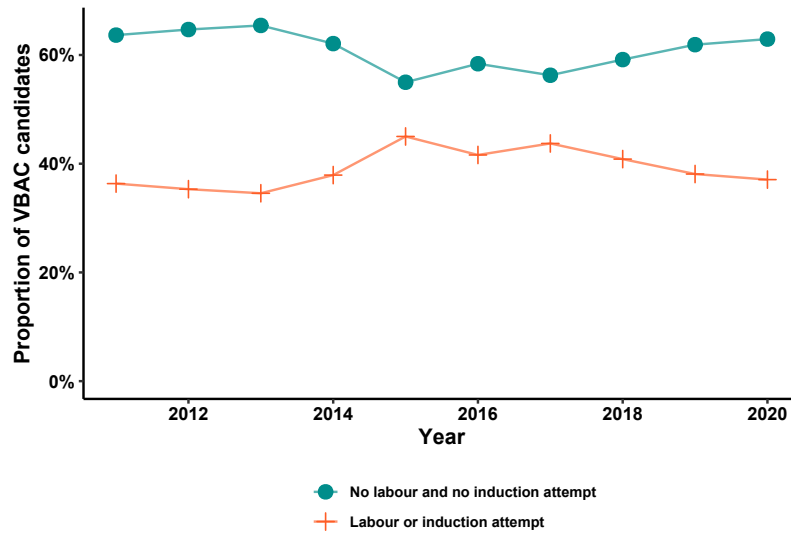


Robson group	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
(1) Nulliparous, singleton, cephalic, term, spontaneous labour										
Total deliveries	2,099	2,207	2,036	1,951	1,795	1,777	1,684	1,510	1,609	1,379
Proportion of caesarean	14.9%	13.5%	14.9%	14.8%	14.3%	14.3%	13.5%	16.2%	15.4%	15.9%
(2) Nulliparous, singleton, cephalic, term, induced or no labour										
Total deliveries	1,378	1,282	1,233	1,209	1,219	1,265	1,307	1,282	1,366	1,349
Proportion of caesarean	37.2%	38.8%	39.3%	35.5%	34.5%	36.4%	36.3%	36.9%	38.7%	41.2%
(3) Multiparous, singleton, cephalic, term, no previous CS, spontaneous labour										
Total deliveries	2,200	2,251	2,241	2,215	2,104	2,116	2,004	1,924	1,850	1,629
Proportion of caesarean	2.2%	2.1%	1.8%	2.4%	2.1%	2.2%	1.6%	1.7%	2.1%	2.1%
(4) Multiparous, singleton, cephalic, term, no previous CS, induced or no labour										
Total deliveries	963	812	773	881	895	905	1,024	1,044	1,012	1,120
Proportion of caesarean	11.1%	11.0%	11.9%	10.9%	11.3%	11.7%	9.8%	10.5%	11.8%	12.3%
(5) Multiparous, singleton, cephalic, term, previous CS										
Total deliveries	922	894	917	1,044	897	941	882	901	892	874
Proportion of caesarean	78.9%	78.4%	78.3%	77.9%	74.4%	74.2%	76.0%	76.2%	78.9%	78.7%
(6-7) Nulliparous or multiparous, singleton, breech										
Total deliveries	325	333	337	302	317	354	325	310	308	303
Proportion of caesarean	94.8%	93.7%	94.1%	92.4%	95.9%	90.7%	96.0%	93.5%	93.2%	91.7%
(8) Multiple pregnancy										
Total deliveries	209	226	215	215	185	181	210	174	207	169
Proportion of caesarean	55.0%	57.1%	64.7%	56.3%	64.9%	57.5%	60.5%	59.8%	65.7%	63.3%
(10) Singleton, cephalic, preterm										
Total deliveries	485	471	471	528	517	494	493	451	472	428
Proportion of caesarean	26.4%	24.2%	28.0%	25.4%	25.3%	26.5%	27.0%	28.4%	32.2%	33.2%

Note:

The Robson criteria for the classification of deliveries into ten mutually exclusive groups by maternal characteristics allows comparison of Caesarean section rates at regional and national levels. Please note that for the purposes of this report: (1) group 6 (nulliparous breeches) and group 7 (multiparous breeches) are combined; and (2) group 9 (abnormal lies excluding breeches) is omitted due to small numbers. Ref: Robson MS. Classification of caesarean sections. *Fetal and Maternal Medicine Review* 2001;12(1):23-39.

4.9 Any labour among candidates for vaginal birth after Caesarean by year, 2011-2020

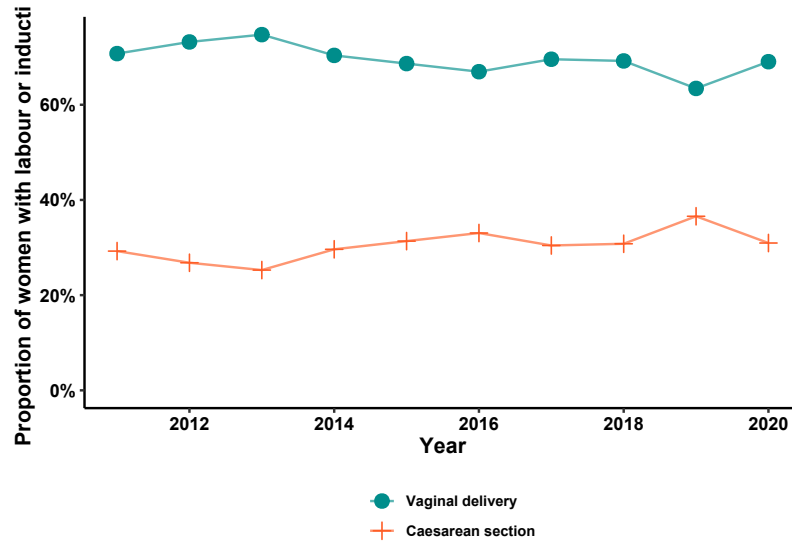


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total VBAC candidates	809	824	813	926	822	858	789	803	811	793
No labour and no induction attempt	63.7%	64.7%	65.4%	62.1%	55.0%	58.4%	56.3%	59.2%	61.9%	62.9%
Labour or induction attempt	36.3%	35.3%	34.6%	37.9%	45.0%	41.6%	43.7%	40.8%	38.1%	37.1%

Note:

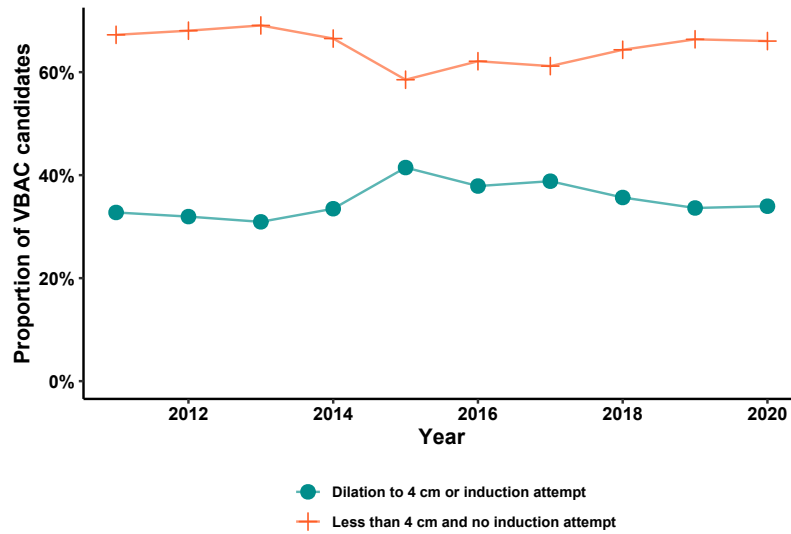
For the purposes of this report, a candidate for vaginal birth after Caesarean (VBAC) is woman who has had no more than one previous Caesarean section delivery; whose current pregnancy is a singleton in vertex presentation; and who has no contraindications for labour. On an individual basis when more information is available, such as type of previous Caesarean delivery, other factors are taken into account and women with two previous Caesarean deliveries may be considered for VBAC. Ref: Society of Obstetricians and Gynaecologists of Canada. Guidelines for vaginal birth after previous caesarean birth. SOGC clinical practice guidelines. Number 155, February 2005. International Journal of Gynaecology and Obstetrics 2005;89(3):319-31.

4.10 Type of delivery among candidates for vaginal birth after Caesarean (VBAC) who had any labour by year, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total women with labour or induction	294	291	281	351	370	357	345	328	309	294
Vaginal delivery	70.7%	73.2%	74.7%	70.4%	68.6%	66.9%	69.6%	69.2%	63.4%	69.0%
Caesarean section	29.3%	26.8%	25.3%	29.6%	31.4%	33.1%	30.4%	30.8%	36.6%	31.0%

4.11 Labour to 4 cm dilation among candidates for vaginal birth after Caesarean by year, 2011-2020



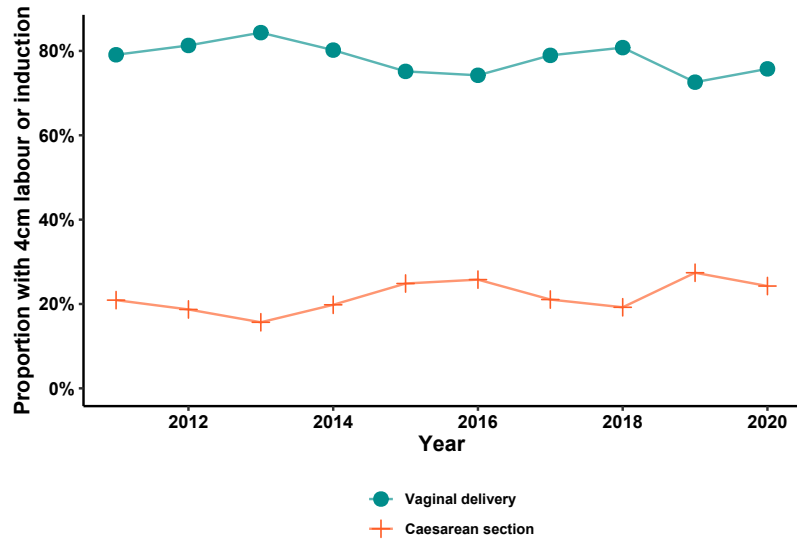
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total VBAC candidates ^a	803	820	805	920	815	850	783	788	803	789
Dilation to 4 cm or induction attempt	32.8%	32.0%	30.9%	33.5%	41.5%	37.9%	38.8%	35.7%	33.6%	34.0%
Less than 4 cm and no induction attempt	67.2%	68.0%	69.1%	66.5%	58.5%	62.1%	61.2%	64.3%	66.4%	66.0%

Note:

Women who are VBAC candidates and reach 4 cm cervical dilation may better represent those who have chosen to attempt a vaginal delivery. Intention to attempt a vaginal delivery is not recorded in the Atlee Database.

VBAC candidates with known cervical dilation who reached 4 cm.

4.12 Type of delivery among candidates for vaginal birth after Caesarean who had labour to 4 cm dilation by year, 2011-2020



deliv	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total with 4 cm labour or induction	263	262	249	308	338	322	304	281	270	268
Vaginal delivery	79.1%	81.3%	84.3%	80.2%	75.1%	74.2%	78.9%	80.8%	72.6%	75.7%
Caesarean section	20.9%	18.7%	15.7%	19.8%	24.9%	25.8%	21.1%	19.2%	27.4%	24.3%

4.13 Episiotomy by parity and year, 2011-2020

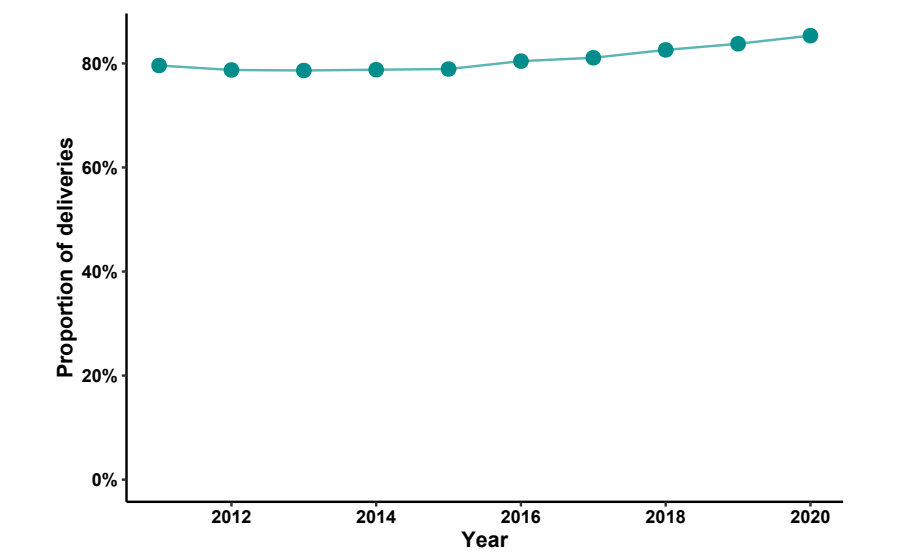


Parity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Primiparous										
Total vaginal deliveries	2,883	2,937	2,702	2,756	2,578	2,577	2,524	2,300	2,392	2,140
Episiotomy (%)	24.5%	25.1%	23.9%	21.6%	20.5%	22.2%	20.7%	23.2%	20.4%	24.0%
Multiparous										
Total vaginal deliveries	3,526	3,440	3,371	3,496	3,375	3,405	3,429	3,356	3,242	3,077
Episiotomy (%)	6.1%	6.4%	6.1%	4.9%	5.2%	5.1%	4.5%	4.7%	4.5%	4.6%

Note:

An episiotomy is a mediolateral or midline incision made in the perineum during childbirth.

4.14 Obstetrical intervention by year, 2011-2020



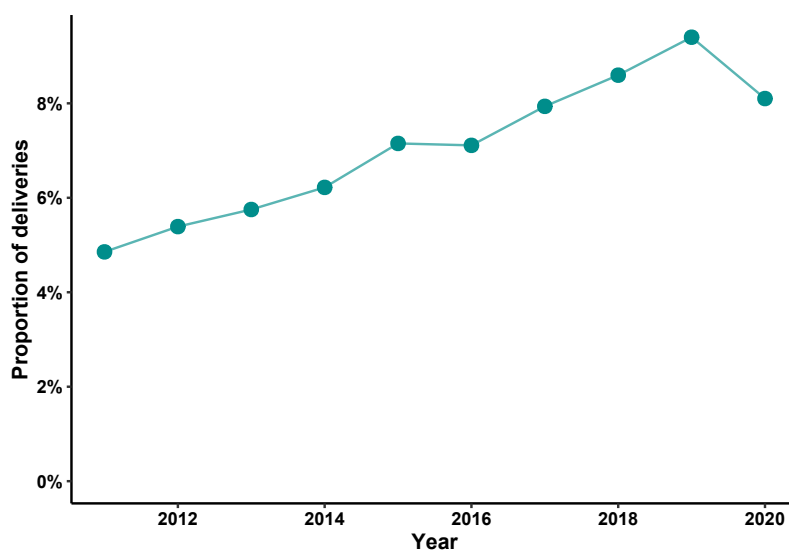
Parity	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,771	8,619	8,327	8,521	8,054	8,198	8,116	7,834	7,939	7,490
Obstetrical intervention (%)	79.6%	78.7%	78.6%	78.8%	78.9%	80.4%	81.1%	82.6%	83.8%	85.3%

Note:
Obstetrical intervention includes the use of any of: induction, medical augmentation, anesthesia, Caesarean delivery, vaginal delivery involving the use of forceps and/or vacuum, or episiotomy.

5

Maternal Health Outcomes

5.1 Gestational diabetes by year, Nova Scotia, 2011-2020



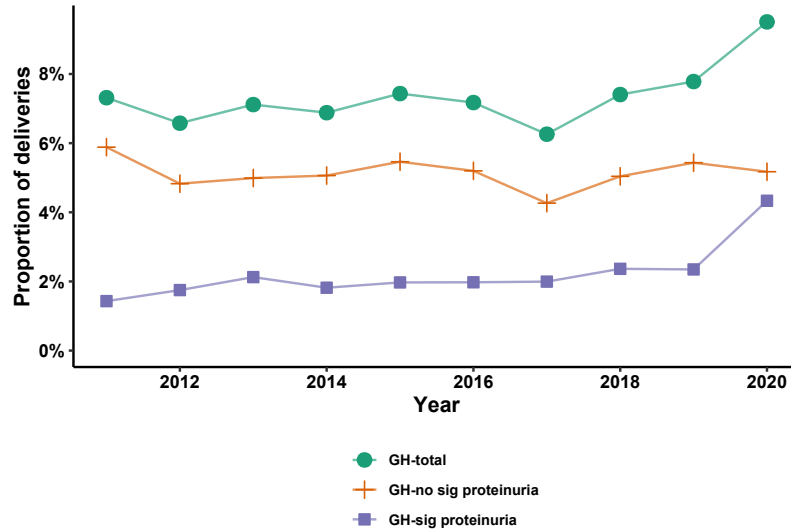
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	8,672	8,553	8,258	8,424	7,985	8,087	8,014	7,736	7,830	7,394
Gestational diabetes (%)	4.9%	5.4%	5.8%	6.2%	7.2%	7.1%	7.9%	8.6%	9.4%	8.1%

Note:

Diabetes mellitus first detected in pregnancy as recorded in the medical record. Please note that the criteria for the diagnosis of gestational diabetes were revised by Diabetes Canada (formerly the Canadian Diabetes Association) in 2013. Therefore, the rates of gestational diabetes were expected to increase as the new criteria are adopted across Nova Scotia, starting approximately in late 2014.

^a Among women without pre-existing diabetes.

5.2 Gestational hypertension by year, Nova Scotia, 2011-2020



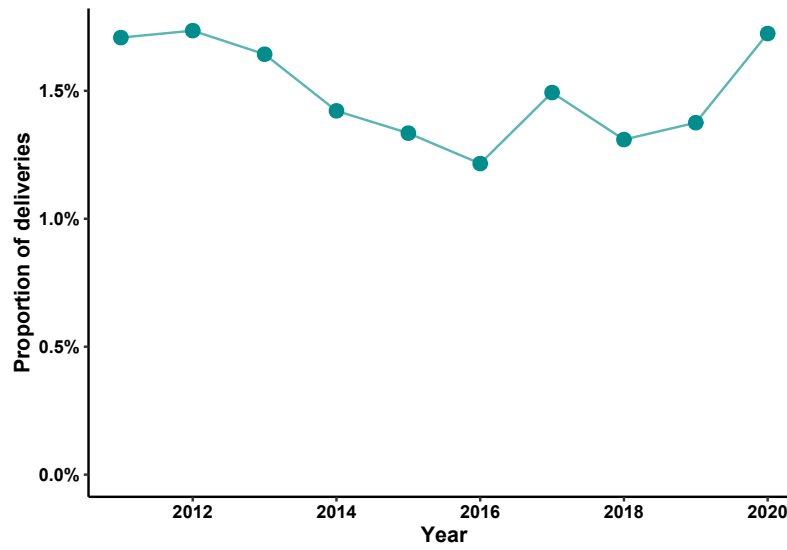
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries ^a	8,668	8,514	8,236	8,415	7,964	8,099	8,021	7,738	7,839	7,384
GH-no sig proteinuria	5.9%	4.8%	5.0%	5.1%	5.5%	5.2%	4.3%	5.0%	5.4%	5.2%
GH-sig proteinuria	1.4%	1.8%	2.1%	1.8%	2.0%	2.0%	2.0%	2.4%	2.3%	4.3%
GH-total	7.3%	6.6%	7.1%	6.9%	7.4%	7.2%	6.3%	7.4%	7.8%	9.5%

Note:

Gestational hypertension is hypertension that is first detected after the 20th week of gestation. Gestational hypertension with significant proteinuria includes those cases denoted as such; severe pre-eclampsia; HELLP syndrome (Hemolysis, Elevated Liver Enzymes, Low Platelets); and eclampsia.

^a Among women without pre-existing hypertension.

5.3 Pre-eclampsia by year, Nova Scotia, 2011-2020

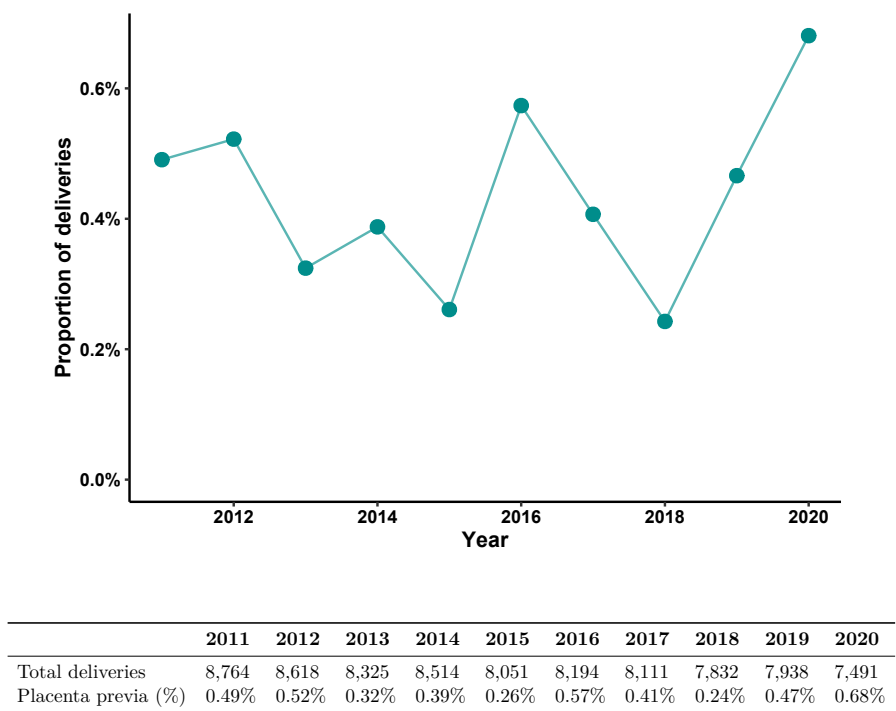


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,899	8,760	8,460	8,651	8,167	8,308	8,237	7,942	8,070	7,599
Pre-eclampsia (%)	1.71%	1.74%	1.64%	1.42%	1.33%	1.22%	1.49%	1.31%	1.38%	1.72%

Note:

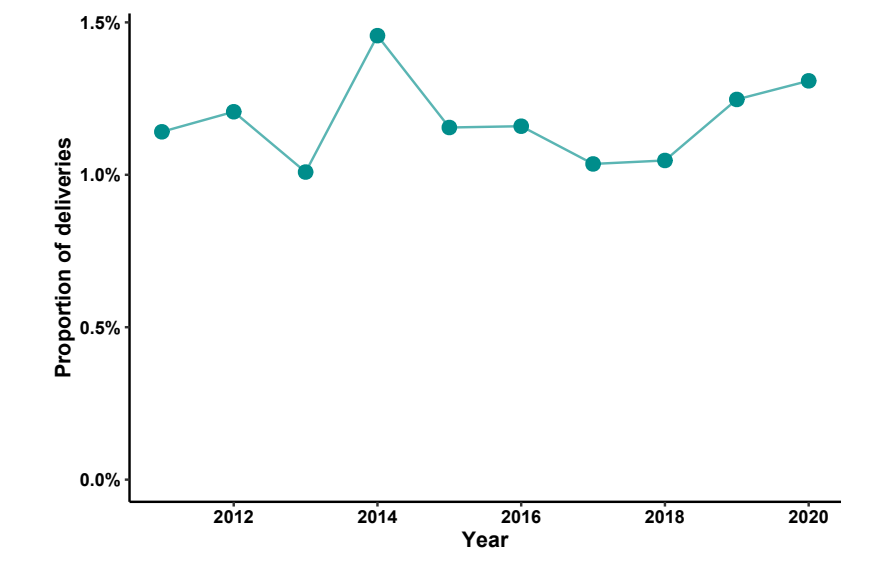
Pre-eclampsia includes women coded as having gestational hypertension with significant proteinuria, moderate or severe pre-eclampsia, HELLP syndrome (Hemolysis, Elevated Liver Enzymes, Low Platelets), eclampsia, or pre-existing hypertension with superimposed proteinuria.

5.4 Placenta previa by year, Nova Scotia, 2011-2020



Note:
Placenta previa is diagnosed when the placenta entirely or partially covers the opening of the uterus (cervix). The diagnosis is not made on ultrasound alone and must be confirmed clinically.

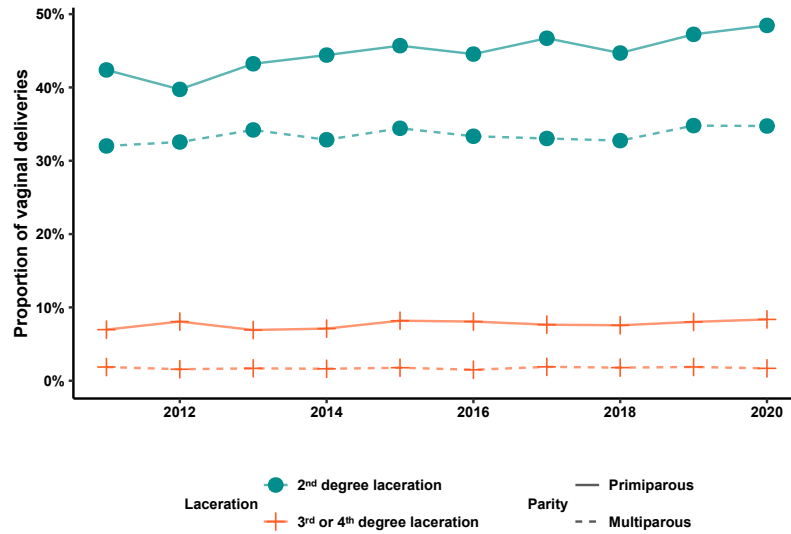
5.5 Placental abruption by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,764	8,618	8,325	8,514	8,051	8,194	8,111	7,832	7,938	7,491
Placenta abruption (%)	1.14%	1.21%	1.01%	1.46%	1.16%	1.16%	1.04%	1.05%	1.25%	1.31%

Note:
Placental abruption is defined as bleeding from the placental site due to the partial or complete separation of the placenta. The diagnosis is not made on ultrasound alone and must be confirmed clinically.

5.6 Perineal laceration deliveries by parity and year, Nova Scotia, 2011-2020

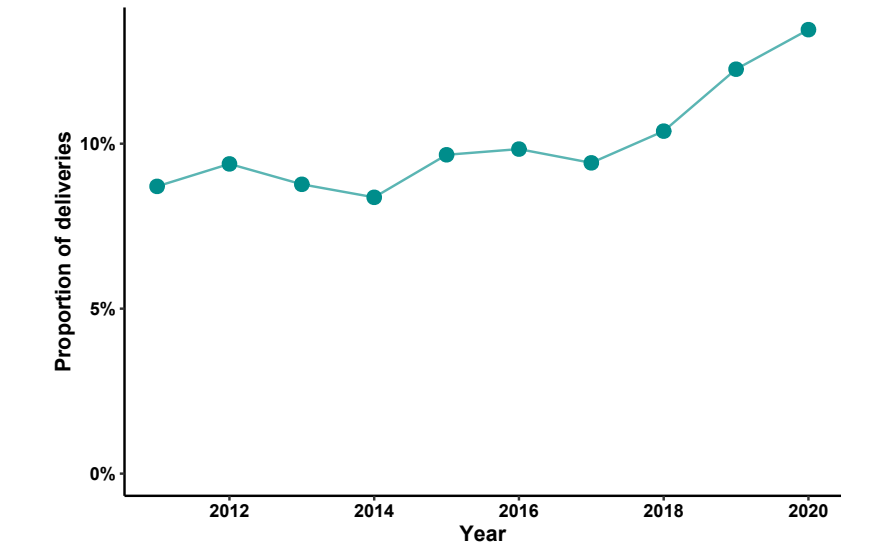


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Primiparous										
Total vaginal deliveries ^a	2,883	2,937	2,702	2,756	2,578	2,577	2,524	2,300	2,392	2,140
2 nd degree laceration	42.4%	39.7%	43.2%	44.4%	45.7%	44.5%	46.7%	44.7%	47.2%	48.5%
3 rd or 4 th degree laceration	7.0%	8.1%	6.9%	7.1%	8.2%	8.1%	7.6%	7.6%	8.0%	8.4%
Multiparous										
Total vaginal deliveries ^a	3,526	3,440	3,371	3,496	3,375	3,404	3,429	3,356	3,242	3,077
2 nd degree laceration	32.0%	32.6%	34.2%	32.9%	34.4%	33.3%	33.0%	32.7%	34.8%	34.7%
3 rd or 4 th degree laceration	1.9%	1.6%	1.7%	1.6%	1.8%	1.5%	1.9%	1.8%	1.9%	1.7%

Note:

Maternal perineal laceration, rupture or tear during delivery involving the pelvic floor, perineal muscles, or vaginal muscles (2nd degree), anal sphincter (3rd degree), or rectal mucosa (4th degree).

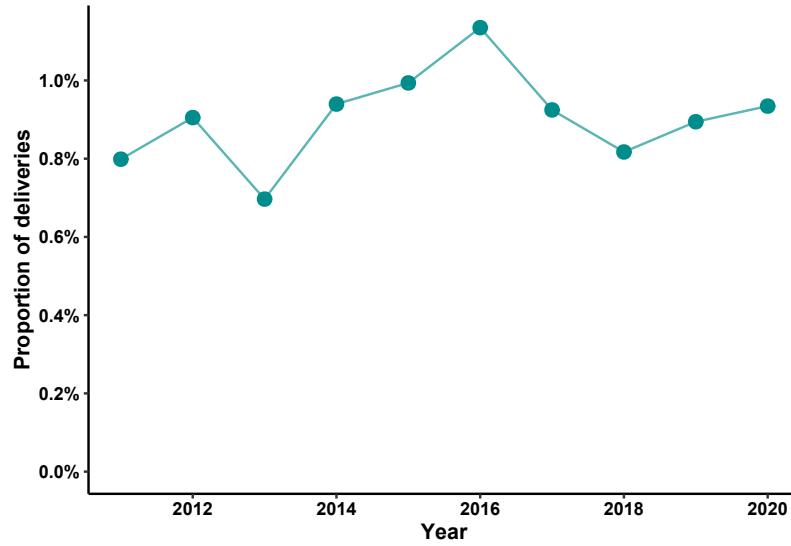
5.7 Postpartum hemorrhage by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,764	8,618	8,325	8,514	8,051	8,194	8,111	7,832	7,938	7,491
Postpartum hemorrhage (%)	8.7%	9.4%	8.8%	8.4%	9.7%	9.8%	9.4%	10.4%	12.3%	13.5%

Note:
Postpartum hemorrhage is diagnosed if, after the delivery of the fetus, excessive maternal bleeding occurs from the genital tract with an estimated blood loss of greater than 500 mL for vaginal deliveries or 1000 mL for Caesarean section deliveries.

5.8 Maternal blood transfusion by year, Nova Scotia, 2011-2020

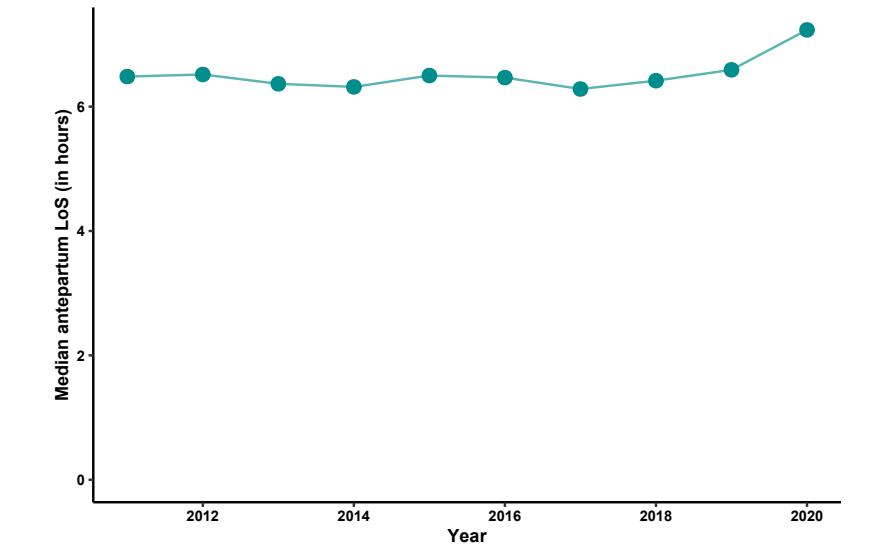


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,764	8,618	8,325	8,514	8,051	8,194	8,111	7,832	7,938	7,491
Transfusion (%)	0.80%	0.91%	0.70%	0.94%	0.99%	1.13%	0.92%	0.82%	0.89%	0.93%

Note:

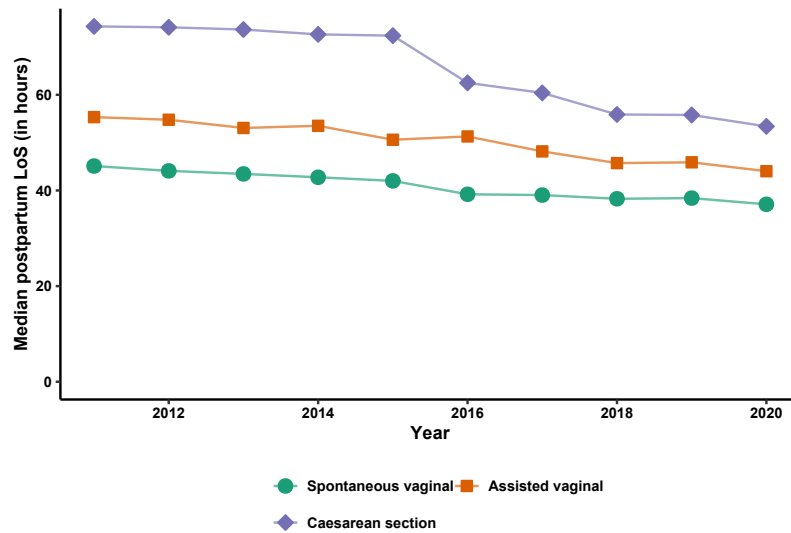
One or more maternal transfusions of red blood cells in the antepartum, intrapartum, or postpartum periods.

5.9 Maternal antepartum hospital length of stay (in hours) by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total deliveries	8,899	8,760	8,460	8,651	8,167	8,308	8,237	7,942	8,070	7,599
Mean (in hours)	17.1	17.0	17.1	16.6	15.8	13.1	13.2	12.3	13.6	13.9
Median (in hours)	6.5	6.5	6.4	6.3	6.5	6.5	6.3	6.4	6.6	7.2

5.10 Maternal postpartum hospital length of stay (in hours) by type of delivery and year, Nova Scotia, 2011-2020

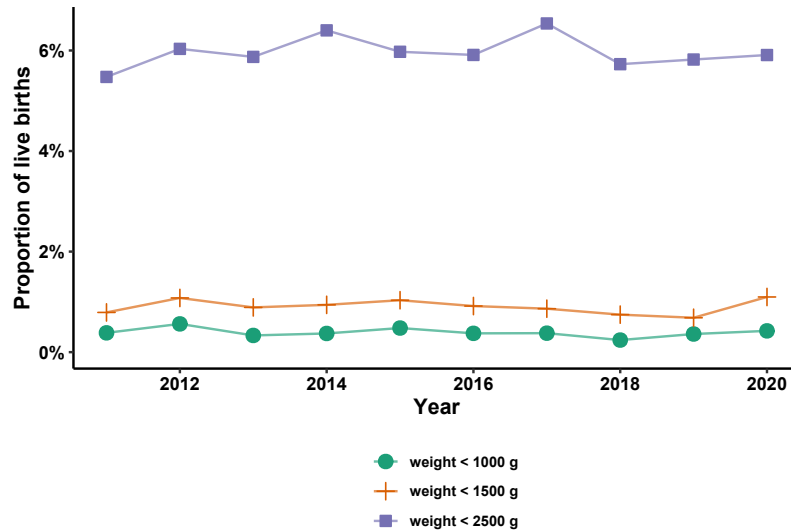


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Spontaneous vaginal										
Total deliveries	5,700	5,714	5,472	5,640	5,349	5,331	5,253	4,962	4,898	4,552
Mean (in hours)	50.0	48.7	47.6	47.3	48.4	46.7	46.5	44.5	45.1	43.7
Median (in hours)	45.1	44.1	43.5	42.8	42.0	39.2	39.0	38.3	38.4	37.1
Assisted vaginal										
Total deliveries	771	727	654	676	649	704	756	742	783	706
Mean (in hours)	61.7	61.2	59.5	61.5	59.1	59.9	56.3	53.9	53.2	53.6
Median (in hours)	55.3	54.8	53.1	53.5	50.6	51.3	48.2	45.7	45.9	44.0
Caesarean section										
Total deliveries	2,427	2,319	2,334	2,334	2,169	2,272	2,227	2,237	2,389	2,341
Mean (in hours)	77.3	77.2	75.9	74.5	76.8	69.9	69.2	65.7	65.9	62.2
Median (in hours)	74.3	74.1	73.7	72.6	72.4	62.5	60.4	55.9	55.8	53.4

6

Fetal and Infant Health Outcomes

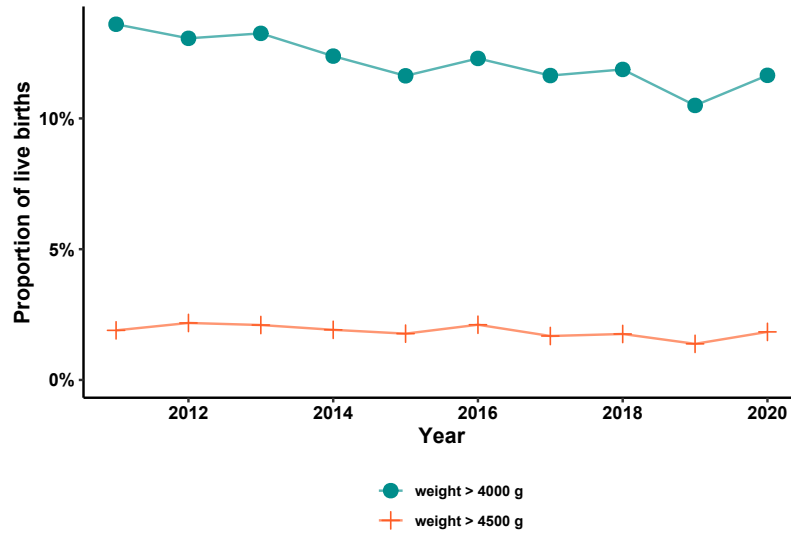
6.1 Low birth weight by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total live births ^a	8,860	8,720	8,429	8,609	8,135	8,289	8,214	7,909	8,041	7,564
weight < 1000 g	0.38%	0.56%	0.33%	0.37%	0.48%	0.37%	0.38%	0.24%	0.36%	0.42%
weight < 1500 g	0.79%	1.08%	0.89%	0.94%	1.03%	0.92%	0.86%	0.75%	0.68%	1.10%
weight < 2500 g	5.47%	6.03%	5.87%	6.40%	5.97%	5.91%	6.54%	5.73%	5.82%	5.91%

^a With known birth weight.

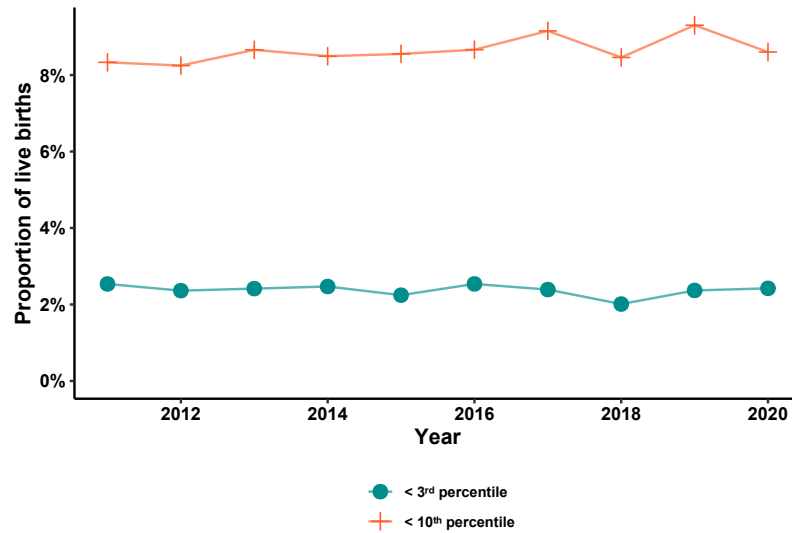
6.2 Macrosomia by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total live births ^a	8,860	8,720	8,429	8,609	8,135	8,289	8,214	7,909	8,041	7,564
weight > 4000 g	13.6%	13.1%	13.3%	12.4%	11.6%	12.3%	11.6%	11.9%	10.5%	11.6%
weight > 4500 g	1.9%	2.2%	2.1%	1.9%	1.8%	2.1%	1.7%	1.8%	1.4%	1.8%

^a With known birth weight.

6.3 Small for gestational age by year, Nova Scotia, 2011-2020



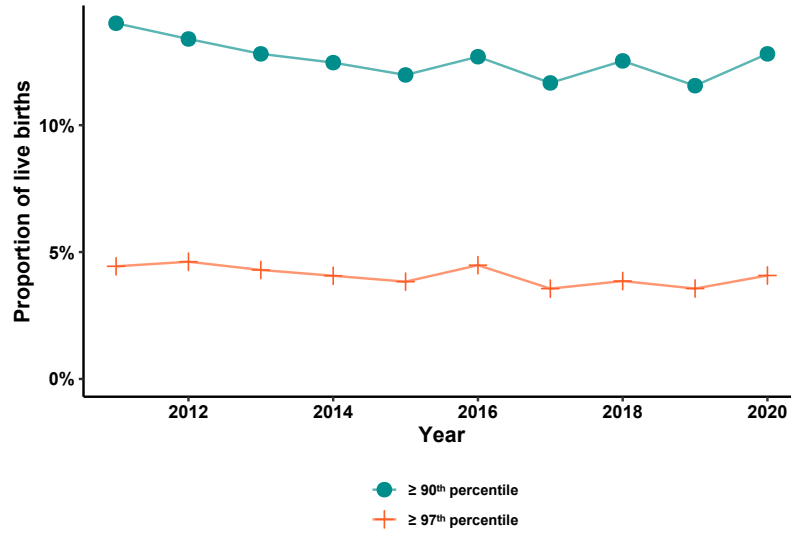
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total live births ^a	8,832	8,681	8,407	8,584	8,114	8,277	8,204	7,907	8,030	7,556
< 3 rd percentile	2.5%	2.4%	2.4%	2.5%	2.2%	2.5%	2.4%	2.0%	2.4%	2.4%
< 10 th percentile	8.3%	8.2%	8.7%	8.5%	8.6%	8.7%	9.2%	8.5%	9.3%	8.6%

Note:

Size for gestational age is based on sex-specific percentiles of birth weight for gestational age relative to a Canadian reference population Ref: Kramer et al. A New and Improved Population-Based Canadian Reference for Birth Weight for Gestational Age. *Pediatrics* 2001; 108 (2):e35.

^a With known birth weight.

6.4 Large for gestational age by year, Nova Scotia, 2011-2020



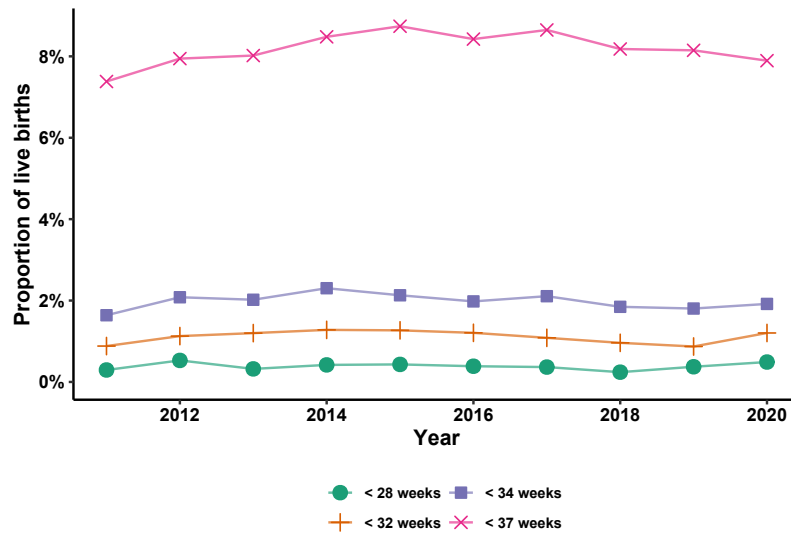
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total live births ^a	8,832	8,681	8,407	8,584	8,114	8,277	8,204	7,907	8,030	7,556
≥ 90 th percentile	14.0%	13.4%	12.8%	12.5%	12.0%	12.7%	11.7%	12.5%	11.6%	12.8%
≥ 97 th percentile	4.4%	4.6%	4.3%	4.1%	3.8%	4.5%	3.6%	3.9%	3.6%	4.1%

Note:

Size for gestational age is based on sex-specific percentiles of birth weight for gestational age relative to a Canadian reference population Ref: Kramer et al. A New and Improved Population-Based Canadian Reference for Birth Weight for Gestational Age. *Pediatrics* 2001; 108 (2):e35.

^a With known birth weight.

6.5 Preterm births by year, Nova Scotia, 2011-2020



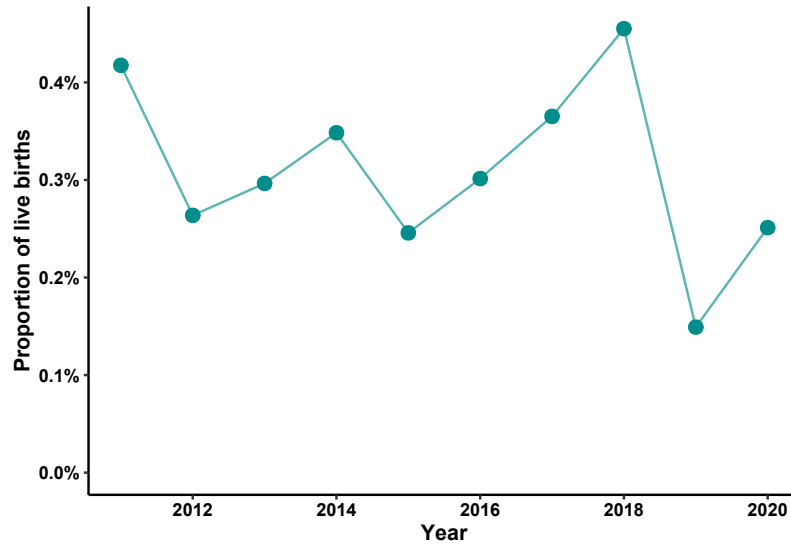
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total live births ^a	8,846	8,698	8,417	8,597	8,124	8,286	8,210	7,909	8,039	7,563
< 28 weeks	0.3%	0.5%	0.3%	0.4%	0.4%	0.4%	0.4%	0.2%	0.4%	0.5%
< 32 weeks	0.9%	1.1%	1.2%	1.3%	1.3%	1.2%	1.1%	1.0%	0.9%	1.2%
< 34 weeks	1.6%	2.1%	2.0%	2.3%	2.1%	2.0%	2.1%	1.8%	1.8%	1.9%
< 37 weeks	7.4%	7.9%	8.0%	8.5%	8.7%	8.4%	8.6%	8.2%	8.1%	7.9%

Note:

The derivation of gestational age is primarily based on the date of the mother's last menstrual period (LMP). If LMP is unknown or LMP-estimated gestational age is discordant with that estimated by early fetal ultrasound measurements, then gestational age based on early fetal ultrasound measurements is used. If early fetal ultrasound measurements are unavailable and gestational age based on LMP is discordant from that clinically estimated by the neonatal physical exam, then the clinically estimated gestational age is used.

^a With known gestational age.

6.6 Birth injury by year, Nova Scotia, 2011-2020

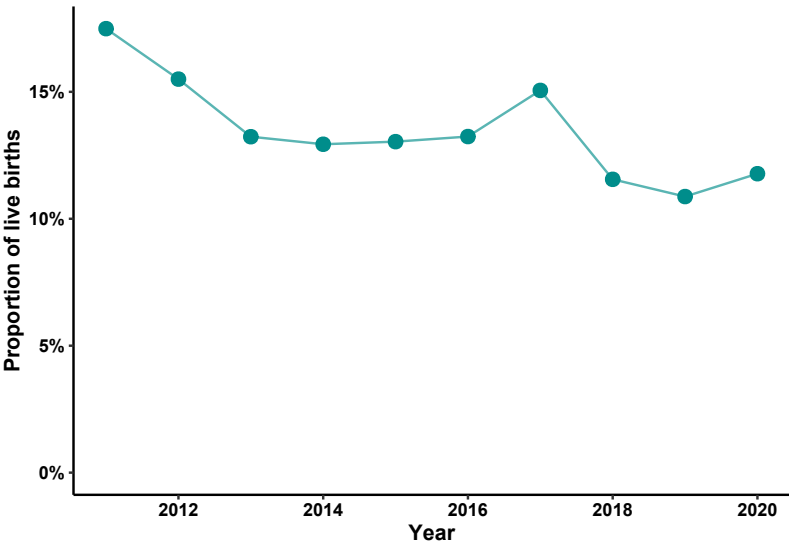


	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total live births	8,863	8,722	8,434	8,612	8,138	8,294	8,216	7,911	8,046	7,567
Birth injury (%)	0.42%	0.26%	0.30%	0.35%	0.25%	0.30%	0.37%	0.46%	0.15%	0.25%

Note:

Any injury to the infant occurring during delivery such as fracture (e.g., femur, clavicle, rib, humerus, depressed skull) or central nervous system trauma (e.g., cerebral hemorrhage, spinal cord hemorrhage, brachial plexus palsy).

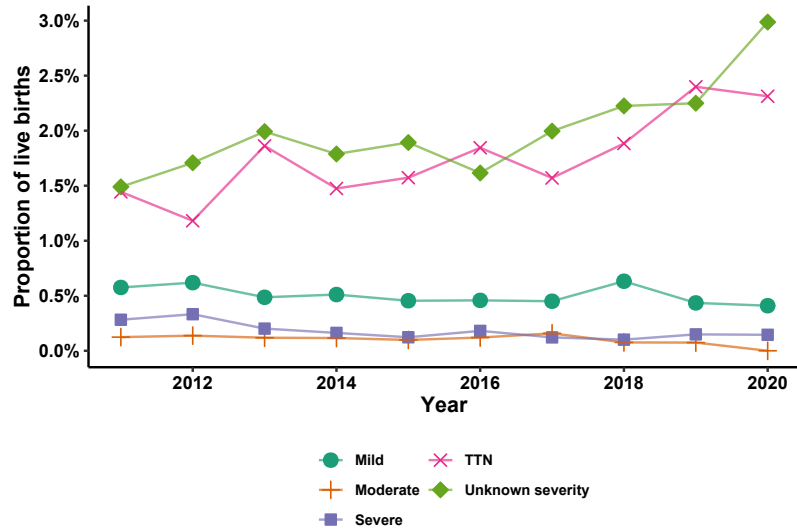
6.7 Phototherapy by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total live births	8,863	8,722	8,434	8,612	8,138	8,294	8,216	7,911	8,046	7,567
Received phototerapy (%)	17.5%	15.5%	13.2%	12.9%	13.0%	13.2%	15.1%	11.6%	10.9%	11.8%

Note:
Phototherapy involves exposure of the neonate to coloured light in hospital (birth hospital or readmission in the neonatal period). It is given for known or suspected hyperbilirubinemia (jaundice).

6.8 Type of respiratory distress syndrome by year, Nova Scotia, 2011-2020



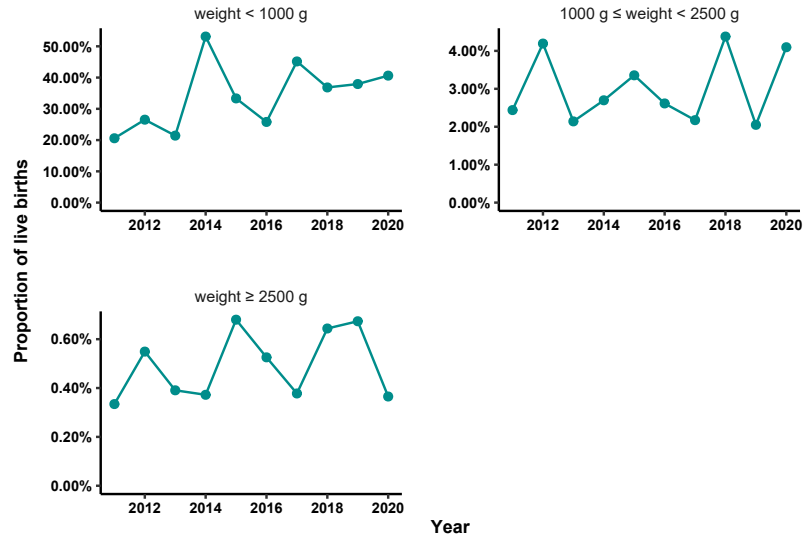
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total live births	8,863	8,722	8,434	8,612	8,138	8,294	8,216	7,911	8,046	7,567
Mild	0.58%	0.62%	0.49%	0.51%	0.45%	0.46%	0.45%	0.63%	0.43%	0.41%
Moderate	0.12%	0.14%	0.12%	0.12%	0.10%	0.12%	0.16%	0.08%	0.07%	0.00%
Severe	0.28%	0.33%	0.20%	0.16%	0.12%	0.18%	0.12%	0.10%	0.15%	0.15%
TTN ^a	1.44%	1.18%	1.86%	1.47%	1.57%	1.84%	1.57%	1.88%	2.40%	2.31%
Unknown severity	1.49%	1.71%	1.99%	1.79%	1.89%	1.62%	2.00%	2.22%	2.25%	2.99%
Total RDS	3.92%	3.98%	4.66%	4.05%	4.14%	4.22%	4.30%	4.92%	5.31%	5.85%

Note:

Respiratory distress syndrome (RDS) is identified by neonatal grunting, retractions, and decreased air entry that occur before 3 hours of age, persist beyond 6 hours of age, and are not explained by any other disease. Severity is categorized by the treatment given by the physician as noted in the medical record: mild, < 35% oxygen; moderate, 35% oxygen or continuous positive airway pressure (CPAP); severe, ventilated. Note that as medical practice changes with respect to the type of treatment given, the proportion of RDS that is of unknown severity may increase.

^a TTN = Transient tachypnea of the newborn.

6.9 Neonatal sepsis by birth weight and year, Nova Scotia, 2011-2020

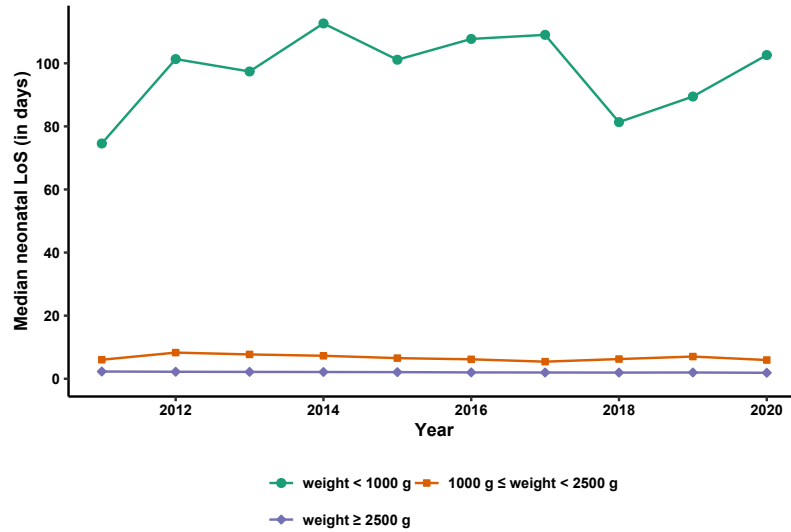


Birth weight	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
weight < 1000 g										
Total live births	34	49	28	32	39	31	31	19	29	32
Neonatal sepsis (%)	20.6%	26.5%	21.4%	53.1%	33.3%	25.8%	45.2%	36.8%	37.9%	40.6%
1000 g ≤ weight < 2500 g										
Total live births	451	477	467	519	447	459	506	434	439	415
Neonatal sepsis (%)	2.4%	4.2%	2.1%	2.7%	3.4%	2.6%	2.2%	4.4%	2.1%	4.1%
weight ≥ 2500 g										
Total live births	8,375	8,194	7,934	8,058	7,649	7,799	7,677	7,456	7,573	7,117
Neonatal sepsis (%)	0.33%	0.55%	0.39%	0.37%	0.68%	0.53%	0.38%	0.64%	0.67%	0.37%

Note:

Pneumonia, either intrauterine or postnatal, or positive blood/cerebrospinal fluid cultures.

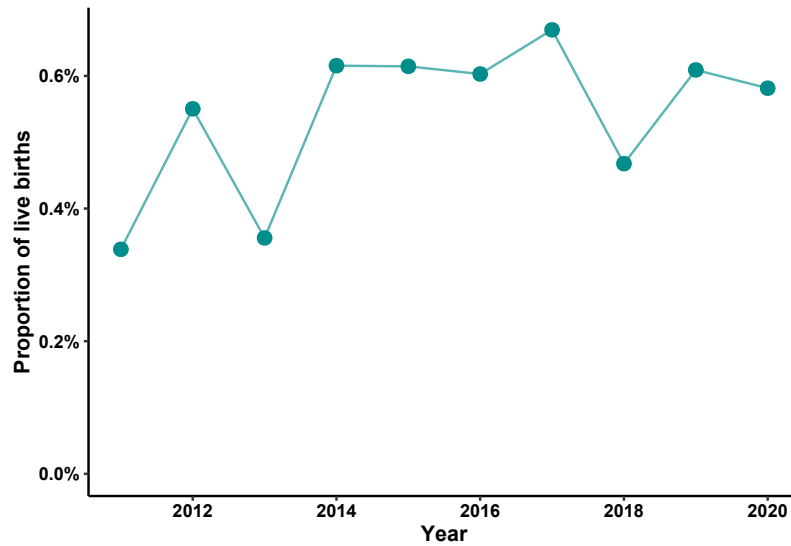
6.10 Newborn length of stay (in days) by birth weight and year, Nova Scotia, 2011-2020



Birth weight	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
weight < 1000 g										
Total births ^a	28	36	20	20	26	13	21	16	15	19
Mean (in days)	84.6	98.5	119.1	124.9	97.2	112.8	108.8	91.4	93.2	90.8
Median (in days)	74.6	101.3	97.4	112.6	101.1	107.7	109.0	81.3	89.5	102.6
1000 g ≤ weight < 2500 g										
Total births ^a	444	466	460	512	442	452	493	429	430	413
Mean (in days)	14.1	15.7	17.7	17.4	16.0	16.0	14.0	15.4	14.1	16.1
Median (in days)	6.0	8.3	7.7	7.3	6.5	6.2	5.4	6.2	7.0	5.9
weight ≥ 2500 g										
Total births ^a	8,366	8,189	7,927	8,050	7,641	7,785	7,660	7,448	7,561	7,109
Mean (in days)	2.8	2.8	2.7	2.8	2.7	2.6	2.5	2.7	2.7	2.4
Median (in days)	2.3	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	1.9

^a Number of births of infants who survived to hospital discharge.

6.11 Neonatal withdrawal from maternal use of opioids by year, Nova Scotia, 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total live births	8,863	8,722	8,434	8,612	8,138	8,294	8,216	7,911	8,046	7,567
Neonatal withdrawal	0.34%	0.55%	0.36%	0.62%	0.61%	0.60%	0.67%	0.47%	0.61%	0.58%

Note:

Neonatal withdrawal symptoms from maternal dependency on opioid drugs. Does not include neonatal reactions from opioid drugs administered to the mother during labour or delivery.



Glossary

Assisted reproductive technology

From records of the hospital delivery admission and can include assisted reproduction, ovulation induction, intracytoplasmic sperm injection (ICSI), embryo transfer, and *in vitro* fertilization (IVF).

Assisted vaginal delivery

Vaginal delivery involving the use of forceps and/or vacuum.

Birth

Birth refers to the live born or stillborn infant. “Births” are differentiated from “deliveries”. For example, a woman who had twins is counted as having one delivery and two births.

Birth injury

Any injury to the infant occurring during delivery such as fracture (e.g., femur, clavicle, rib, humerus, depressed skull) or central nervous system trauma (e.g., cerebral hemorrhage, spinal cord hemorrhage, brachial plexus palsy).

Body mass index (BMI)

Calculated as weight in kilograms divided by the square of height in metres.

- Underweight: $BMI < 18.5 \text{ kg/m}^2$
- Normal weight: $18.5 \text{ kg/m}^2 \leq BMI \leq 24.9 \text{ kg/m}^2$
- Overweight: $25 \text{ kg/m}^2 \leq BMI \leq 29.9 \text{ kg/m}^2$
- Obese: $BMI \geq 30 \text{ kg/m}^2$

Breastfeeding status

Describes the method of infant feeding during the hospital stay. Breastfeeding refers to when the infant was given breast milk: Exclusive denotes that the infant received only breast milk and non-exclusive denotes that the infant received breast milk with supplementation.

Caesarean section delivery

Delivery of the fetus through an incision in the abdominal and uterine walls.

Cannabis use Use of cannabis in pregnancy if recorded on the Nova Scotia Prenatal Record.

Delivery

A delivery marks the end of pregnancy, regardless of the number of infants born. For example, a woman who had twins is counted as having one delivery and two births.

Early neonatal mortality

Death of a liveborn infant, occurring up to the sixth completed day of life (6 days, 23 hours and 59 minutes).

Episiotomy

A mediolateral or midline incision made in the perineum during childbirth.

Gestational age

Gestational age is calculated from an algorithm that incorporates information from early ultrasound measurements (before 25 weeks), the first day of the last normal menstrual period (LMP), and a clinical estimate based on a physical examination of the infant shortly after birth. The derivation is primarily based on the date of the mother's last menstrual period (LMP). If LMP is unknown or LMP-estimated gestational age is discordant with that estimated by early fetal ultrasound measurements, then gestational age based on early fetal ultrasound measurements is used. If early fetal ultrasound measurements are unavailable and gestational age based on LMP is discordant from that clinically estimated by the neonatal physical exam, then the clinically estimated gestational age is used.

Gestational diabetes

Diabetes mellitus first detected in pregnancy as recorded in the medical record. Please note that the criteria for the diagnosis of gestational diabetes were revised by Diabetes Canada (formerly the Canadian Diabetes Association) in 2013. Therefore, the rates of gestational diabetes were expected to increase as the new criteria are adopted across Nova Scotia, starting approximately in late 2014. [Ref: Canadian Diabetes Association Clinical Practice Guidelines Expert Committee. Canadian Diabetes Association 2013 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. Canadian Journal of Diabetes. 2013;37(suppl1):S1-12].

Gestational hypertension

Gestational hypertension is hypertension that is first detected after the 20th week of gestation. Gestational hypertension with significant proteinuria includes those cases denoted as such; severe pre-eclampsia; HELLP syndrome (Hemolysis, Elevated Liver Enzymes, Low Platelets); and eclampsia.

Gestational weight gain

Gestational weight gain guidelines set by the US Institute of Medicine and Health Canada are specific to a woman's pre-pregnancy BMI category: Underweight, 12.5 to 18 kg; Normal weight, 11.5 to 16 kg; Overweight, 7 to 11.5 kg; Obese, 5 to 9 kg.

- Inadequate: Below the recommended range.
- Adequate: Within the recommended range.
- Excessive: Above the recommended range.

Indication for labour induction

Reason for induction of labour as documented on the medical chart. The 'Other medical reason' category includes maternal diabetes, maternal history of precipitate labour, pruritic urticarial papules and plaques of pregnancy (PUPP), thrombocytopenia, maternal seizure, vaginal bleeding, premature rupture of membranes with clinical chorioamnionitis, isoimmunization, concern for fetal well being (abnormal biophysical profile, abnormal or atypical non-stress test, abnormal Doppler), oligohydramnios (decreased amniotic fluid), polyhydramnios (increased amniotic fluid), multiple pregnancy, and positive group B Streptococcus with rupture of membranes.

Infant mortality

Death of a liveborn infant occurring within the first year of life.

Interpregnancy weight change

Calculated as the pre-pregnancy weight in the index pregnancy minus the pre-pregnancy weight in the woman's preceding pregnancy.

Labour induction

The initiation of contractions in a pregnant woman who is not in labour to help her achieve a vaginal birth within 24 to 48 hours.

Laceration

Maternal perineal laceration, rupture or tear during delivery involving the pelvic floor, perineal muscles, or vaginal muscles (2nd degree), anal sphincter (3rd degree), or rectal mucosa (4th degree).

Large for gestational age

See 'Size for gestational age'.

Live birth

Live birth refers to birth of an infant with signs of life.

Macrosomia

Refers to birth weight beyond two specific thresholds, 4,000 g and 4,500 g. The

American College of Obstetricians and Gynecologists supports use of the 4,500 g threshold for diagnosis of macrosomia because morbidity increases sharply beyond this weight, but acknowledges there is some increased risk of morbidity at weights > 4,000 g. [Ref: ACOG Practice Bulletin No.22: Fetal Macrosomia. American College of Obstetricians and Gynecologists, Washington DC 2000]

Maternal antepartum hospital length of stay

Hours between maternal admission to the birth facility and delivery.

Maternal blood transfusion

One or more maternal transfusions of red blood cells in the antepartum, intrapartum, or postpartum periods.

Maternal postpartum hospital length of stay Hours between delivery and discharge of the mother from the birth facility.

Medical augmentation

Use of oxytocin to improve contractions after labour has started spontaneously.

Neonatal mortality

Death of a liveborn infant, occurring up to the 27th completed day of life (27 days, 23 hours and 59 minutes).

Neonatal sepsis

Isolation of bacterial or fungal or viral organism from blood or cerebrospinal fluid in the symptomatic infant. In addition to blood culture, this includes viral or fungal infection. This definition does not include congenital or postnatal pneumonia.

Neonatal withdrawal

Neonatal withdrawal symptoms from maternal dependency on opioid drugs. Does not include neonatal reactions from opioid drugs administered to the mother during labour or delivery.

Newborn length of stay

The total number of days a baby stayed in the delivery hospital and transfer hospital(s) (if applicable) before being discharged home. This calculation does not include newborns who have died in-hospital or who have not yet been discharged home.

Obstetrical intervention

A delivery that includes any of: induction, medical augmentation, anesthesia, caesarean delivery, vaginal delivery involving the use of forceps and/or vacuum, or episiotomy.

Opioid agonist maintenance therapy

Maternal use of methadone, buprenorphine, or other opioid agonist in pregnancy if recorded on the Nova Scotia Prenatal Record.

Parity

Number of pregnancies, excluding the present pregnancy, which resulted in the delivery of 1 or more infants weighing 500 g or more at birth (regardless of the outcome of such infants).

Partner status

Partnered denotes women who are married or in a common-law relationship.

Perinatal mortality

Death of an infant, occurring up to the sixth completed day of life (6 days, 23 hours and 59 minutes). Includes stillbirths and early neonatal deaths.

Phototherapy

Exposure of the neonate to coloured light in hospital (birth hospital or readmission in the neonatal period). Phototherapy is given for known or suspected hyperbilirubinemia (jaundice).

Placenta previa

Placenta entirely or partially covering the internal os. The diagnosis is not made on ultrasound alone and must be confirmed clinically.

Placental abruption

Bleeding from the placental site due to the partial or complete separation of the placenta. The diagnosis is not made on ultrasound alone and must be confirmed clinically.

Postneonatal mortality

Death of a liveborn infant weighing 500 g or more at birth, occurring from 28 days to 1 year of life.

Postpartum hemorrhage

After the delivery of the fetus, excessive maternal bleeding from the genital tract with an estimated blood loss of greater than 500 mL for vaginal deliveries or 1000 mL for Caesarean section deliveries.

Pre-eclampsia

Gestational hypertension with proteinuria, or pre-existing hypertension with superimposed proteinuria. Includes HELLP syndrome (Hemolysis, Elevated Liver Enzymes, Low Platelets).

Pre-existing diabetes

Maternal history of either Type 1 or Type 2 diabetes mellitus prior to the current pregnancy.

Pre-existing hypertension

Maternal history of hypertensive disease prior to the current pregnancy or prior to 20 weeks' gestation in the current pregnancy.

Regional anesthesia

Use of epidural, spinal, and/or pudendal anesthesia during labour and/or delivery. Respiratory Distress Syndrome (RDS) Grunting, retractions, and decreased air entry - occurring before 3 hours of age and persisting beyond 6 hours of age and not explained by any other disease. Severity of RDS is categorized by the treatment given by the physician as recorded in the medical record:

- Mild: < 35% oxygen
- Moderate: 35% oxygen or continuous positive airway pressure (CPAP)
- Severe: Ventilated
- TTN: Transient tachypnea of the newborn

Note that as medical practice changes with respect to the type of treatment given, the proportion of RDS that is of unknown severity will increase.

Robson group

The Robson criteria for the classification of deliveries into ten mutually exclusive groups by maternal characteristics allows comparison of Caesarean section rates at regional and national levels. Please note that for the purposes of this report:

1. group 6 (nulliparous breeches) and group 7 (multiparous breeches) are combined;
2. group 9 (abnormal lies excluding breeches) is omitted due to small numbers. [Ref: Robson MS. Classification of caesarean sections. *Fetal and Maternal Medicine Review* 2001;12(1):23-39]

Size for gestational age

Sex-specific percentiles of birth weight for gestational age relative to a Canadian reference population Ref: Kramer MS, Platt RW, Wen SW, Joseph KS, Allen A, Abrahamowitz M, Blondel B, Brart G. A New and Improved Population-Based Canadian Reference for Birth Weight for Gestational Age. *Pediatrics* 2001; 108 (2):e35.

Small for gestational age

See Size for gestational age.

Spontaneous vaginal delivery

Vaginal delivery without the use of forceps or vacuum.

Stages of labour

The first stage is the period from the onset of labour until the cervix is fully dilated (10 cm). The second stage is the period from 10 cm dilation of the cervix until the baby is delivered.

Stillbirth

The complete expulsion or extraction from its mother after at least 20 weeks pregnancy, or after attaining a weight of 500 g or more, of a fetus in which, after such expulsion or extraction, there is no breathing, beating of the heart, pulsation of the umbilical cord, or unmistakable movement of voluntary muscle.

Vaginal Birth After Caesarean (VBAC) candidate

For the purposes of this report, a VBAC candidate is defined as a woman who has had no more than one previous Caesarean section delivery (and that one involved a transverse incision); whose current pregnancy is a singleton in vertex presentation; and who has no contraindications for labour such as previous uterine surgery, cervical disease, HSV or HIV infection, prolapsed cord, or fetal anomaly. On an individual basis when more information is available, such as type of previous Caesarean delivery, other factors are taken into account and women with two previous Caesarean deliveries may be considered for VBAC. Ref: [Society of Obstetricians and Gynaecologists of Canada. Guidelines for vaginal birth after previous caesarean birth. SOGC clinical practice guidelines. Number 155, February 2005. Int J Gynaecol Obstet. 2005 Jun;89\(3\):319-31](#)