

Nova Scotia Atlee Perinatal Database
Report of Indicators: 2010-2019



Dedication

We would like to honour two neonatologists whom we have lost since our last edition of the Nova Scotia Perinatal Database Report: Drs. Dora A. Stinson and Alexander C. Allen. Both of these physicians worked steadily and tirelessly to improve the health of babies in the province through the clinical care they administered, first at the Grace Maternity Hospital and later at the IWK Health Centre; research; and teaching, mentoring and supporting medical trainees, researchers, and junior faculty members. We will miss them, but will feel their impact forever as we remember their dedication and humour, and do our utmost to build on what they worked so hard to accomplish for the health and wellbeing of Nova Scotians.

Dr. Dora Stinson, MD, FRCPC, FAAP (1939-2020) was actively involved in every aspect of neonatal medicine for many years, in research, administration and directly in clinical treatment of children. Dr. Stinson was well known locally and nationally as a skilled physician, a dedicated teacher and mentor, and a valued colleague. She acted as the Neonatal Clinical Advisor for the Reproductive Care Program for several years, and provided thoughtful input on several of the indicators shown herein.



Dr. Alec Allen, MDCM, FAAP, FRCPC (1933-2018) had extraordinary vision when he established the Nova Scotia Atlee Perinatal Database in the 1980s, well before other similar databases were established in other provinces. His hard work made this Report, over one hundred research projects, and many quality improvement initiatives possible. Among his many accomplishments, Dr. Allen established the Perinatal Epidemiology Research Unit and served as its first director until 2010.



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, who helped to compile and edit the current report. 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

Azar Mehrabadi, PhD, Assistant Professor

Stefan Kuhle, MD, PhD, Associate Professor

Christy Woolcott, PhD, Director, Associate Professor

Linda Dodds, PhD, Past Director, Professor



Contents

Introduction	1
Deliveries and Births	3
1.1 Number of deliveries (live births and stillbirths) to residents	4
1.2 Number of births	4
1.3 Number of births by outcome and sex	4
1.4 Deliveries resulting from assisted reproductive technology	5
Perinatal and Infant Mortality	7
2.1 Perinatal mortality	8
2.2 Infant mortality	9
Determinants of Maternal, Fetal, and Infant Health	11
3.1 Maternal age	12
3.2 Maternal age (primiparous women)	12
3.3 Maternal parity	13
3.4 Maternal partner status	13
3.5 Maternal smoking during pregnancy	14
3.6 Reduction in amount smoked among women who smoked	14
3.7 Missing information about smoking in pregnancy	15
3.8 Cannabis use recorded during pregnancy	16
3.9 Maternal opioid agonist maintenance therapy during pregnancy	16
3.10 Pre-pregnancy body mass index	17
3.11 Pre-pregnancy obesity class	17
3.12 Gestational weight gain according to recommendations	18
3.13 Gestational weight gain by pre-pregnancy body mass index	19
3.14 Missing information about maternal weight and height	20
3.15 Interpregnancy weight change	20
3.16 Pre-existing diabetes	21
3.17 Pre-existing hypertension	21
3.18 Number of pre-pregnancy risk factors risk factors	22
3.19 Use of medication for depression or anxiety	22
3.20 Breastfeeding status during hospital stay	23
Labour and Birth Processes	25
4.1 Labour induction by parity	26
4.2 Indication for labour induction by parity	26
4.3 Medical augmentation of labour among women with spontaneous onset of labour	27
4.4 Use of regional anesthesia with vaginal delivery	27
4.5 Type of delivery	28
4.6 Stage of labour before Caesarean delivery	28
4.7 Primary indication for Caesarean delivery	29
4.8 Caesarean delivery by Robson group	30
4.9 Any labour among candidates for vaginal birth after Caesarean	31
4.10 Type of delivery among candidates for vaginal birth after Caesarean (VBAC) who had any labour	31
4.11 Labour to 4 cm dilation among candidates for vaginal birth after Caesarean	32
4.12 Type of delivery among candidates for vaginal birth after Caesarean who had labour to 4 cm dilation	32
4.13 Episiotomy by parity	33
4.14 Obstetrical intervention	33

Maternal Health Outcomes	35
5.1 Gestational diabetes	36
5.2 Gestational hypertension	37
5.3 Pre-eclampsia	37
5.4 Placenta previa	38
5.5 Placental abruption	38
5.6 Perineal laceration among primiparous vaginal deliveries	39
5.7 Perineal laceration among multiparous vaginal deliveries	39
5.8 Postpartum hemorrhage	40
5.9 Maternal blood transfusion	40
5.10 Maternal antepartum hospital length of stay	41
5.11 Maternal postpartum hospital length of stay by type of delivery	41
Fetal and Infant Health Outcomes	43
6.1 Low birth weight	44
6.2 Macrosomia	44
6.3 Small for gestational age	45
6.4 Large for gestational age	45
6.5 Preterm births	46
6.6 Birth injury	46
6.7 Phototherapy	47
6.8 Type of respiratory distress syndrome	47
6.9 Neonatal sepsis by birth weight	48
6.10 Newborn length of stay by birth weight	49
6.11 Neonatal withdrawal from maternal use of opioids	49
Glossary	51

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.

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

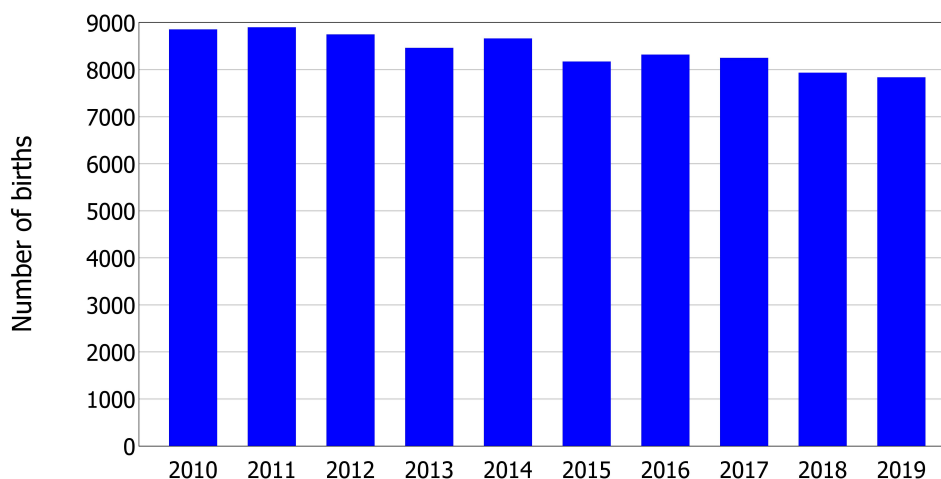
We plan to produce similar reports on a regular basis. Updated reports will be posted on the RCP web site (<http://rcp.nshealth.ca>). As always, we welcome comments and suggestions for additional indicators to be included in these future reports (peru@dal.ca).

Section 1:
Deliveries and Births

1.1 Number of deliveries (live births and stillbirths) to residents by year, Nova Scotia, 2010-2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Singleton	8544	8619	8454	8177	8363	7921	8068	7965	7695	7558
Multiple	154	139	145	139	149	124	123	140	119	138
Total deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696

1.2 Number of births by year, Nova Scotia, 2010-2019



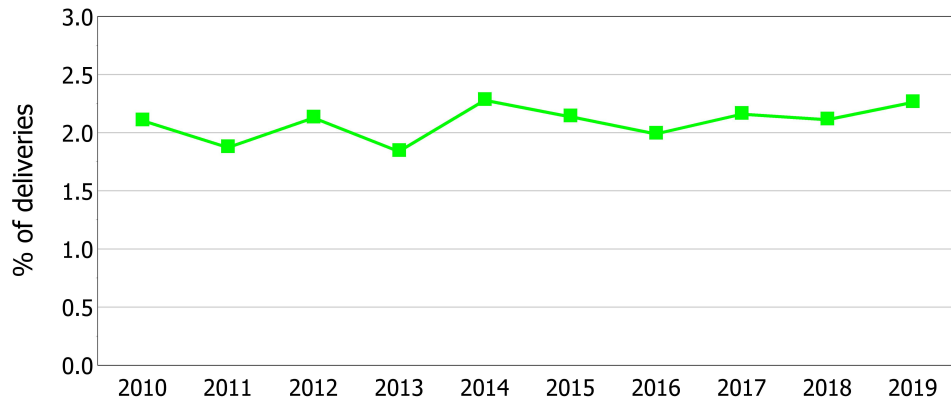
1.3 Number of births by outcome, sex, and year, Nova Scotia, 2010-2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Male live births	4528	4510	4467	4337	4367	4163	4208	4279	4054	3972
Male stillbirths	19	16	22	17	27	21	12	13	16	16
Male births*	4547	4526	4489	4354	4394	4184	4220	4292	4070	3988
Female live births	4288	4347	4234	4088	4242	3968	4083	3931	3838	3830
Female stillbirths	17	23	21	17	23	16	13	23	23	16
Female births*	4305	4370	4255	4105	4265	3984	4096	3954	3861	3846
Total live births	8816	8857	8702	8425	8610	8132	8291	8210	7892	7804
Total stillbirths	38	41	44	34	52	38	26	36	40	32
Total births	8854	8898	8746	8459	8662	8170	8317	8246	7932	7836

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

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.

1.4 Deliveries resulting from assisted reproductive technology, Nova Scotia, 2010-2019

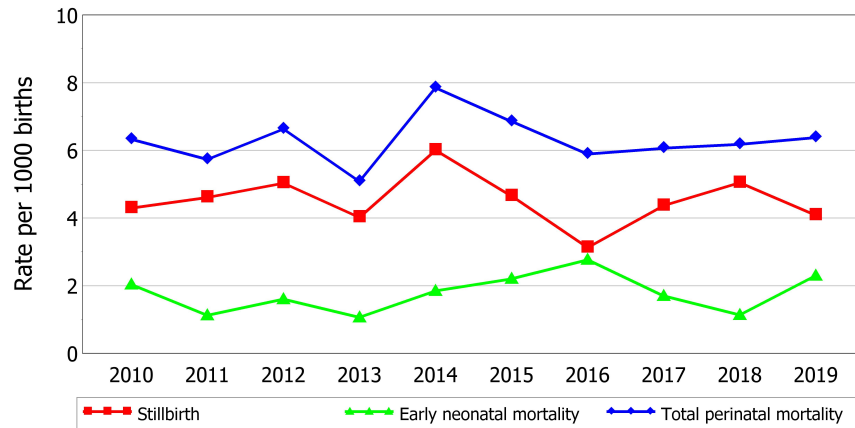


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Assisted reproduction	2.1%	1.9%	2.1%	1.8%	2.3%	2.1%	2.0%	2.2%	2.1%	2.3%

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

Section 2: Perinatal and Infant Mortality

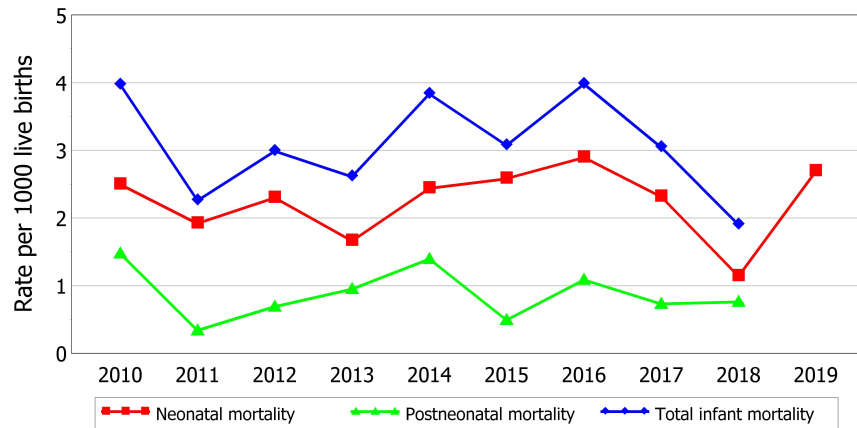
2.1 Perinatal mortality by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# births	8854	8898	8746	8459	8662	8170	8317	8246	7932	7836
Rate per 1000 births:										
Stillbirth	4.3	4.6	5.0	4.0	6.0	4.7	3.1	4.4	5.0	4.1
Early neonatal mortality	2.0	1.1	1.6	1.1	1.8	2.2	2.8	1.7	1.1	2.3
Total perinatal mortality	6.3	5.7	6.6	5.1	7.9	6.9	5.9	6.1	6.2	6.4

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, 2010-2019



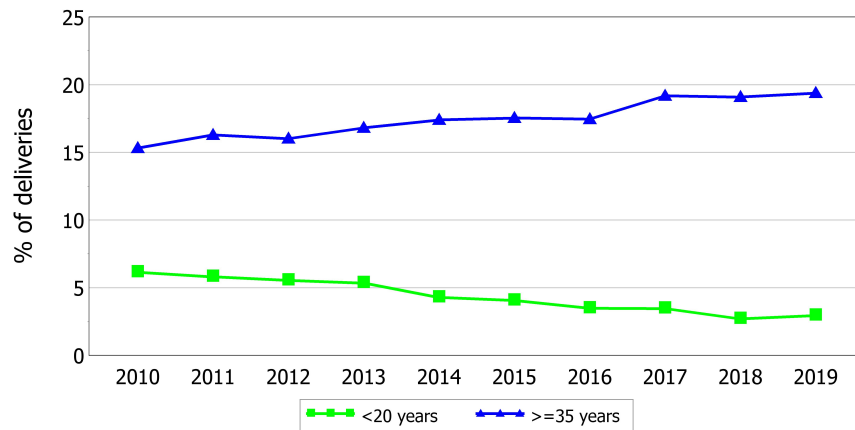
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births	8816	8857	8702	8425	8610	8132	8291	8210	7892	7804
Rate per 1000 live births:										
Neonatal mortality	2.5	1.9	2.3	1.7	2.4	2.6	2.9	2.3	1.1	2.7
Postneonatal mortality	1.5	0.3	0.7	0.9	1.4	0.5	1.1	0.7	0.8	*
Total infant mortality	4.0	2.3	3.0	2.6	3.8	3.1	4.0	3.0	1.9	*

* Ascertainment of postneonatal deaths for births occurring in 2019 is not yet complete.

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.

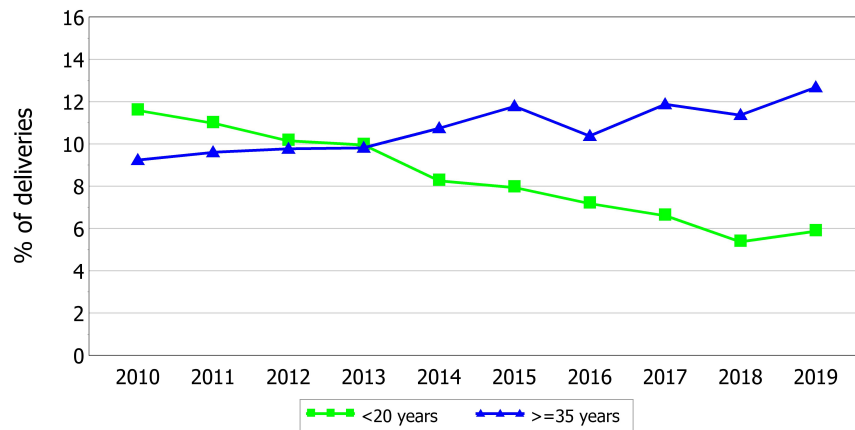
Section 3:
Determinants of Maternal, Fetal, and Infant Health

3.1 Maternal age by year, Nova Scotia, 2010-2019



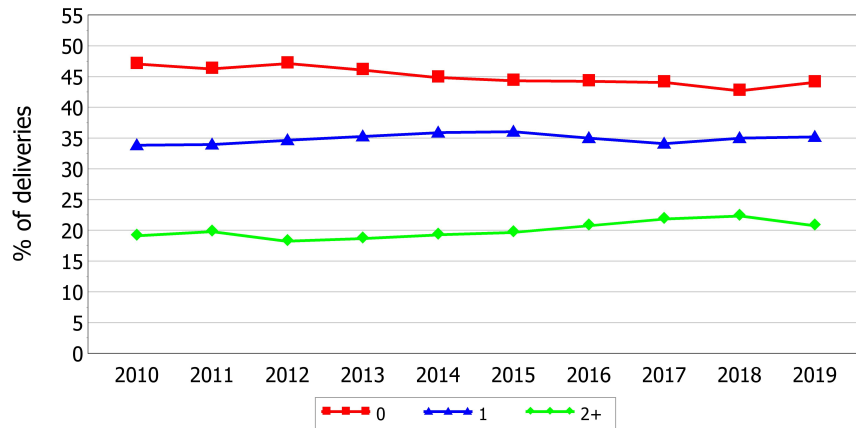
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
<20 years	6.1%	5.8%	5.5%	5.3%	4.3%	4.1%	3.5%	3.5%	2.7%	2.9%
≥35 years	15.3%	16.3%	16.0%	16.8%	17.4%	17.5%	17.5%	19.2%	19.1%	19.4%

3.2 Maternal age (primiparous women) by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries to primiparous women	4092	4051	4052	3830	3817	3565	3623	3571	3335	3391
<20 years	11.6%	11.0%	10.1%	9.9%	8.3%	7.9%	7.2%	6.6%	5.4%	5.9%
≥35 years	9.2%	9.6%	9.8%	9.8%	10.7%	11.8%	10.4%	11.9%	11.4%	12.7%

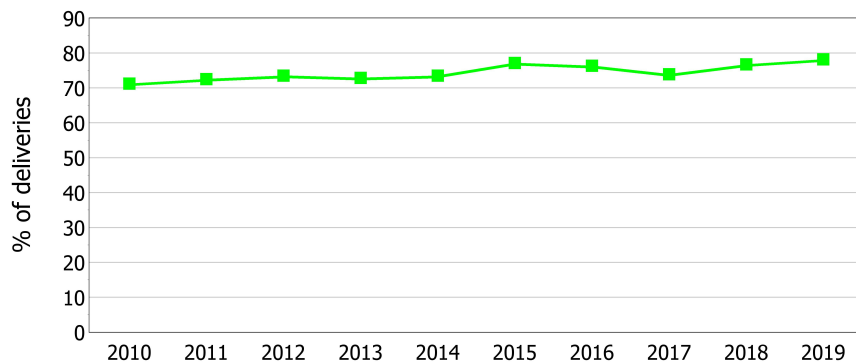
3.3 Maternal parity by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries*	8697	8758	8598	8314	8512	8044	8190	8104	7813	7695
0	47.1%	46.3%	47.1%	46.1%	44.8%	44.3%	44.2%	44.1%	42.7%	44.1%
1	33.8%	34.0%	34.6%	35.3%	35.9%	36.0%	35.0%	34.1%	35.0%	35.2%
2+	19.1%	19.8%	18.2%	18.7%	19.3%	19.7%	20.8%	21.8%	22.3%	20.8%

* With known parity.

3.4 Maternal partner status by year, Nova Scotia, 2010-2019

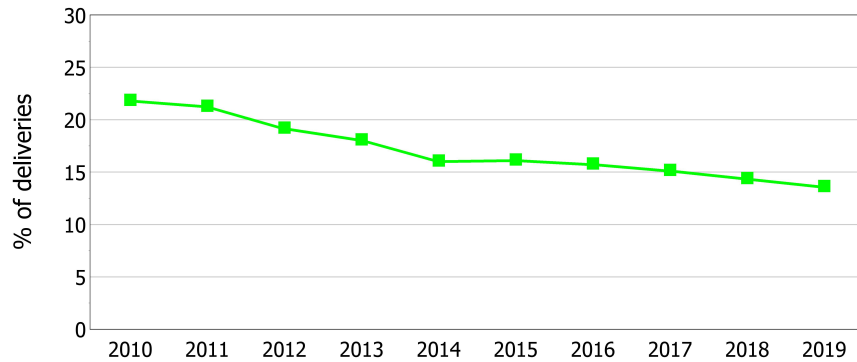


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries*	8172	8314	8071	7725	7805	7154	7421	7425	7158	7107
Partnered	70.9%	72.2%	73.2%	72.5%	73.2%	76.8%	76.0%	73.6%	76.4%	77.8%

* With known partner status.

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

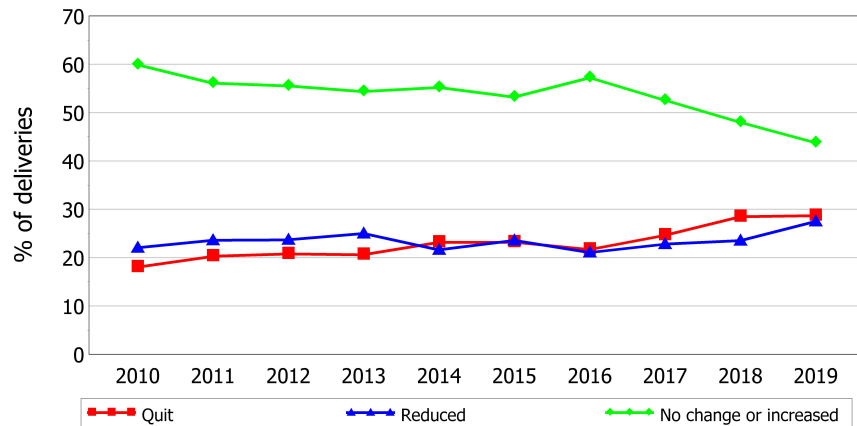
3.5 Smoking during pregnancy by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries*	8623	8705	8521	8209	8437	8012	8149	8037	7771	7660
Smoking	21.8%	21.2%	19.1%	18.0%	16.0%	16.1%	15.7%	15.1%	14.3%	13.6%

* With known smoking status.

3.6 Reduction in amount smoked among women who smoked at their first prenatal visit by year, Nova Scotia, 2010-2019



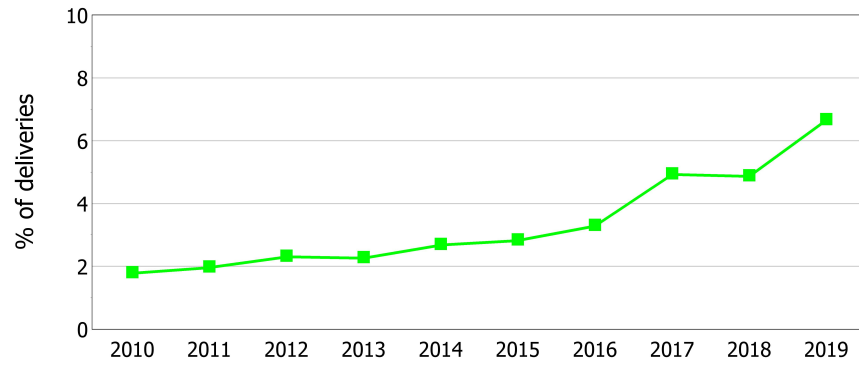
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries to smokers*	1192	1173	1030	912	842	802	821	759	748	676
Quit	18.0%	20.3%	20.8%	20.6%	23.2%	23.2%	21.7%	24.6%	28.5%	28.7%
Reduced	22.1%	23.6%	23.7%	25.0%	21.6%	23.6%	21.1%	22.8%	23.5%	27.5%
No change or increased	59.9%	56.1%	55.5%	54.4%	55.2%	53.2%	57.2%	52.6%	48.0%	43.8%

* 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

3.7 Missing information about smoking in pregnancy by year, Nova Scotia, 2010-2019

		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Pre-Pregnancy	No information	4.2%	3.8%	4.0%	4.6%	4.5%	3.7%	4.2%	3.6%	2.3%	2.7%
	Missing amount	8.2%	7.2%	7.0%	6.5%	6.6%	5.5%	5.1%	5.2%	4.0%	4.9%
First visit	No information	4.6%	3.9%	4.2%	4.6%	4.5%	3.6%	4.2%	3.5%	2.5%	3.0%
	Missing amount	4.6%	4.1%	3.5%	3.6%	3.4%	3.0%	2.7%	2.9%	2.5%	2.2%
Delivery	No information	1.5%	1.1%	1.6%	1.9%	1.3%	0.8%	0.9%	1.4%	1.0%	1.1%
	Missing amount	2.3%	2.5%	2.5%	2.6%	2.2%	2.3%	2.3%	2.1%	1.6%	1.4%

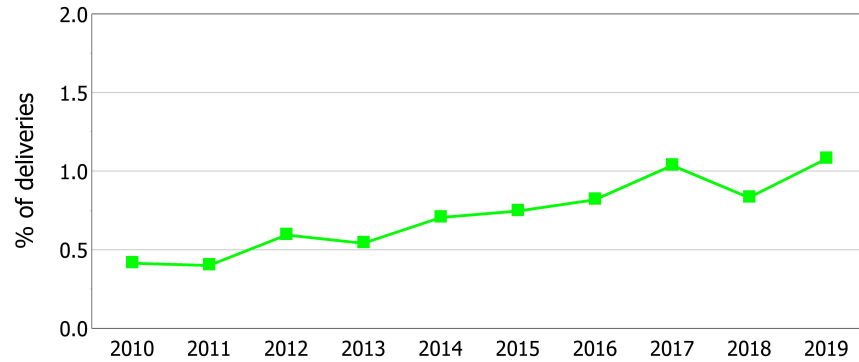
3.8 Cannabis use recorded during pregnancy by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Reported cannabis	1.8%	2.0%	2.3%	2.3%	2.7%	2.8%	3.3%	4.9%	4.9%	6.7%

Note: If recorded on the Nova Scotia Prenatal Record.

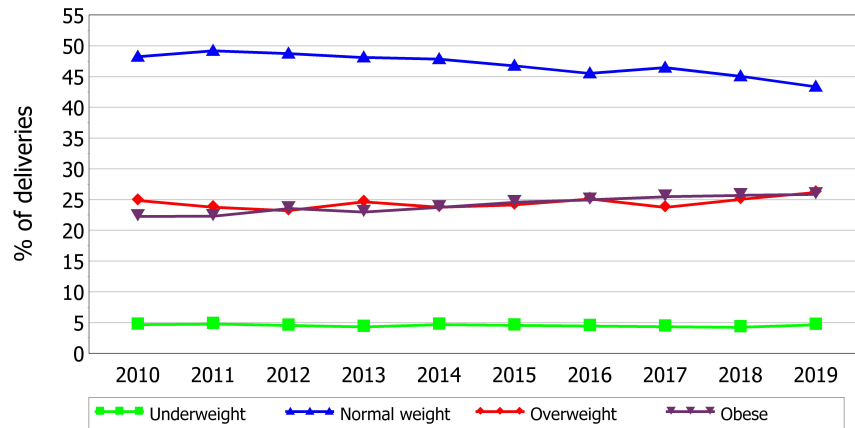
3.9 Maternal opioid agonist maintenance therapy during pregnancy by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Opioid agonist	0.4%	0.4%	0.6%	0.5%	0.7%	0.7%	0.8%	1.0%	0.8%	1.1%

Note: Methadone use as recorded on the Nova Scotia Prenatal Record.

3.10 Pre-pregnancy body mass index by year, Nova Scotia, 2010-2019

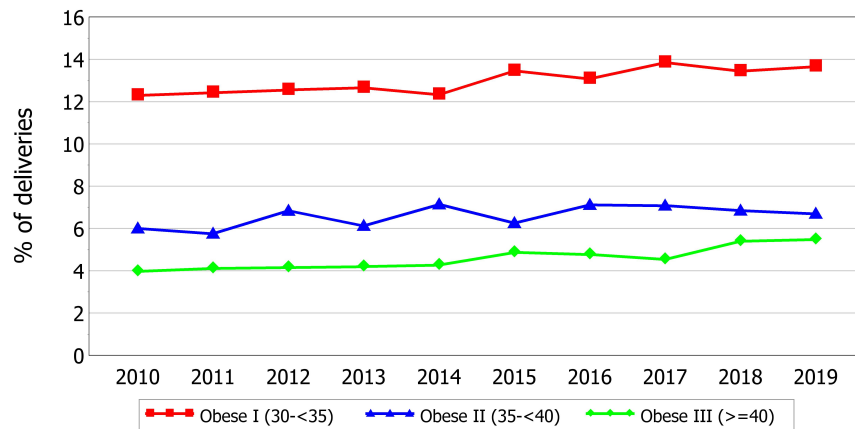


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries*	6882	7057	7091	6908	7048	6717	6898	6948	6747	6553
Underweight	4.6%	4.8%	4.5%	4.3%	4.7%	4.5%	4.4%	4.3%	4.2%	4.6%
Normal weight	48.2%	49.2%	48.7%	48.1%	47.8%	46.7%	45.5%	46.5%	45.1%	43.4%
Overweight	24.9%	23.8%	23.2%	24.6%	23.8%	24.1%	25.1%	23.7%	25.0%	26.2%
Obese	22.3%	22.3%	23.6%	23.0%	23.7%	24.6%	25.0%	25.5%	25.7%	25.8%

* 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, 25.0 to 29.9 kg/m²; Obese, ≥30.0 kg/m².

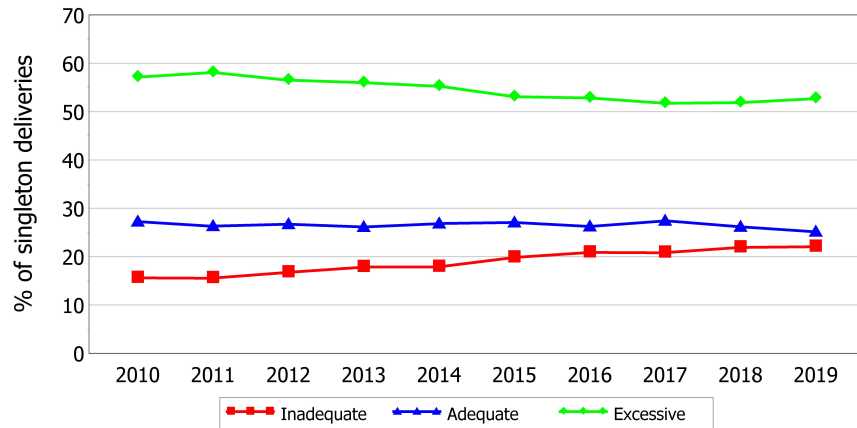
3.11 Pre-pregnancy obesity class by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries*	6882	7057	7091	6908	7048	6717	6898	6948	6747	6553
Obese I (30-<35)	12.3%	12.4%	12.6%	12.7%	12.3%	13.5%	13.1%	13.8%	13.4%	13.7%
Obese II (35-<40)	6.0%	5.8%	6.8%	6.1%	7.1%	6.3%	7.1%	7.1%	6.8%	6.7%
Obese III (≥40)	4.0%	4.1%	4.2%	4.2%	4.3%	4.9%	4.8%	4.5%	5.4%	5.5%

* With known pre-pregnancy weight and height.

3.12 Gestational weight gain according to recommendations by year, Nova Scotia, 2010-2019

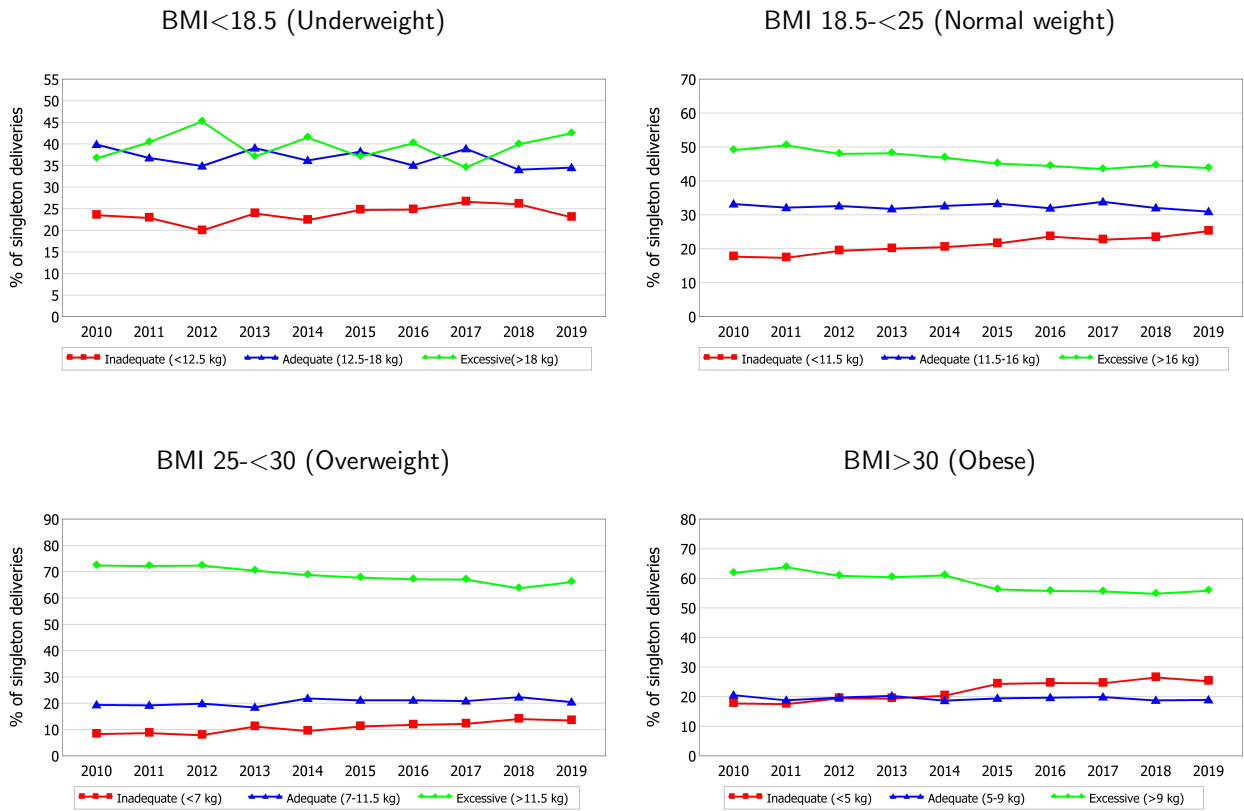


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries*	6078	6173	6132	6047	6061	5687	5760	5647	5567	5429
Inadequate	15.6%	15.6%	16.8%	17.9%	17.9%	19.8%	20.9%	20.8%	21.9%	22.1%
Adequate	27.2%	26.3%	26.7%	26.1%	26.8%	27.1%	26.3%	27.4%	26.2%	25.2%
Excessive	57.1%	58.1%	56.5%	56.0%	55.3%	53.1%	52.8%	51.7%	51.9%	52.8%

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

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.

3.13 Gestational weight gain according to recommendations by pre-pregnancy body mass index and year, Nova Scotia, 2010-2019



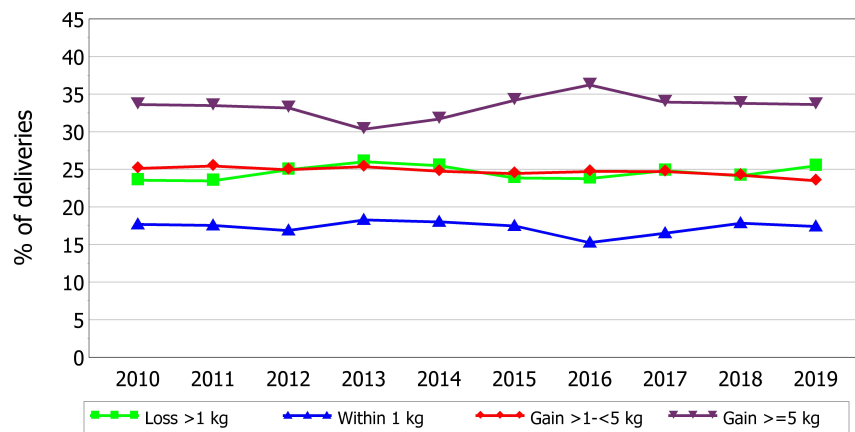
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BMI < 18.5*	281	302	281	251	282	259	254	252	238	252
Inadequate (<12.5 kg)	23.5%	22.8%	19.9%	23.9%	22.3%	24.7%	24.8%	26.6%	26.1%	23.0%
Adequate (12.5-18 kg)	39.9%	36.8%	34.9%	39.0%	36.2%	38.2%	35.0%	38.9%	34.0%	34.5%
Excessive (>18 kg)	36.7%	40.4%	45.2%	37.1%	41.5%	37.1%	40.2%	34.5%	39.9%	42.5%
BMI 18.5-25*	2933	3027	2983	2917	2864	2615	2596	2617	2468	2319
Inadequate (<11.5 kg)	17.7%	17.3%	19.4%	20.1%	20.5%	21.6%	23.6%	22.7%	23.3%	25.2%
Adequate (11.5-16 kg)	33.2%	32.1%	32.6%	31.8%	32.6%	33.3%	32.0%	33.9%	32.1%	31.0%
Excessive (>16 kg)	49.1%	50.5%	48.0%	48.2%	46.9%	45.1%	44.4%	43.5%	44.6%	43.8%
BMI 25-30*	1514	1470	1417	1491	1453	1398	1471	1335	1408	1413
Inadequate (<7 kg)	8.3%	8.6%	7.8%	11.1%	9.4%	11.2%	11.8%	12.1%	14.0%	13.4%
Adequate (7-11.5 kg)	19.4%	19.2%	19.8%	18.4%	21.8%	21.1%	21.1%	20.8%	22.3%	20.5%
Excessive (>11.5 kg)	72.4%	72.2%	72.3%	70.4%	68.8%	67.7%	67.1%	67.0%	63.7%	66.1%
BMI ≥ 30*	1350	1374	1451	1388	1462	1415	1439	1443	1453	1445
Inadequate (<5 kg)	17.7%	17.5%	19.4%	19.4%	20.3%	24.3%	24.6%	24.5%	26.5%	25.3%
Adequate (5-9 kg)	20.5%	18.8%	19.7%	20.2%	18.7%	19.4%	19.7%	19.9%	18.7%	18.9%
Excessive (>9 kg)	61.8%	63.8%	60.9%	60.4%	61.0%	56.3%	55.7%	55.6%	54.8%	55.8%

* Number of singleton deliveries in this body mass index category with known pre-pregnancy and delivery weights and height. Gestational weight gain according to recommendations made by Health Canada.

3.14 Missing information about maternal weight and height by year, Nova Scotia, 2010-2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Pre-pregnancy weight	18.6%	17.4%	16.0%	15.4%	15.6%	15.2%	14.5%	13.1%	12.5%	13.7%
Delivery weight	15.0%	16.3%	17.4%	15.7%	16.4%	17.1%	18.3%	20.1%	18.3%	17.5%
Height	13.7%	12.9%	11.1%	11.3%	10.6%	7.8%	8.0%	6.5%	5.9%	5.8%

3.15 Interpregnancy weight change by year, Nova Scotia, 2010-2019

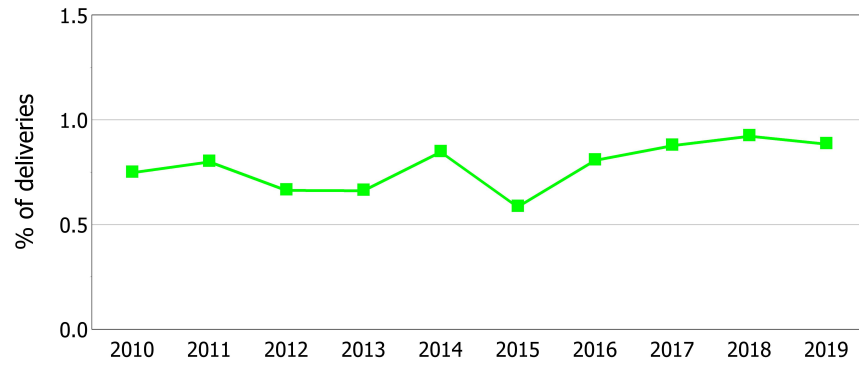


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries*	2691	2797	2772	2729	2879	2854	2851	2828	2791	2682
Loss >1 kg	23.6%	23.5%	25.0%	26.0%	25.5%	23.9%	23.8%	24.8%	24.1%	25.5%
Within 1 kg	17.7%	17.6%	16.9%	18.3%	18.0%	17.5%	15.3%	16.5%	17.8%	17.4%
Gain >1-<5 kg	25.1%	25.5%	25.0%	25.4%	24.8%	24.5%	24.7%	24.7%	24.2%	23.5%
Gain ≥5 kg	33.6%	33.5%	33.2%	30.3%	31.7%	34.2%	36.2%	33.9%	33.8%	33.6%

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

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.

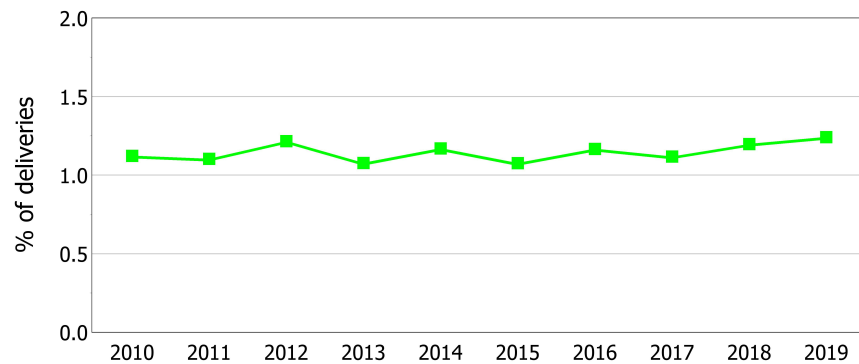
3.16 Pre-existing diabetes by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Pre-existing diabetes	1.0%	1.1%	0.8%	0.9%	1.1%	0.8%	1.3%	1.2%	1.3%	1.4%

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

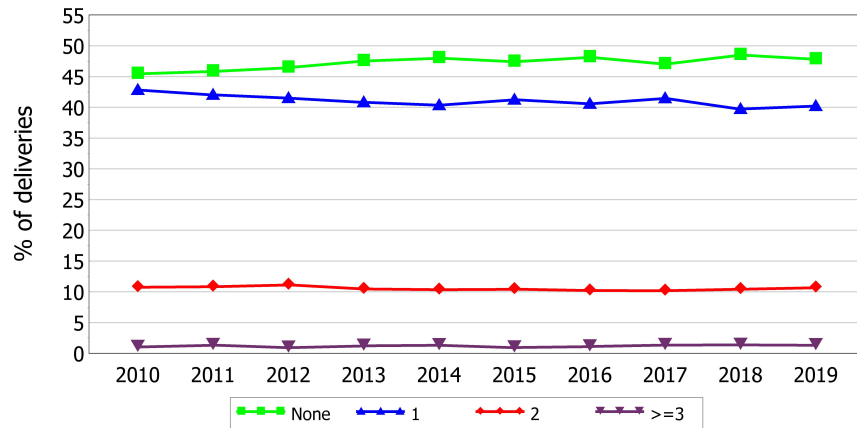
3.17 Pre-existing hypertension by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Pre-existing hypertension	1.1%	1.1%	1.2%	1.1%	1.2%	1.1%	1.2%	1.1%	1.2%	1.2%

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, 2010-2019

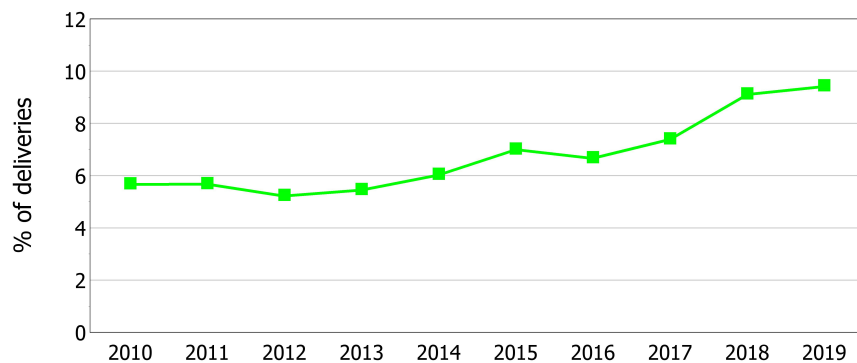


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries*	6681	6871	6883	6694	6820	6526	6667	6773	6631	6414
None	45.4%	45.8%	46.4%	47.5%	47.9%	47.3%	48.0%	46.9%	48.4%	47.7%
1	42.8%	42.0%	41.4%	40.7%	40.3%	41.2%	40.5%	41.4%	39.6%	40.1%
2	10.7%	10.9%	11.2%	10.5%	10.4%	10.4%	10.2%	10.1%	10.5%	10.8%
≥3	1.1%	1.4%	1.0%	1.3%	1.4%	1.0%	1.3%	1.5%	1.5%	1.5%

* With known risk factor status

Note: Pre-pregnancy risk factors included maternal age ≥ 35 years, BMI ≥ 30.0 kg/m², smoking, pre-existing diabetes, and pre-existing hypertension.

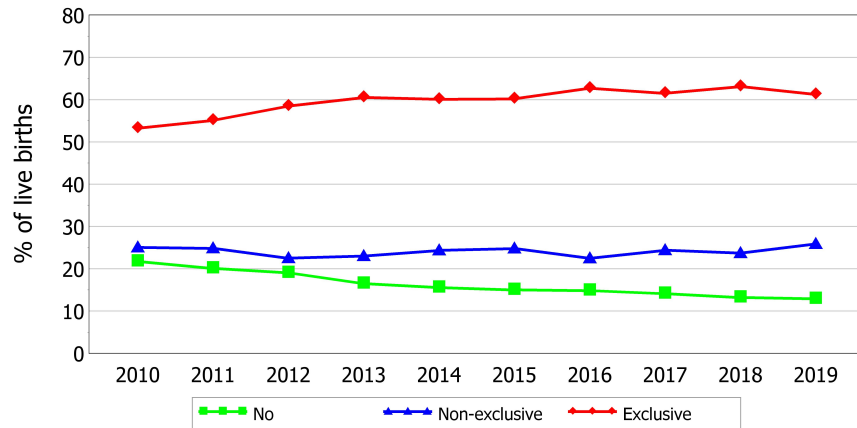
3.19 Use of medication for depression or anxiety during pregnancy by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Medication use	5.7%	5.7%	5.2%	5.4%	6.0%	7.0%	6.7%	7.4%	9.1%	9.4%

Note: If recorded on the Nova Scotia Prenatal Record.

3.20 Breastfeeding status during hospital stay by year, Nova Scotia, 2010-2019



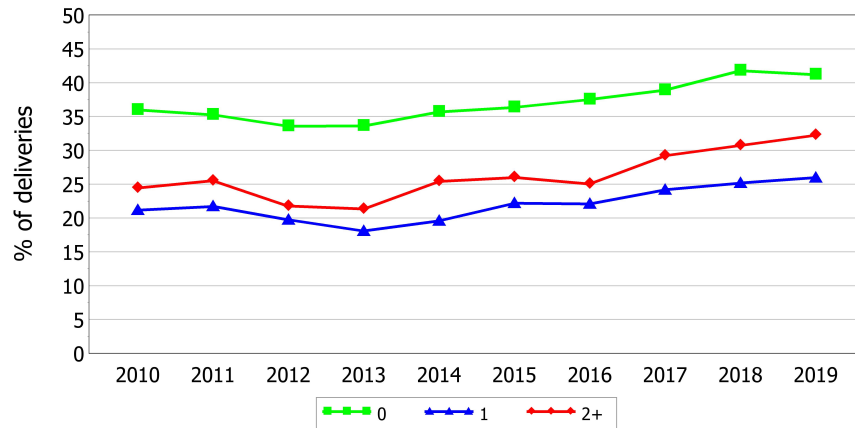
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births*	8745	8805	8655	8380	8564	8093	8237	8157	7851	7755
Non-exclusive	25.0%	24.8%	22.5%	23.0%	24.4%	24.8%	22.5%	24.4%	23.7%	25.9%
Exclusive	53.2%	55.1%	58.5%	60.5%	60.1%	60.2%	62.7%	61.5%	63.1%	61.2%

* With known breastfeeding status.

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.

Section 4:
Labour and Birth Processes

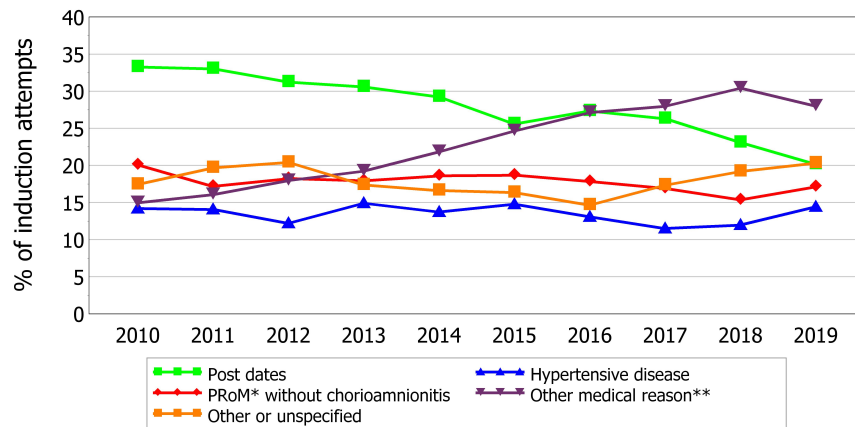
4.1 Labour induction by parity and year, Nova Scotia, 2010-2019



Parity		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0	# deliveries	4092	4051	4052	3830	3817	3565	3623	3571	3335	3391
	% induction attempted	36.0%	35.3%	33.6%	33.6%	35.7%	36.4%	37.5%	38.9%	41.8%	41.2%
1	# deliveries	2943	2974	2979	2932	3054	2898	2866	2763	2733	2707
	% induction attempted	21.2%	21.7%	19.7%	18.1%	19.6%	22.2%	22.1%	24.2%	25.2%	26.0%
2+	# deliveries	1662	1733	1567	1552	1641	1581	1701	1770	1745	1597
	% induction attempted	24.4%	25.5%	21.8%	21.3%	25.4%	26.0%	25.0%	29.2%	30.7%	32.2%

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 parity and year, Nova Scotia, 2010-2019

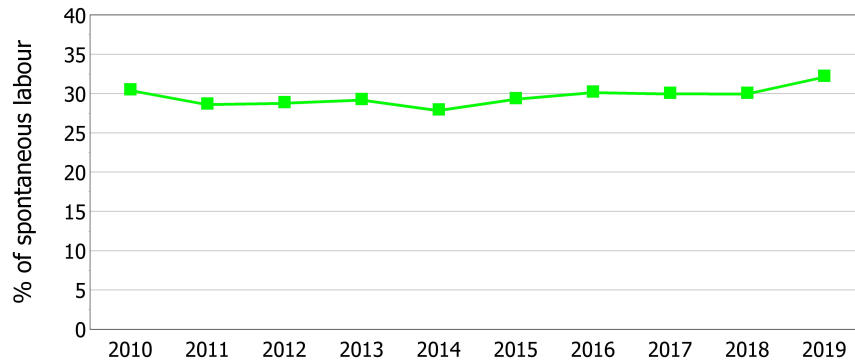


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# induction attempts	2501	2516	2289	2148	2377	2350	2418	2574	2617	2615
Post dates	33.3%	33.0%	31.2%	30.6%	29.2%	25.6%	27.3%	26.3%	23.1%	20.2%
Hypertensive disease	14.2%	14.1%	12.2%	14.9%	13.7%	14.8%	13.1%	11.5%	12.0%	14.4%
PRoM* without chorioamnionitis	20.1%	17.2%	18.2%	17.9%	18.6%	18.7%	17.8%	16.9%	15.4%	17.1%
Other medical reason**	15.0%	16.1%	18.0%	19.2%	21.8%	24.6%	27.1%	28.0%	30.4%	28.0%
Other or unspecified	17.4%	19.7%	20.4%	17.4%	16.6%	16.3%	14.6%	17.3%	19.2%	20.3%

* PRoM: Prelabour rupture of membranes.

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

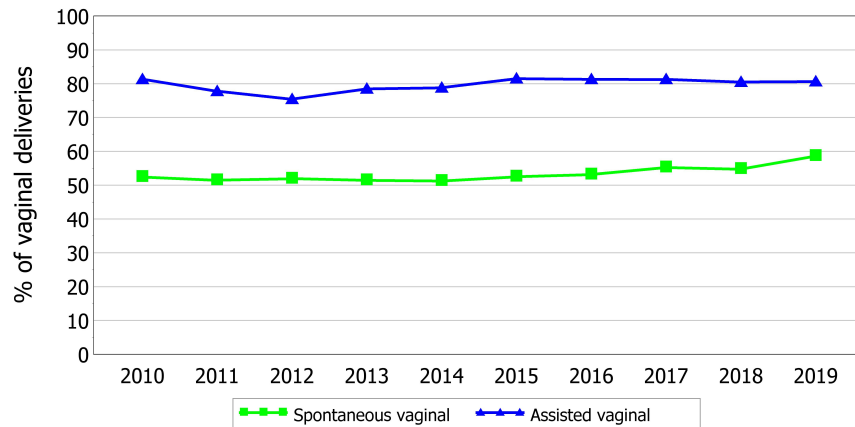
4.3 Medical augmentation of labour among women with spontaneous onset of labour by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# spontaneous labour	4931	5038	5121	4925	4896	4614	4595	4349	4076	3951
Augmented	30.4%	28.6%	28.8%	29.2%	27.8%	29.3%	30.1%	30.0%	30.0%	32.1%

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

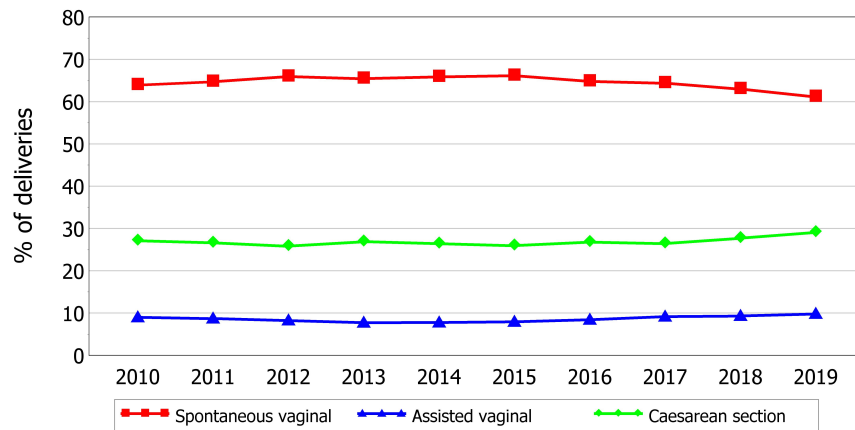
4.4 Use of regional anesthesia with vaginal delivery by year, Nova Scotia, 2010-2019



Type of delivery		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Spontaneous	# deliveries	5558	5665	5669	5440	5603	5321	5307	5218	4921	4704
	% anesthesia*	52.4%	51.5%	51.9%	51.4%	51.2%	52.5%	53.2%	55.2%	54.8%	58.6%
Assisted	# deliveries	782	761	708	641	661	638	690	743	728	754
	% anesthesia*	81.3%	77.8%	75.4%	78.5%	78.8%	81.5%	81.3%	81.3%	80.5%	80.6%

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

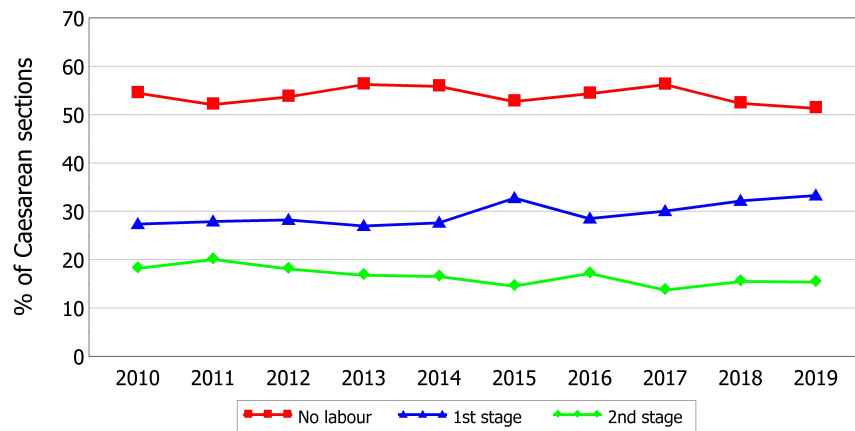
4.5 Type of delivery by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries*	8698	8757	8599	8316	8511	8045	8190	8104	7813	7696
Spontaneous vaginal	63.9%	64.7%	65.9%	65.4%	65.8%	66.1%	64.8%	64.4%	63.0%	61.1%
Assisted vaginal	9.0%	8.7%	8.2%	7.7%	7.8%	7.9%	8.4%	9.2%	9.3%	9.8%
Caesarean section	27.1%	26.6%	25.8%	26.9%	26.4%	25.9%	26.8%	26.4%	27.7%	29.1%

* With known type of delivery.

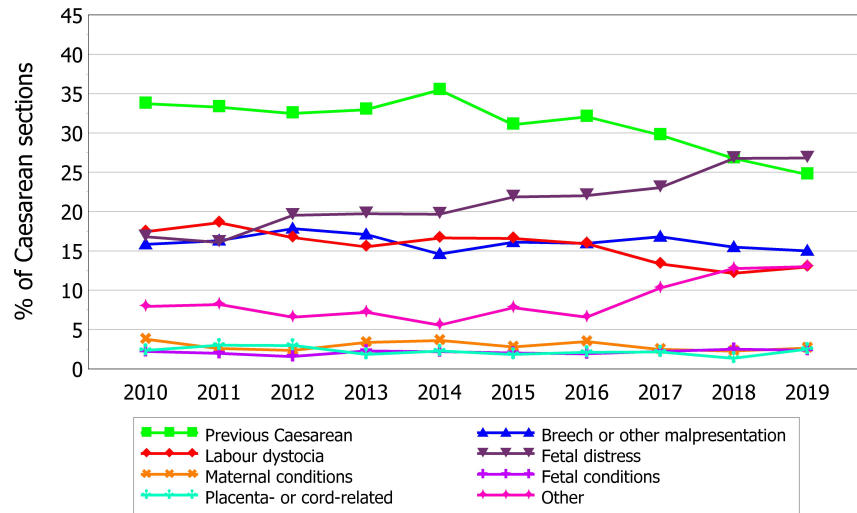
4.6 Stage of labour before Caesarean delivery by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# Caesarean sections	2358	2331	2222	2235	2247	2086	2193	2143	2164	2238
No labour	54.5%	52.1%	53.7%	56.2%	55.9%	52.7%	54.4%	56.2%	52.4%	51.3%
1st stage	27.4%	27.9%	28.2%	27.0%	27.6%	32.7%	28.5%	30.1%	32.2%	33.3%
2nd stage	18.2%	20.0%	18.1%	16.8%	16.5%	14.5%	17.1%	13.7%	15.5%	15.4%

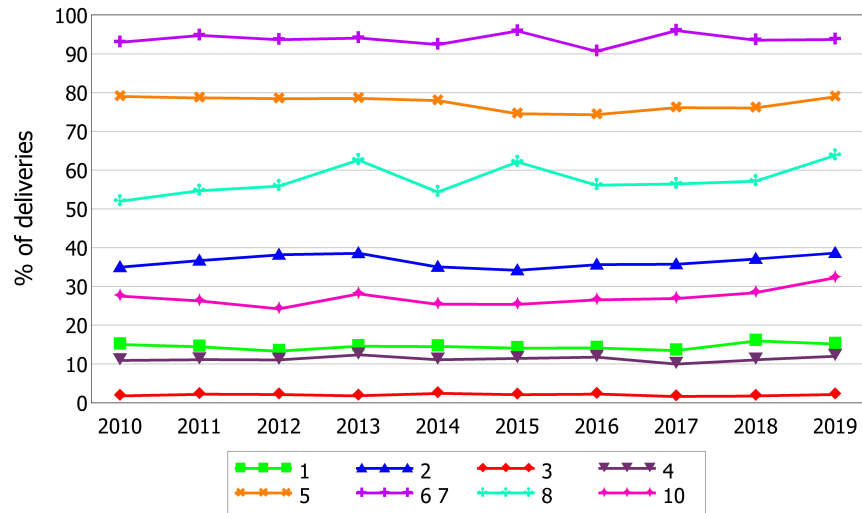
Note: The 1st stage is the period from the onset of labour until the cervix is fully dilated (10 cm). The 2nd stage is the period from 10 cm dilation of the cervix until the baby is delivered.

4.7 Primary indication for Caesarean delivery by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# Caesarean sections	2358	2331	2222	2235	2247	2086	2193	2143	2164	2238
Previous Caesarean	33.7%	33.3%	32.5%	33.0%	35.5%	31.1%	32.1%	29.7%	26.8%	24.7%
Breech or other malpresentation	15.8%	16.3%	17.8%	17.1%	14.6%	16.1%	16.0%	16.8%	15.5%	15.0%
Labour dystocia	17.4%	18.6%	16.7%	15.5%	16.6%	16.6%	15.9%	13.3%	12.2%	13.0%
Fetal distress	16.8%	16.1%	19.5%	19.7%	19.7%	21.9%	22.0%	23.1%	26.8%	26.8%
Maternal conditions	3.8%	2.6%	2.3%	3.4%	3.6%	2.8%	3.5%	2.5%	2.3%	2.6%
Fetal conditions	2.2%	2.0%	1.6%	2.3%	2.2%	2.0%	1.9%	2.2%	2.5%	2.4%
Placenta- or cord-related	2.3%	3.0%	3.0%	1.8%	2.3%	1.8%	2.1%	2.1%	1.3%	2.5%
Other	7.9%	8.2%	6.6%	7.2%	5.6%	7.8%	6.6%	10.3%	12.8%	13.0%

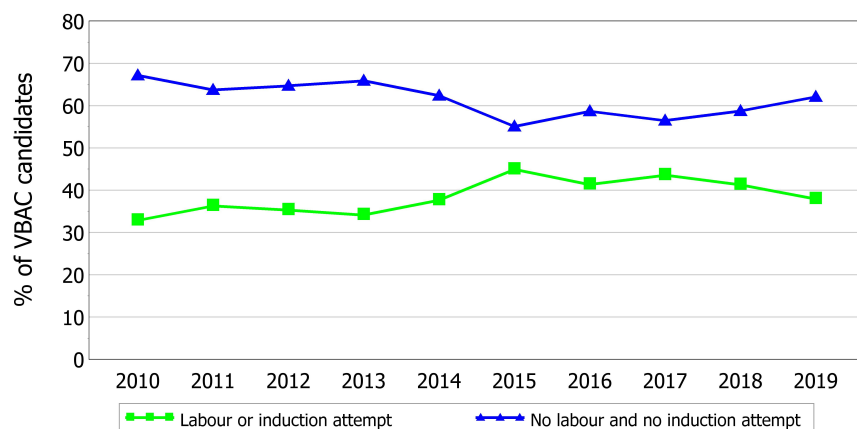
4.8 Caesarean delivery by Robson group and year, Nova Scotia, 2010-2019



Robson group		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	Nulliparous, singleton, cephalic, term, spontaneous labour	# deliveries Caesarean	2065 15.0%	2113 14.4%	2213 13.3%	2046 14.6%	1960 14.5%	1801 14.0%	1786 14.1%	1688 13.4%	1514 15.2%
2	Nulliparous, singleton, cephalic, term, induced or no labour	# deliveries Caesarean	1388 34.9%	1386 36.7%	1289 38.2%	1237 38.6%	1305 35.0%	1221 34.2%	1272 35.6%	1308 35.7%	1284 37.1%
3	Multiparous, singleton, cephalic, term, no previous CS, spontaneous labour	# deliveries Caesarean	2114 1.8%	2187 2.2%	2229 2.1%	2231 1.8%	2204 2.4%	2097 2.1%	2109 2.2%	2001 1.6%	1911 1.7%
4	Multiparous, singleton, cephalic, term, no previous CS, induced or no labour	# deliveries Caesarean	918 10.9%	955 11.1%	806 11.0%	769 12.4%	877 11.1%	894 11.4%	902 11.8%	1023 10.0%	1047 11.1%
5	Multiparous, singleton, cephalic, term, previous CS	# deliveries Caesarean	858 79.0%	917 78.6%	886 78.4%	907 78.5%	1033 77.9%	892 74.6%	930 74.3%	875 76.1%	885 76.0%
6 7	Nulliparous or multiparous, singleton, breech	# deliveries Caesarean	342 93.0%	324 94.8%	331 93.7%	337 94.1%	302 92.4%	316 95.9%	353 90.7%	325 96.0%	309 93.5%
8	Multiple pregnancy	# deliveries Caesarean	154 51.9%	139 54.7%	145 55.9%	139 62.6%	149 54.4%	124 62.1%	123 56.1%	140 56.4%	119 57.1%
10	Singleton, cephalic, preterm	# deliveries Caesarean	462 27.5%	484 26.2%	471 24.2%	470 28.1%	528 25.4%	517 25.3%	494 26.5%	491 26.9%	456 28.4%

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].

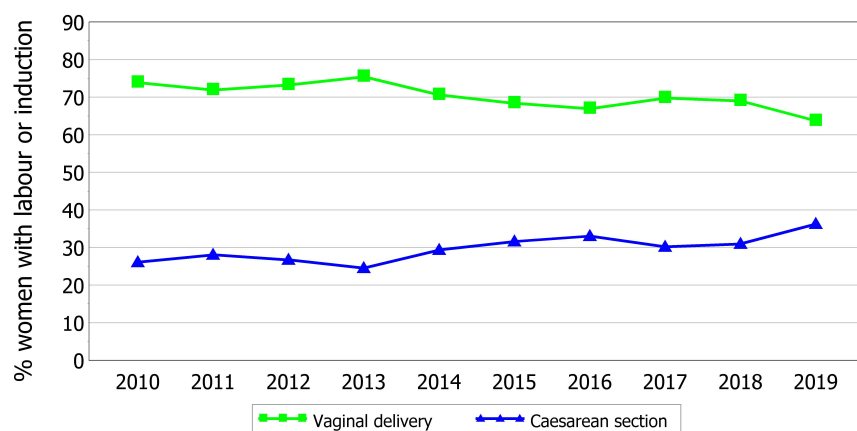
4.9 Any labour among candidates for vaginal birth after Caesarean by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# VBAC candidates	816	805	816	800	914	817	849	783	790	778
Labour or induction attempt	32.8%	36.3%	35.3%	34.1%	37.6%	44.9%	41.3%	43.6%	41.3%	37.9%
No labour and no induction attempt	67.2%	63.7%	64.7%	65.9%	62.4%	55.1%	58.7%	56.4%	58.7%	62.1%

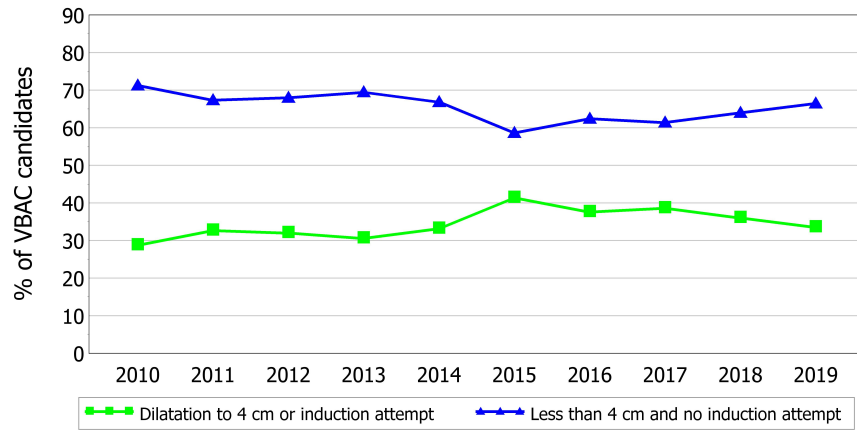
Note: For the purposes of this report, a candidate for vaginal birth after Caesarean (VBAC) is woman who has had no more than one previous Caesarean section delivery; whose current pregnancy is a singleton in vertex presentation; and who has no contraindications for labour. On an individual basis when 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 who had any labour by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# women with labour or induction	268	292	288	273	344	367	351	341	326	295
Vaginal delivery	73.9%	71.9%	73.3%	75.5%	70.6%	68.4%	67.0%	69.8%	69.0%	63.7%
Caesarean section	26.1%	28.1%	26.7%	24.5%	29.4%	31.6%	33.0%	30.2%	31.0%	36.3%

4.11 Labour to 4 cm dilation among candidates for vaginal birth after Caesarean by year, Nova Scotia, 2010-2019

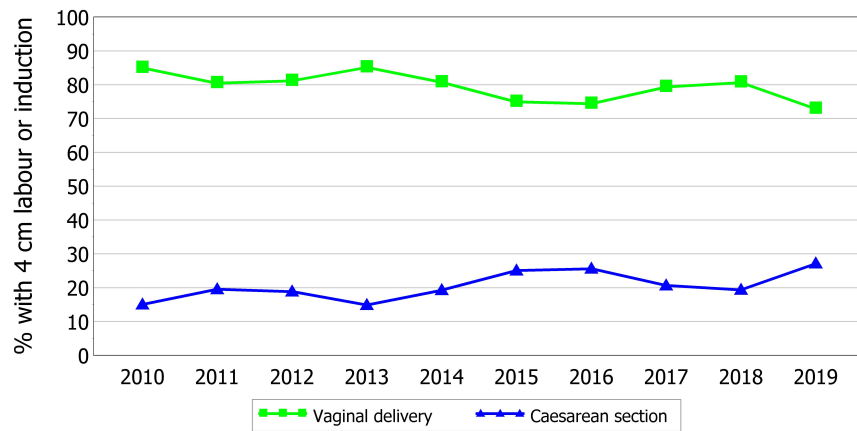


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# VBAC candidates*	811	799	812	792	908	810	841	777	775	770
Dilatation to 4 cm or induction attempt	28.7%	32.7%	32.0%	30.6%	33.1%	41.4%	37.6%	38.6%	36.0%	33.5%
Less than 4 cm and no induction attempt	71.3%	67.3%	68.0%	69.4%	66.9%	58.6%	62.4%	61.4%	64.0%	66.5%

* VBAC candidates with known cervical dilation who reached 4 cm.

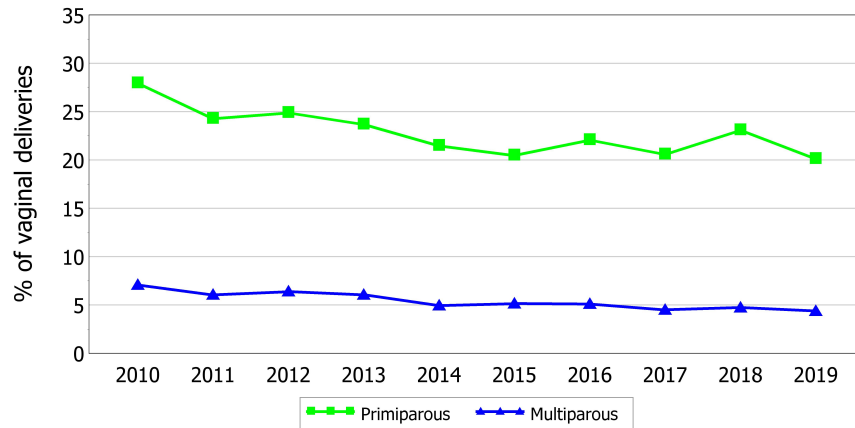
Note: Women who are VBAC candidates and reach 4 cm cervical dilation may better represent those who have chosen to attempt a vaginal delivery. Intention to attempt a vaginal delivery is not recorded in the Atlee Database.

4.12 Type of delivery among candidates for vaginal birth after Caesarean who had labour to 4 cm dilation by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# with 4 cm labour or induction	233	261	260	242	301	335	316	300	279	258
Vaginal delivery	85.0%	80.5%	81.2%	85.1%	80.7%	74.9%	74.4%	79.3%	80.6%	72.9%
Caesarean section	15.0%	19.5%	18.8%	14.9%	19.3%	25.1%	25.6%	20.7%	19.4%	27.1%

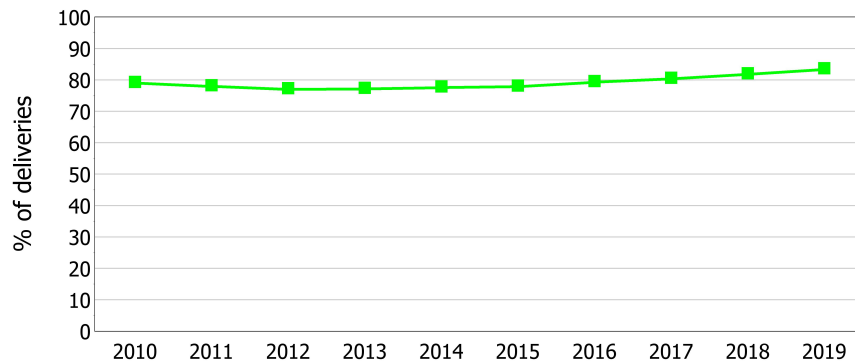
4.13 Episiotomy by parity and year, Nova Scotia, 2010-2019



Parity		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Primiparous	# vaginal deliveries	2932	2921	2963	2728	2782	2594	2602	2537	2310	2328
	% episiotomy	27.9%	24.3%	24.9%	23.7%	21.5%	20.5%	22.1%	20.6%	23.1%	20.1%
Multiparous	# vaginal deliveries	3407	3505	3413	3351	3482	3364	3394	3424	3339	3130
	% episiotomy	7.1%	6.0%	6.4%	6.1%	4.9%	5.1%	5.1%	4.5%	4.7%	4.4%

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

4.14 Obstetrical intervention by year, Nova Scotia, 2010-2019

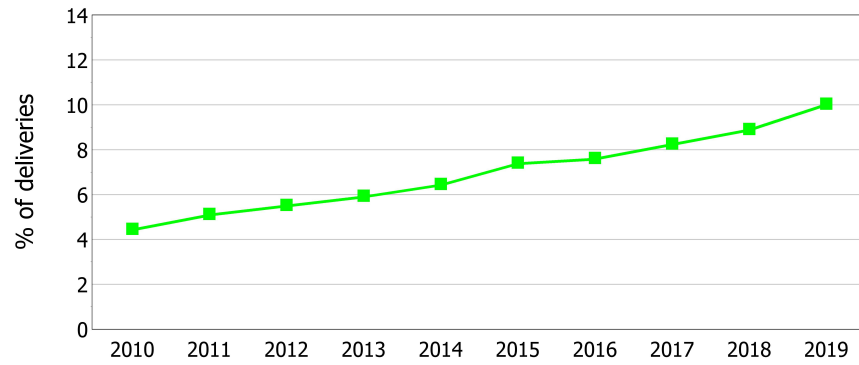


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Obstetrical intervention	79.0%	78.0%	77.0%	77.1%	77.5%	77.8%	79.3%	80.3%	81.8%	83.4%

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.

Section 5:
Maternal Health Outcomes

5.1 Gestational diabetes by year, Nova Scotia, 2010-2019

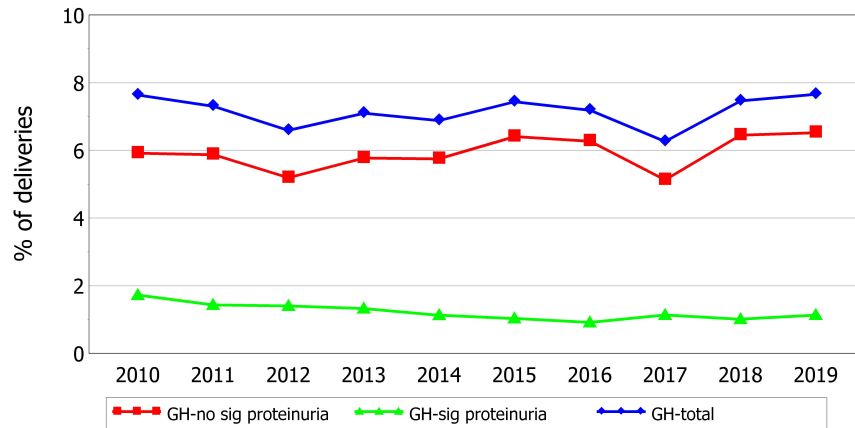


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries*	8615	8665	8531	8245	8421	7977	8082	8005	7711	7588
Gestational diabetes	4.2%	4.8%	5.4%	5.7%	6.2%	7.1%	7.1%	7.9%	8.5%	9.5%

* Among women without pre-existing diabetes.

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.

5.2 Gestational hypertension by year, Nova Scotia, 2010-2019

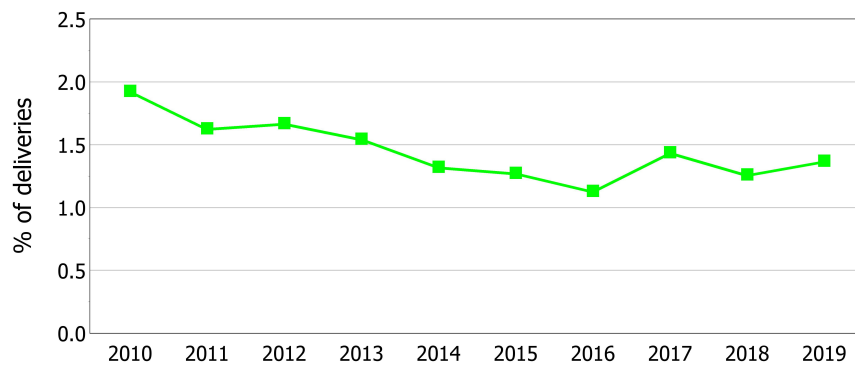


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries*	8601	8662	8495	8227	8413	7959	8096	8015	7721	7601
GH-no sig proteinuria	6.2%	6.3%	5.4%	5.8%	5.8%	6.5%	6.3%	5.3%	6.5%	6.6%
GH-sig proteinuria	1.4%	1.0%	1.2%	1.3%	1.1%	1.0%	0.8%	1.0%	1.0%	1.1%
GH-total	7.6%	7.3%	6.6%	7.1%	6.9%	7.4%	7.2%	6.3%	7.5%	7.7%

*Among women without pre-existing hypertension.

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.

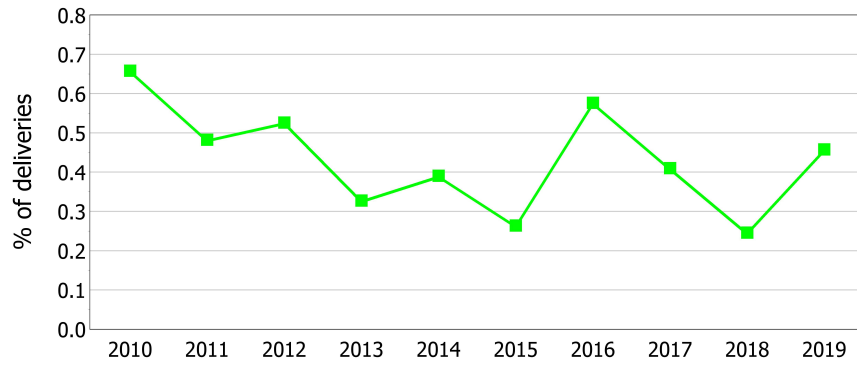
5.3 Pre-eclampsia by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Pre-eclampsia	1.6%	1.2%	1.4%	1.5%	1.3%	1.2%	1.0%	1.3%	1.2%	1.3%

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.

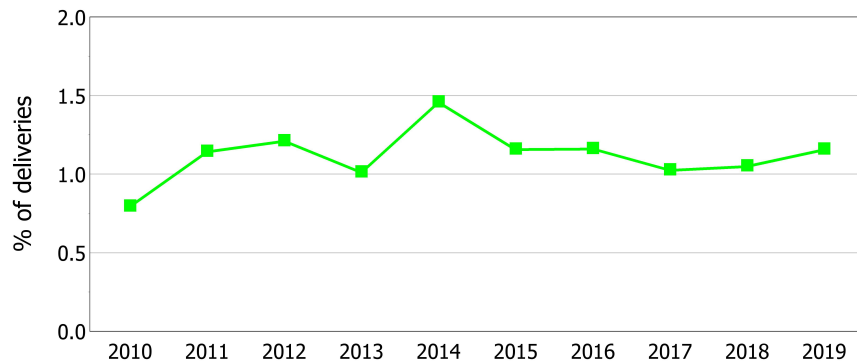
5.4 Placenta previa by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Placenta previa	0.7%	0.5%	0.5%	0.3%	0.4%	0.3%	0.6%	0.4%	0.2%	0.5%

Note: Placenta previa is diagnosed when the placenta entirely or partially covering the internal os. The diagnosis is not made on ultrasound alone and must be confirmed clinically.

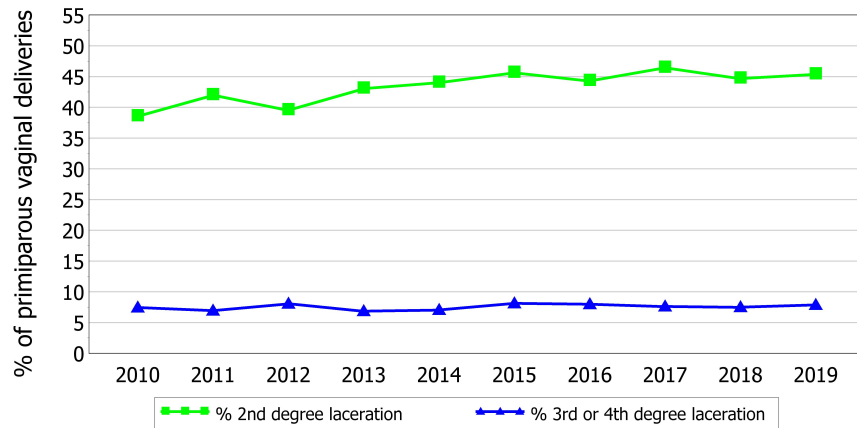
5.5 Placental abruption by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Placental abruption	0.8%	1.1%	1.2%	1.0%	1.5%	1.2%	1.2%	1.0%	1.0%	1.2%

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.

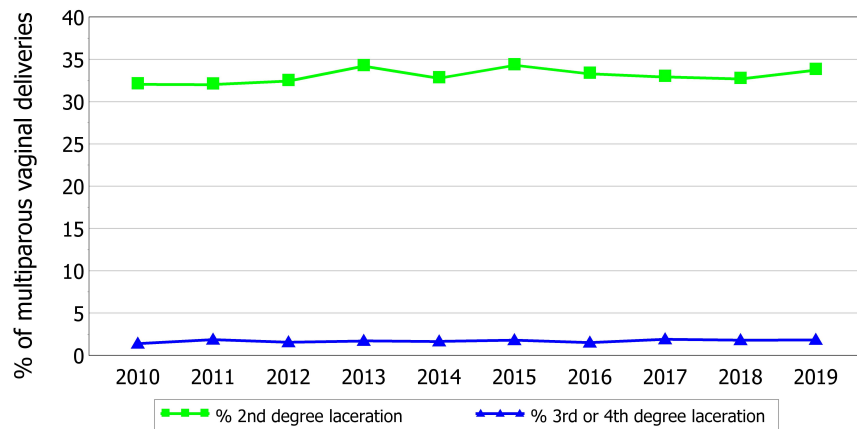
5.6 Perineal laceration among primiparous vaginal deliveries by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# primiparous vaginal deliveries	2932	2921	2963	2728	2782	2594	2602	2537	2310	2328
% 2nd degree laceration	38.5%	42.0%	39.5%	43.0%	44.0%	45.6%	44.3%	46.4%	44.7%	45.4%
% 3rd or 4th degree laceration	7.4%	6.9%	8.1%	6.9%	7.0%	8.1%	8.0%	7.6%	7.5%	7.9%

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).

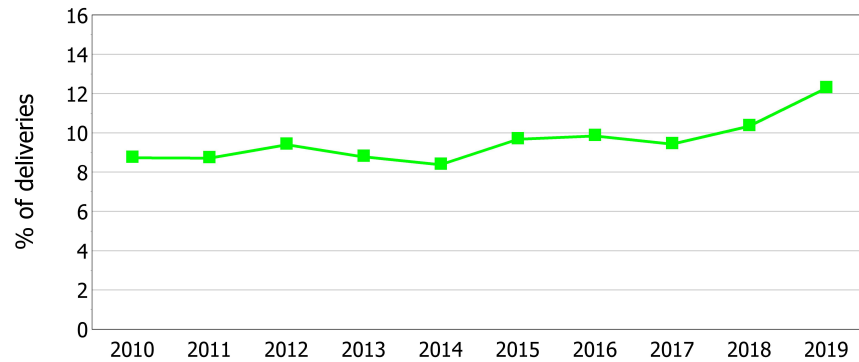
5.7 Perineal laceration among multiparous vaginal deliveries by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# multiparous vaginal deliveries	3407	3505	3413	3351	3482	3364	3394	3424	3339	3130
% 2nd degree laceration	32.1%	32.0%	32.4%	34.2%	32.8%	34.3%	33.3%	32.9%	32.7%	33.7%
% 3rd or 4th degree laceration	1.4%	1.9%	1.6%	1.7%	1.6%	1.8%	1.5%	1.9%	1.8%	1.8%

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).

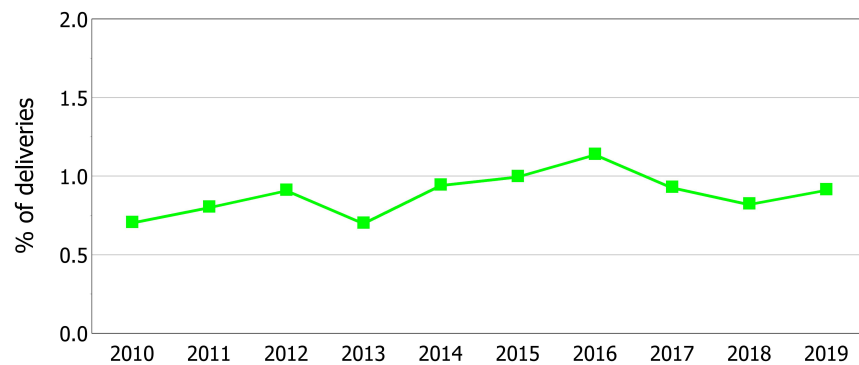
5.8 Postpartum hemorrhage by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Postpartum hemorrhage	8.7%	8.7%	9.4%	8.8%	8.4%	9.7%	9.8%	9.4%	10.3%	12.3%

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.

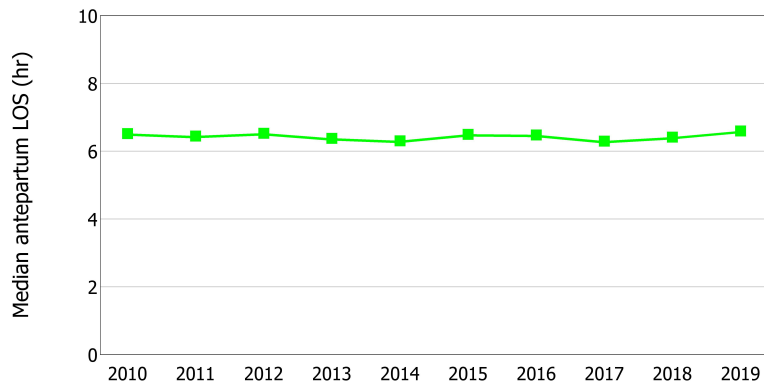
5.9 Maternal blood transfusion by year, Nova Scotia, 2005-2014



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Transfusion	0.7%	0.8%	0.9%	0.7%	0.9%	1.0%	1.1%	0.9%	0.8%	0.9%

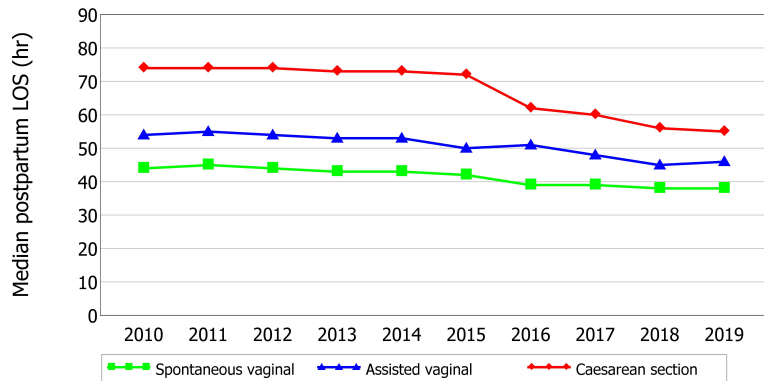
Note: One or more maternal transfusions of red blood cells in the antepartum, intrapartum, or postpartum periods.

5.10 Maternal antepartum hospital length of stay (hours) by year, Nova Scotia, 2010-2019



Length of stay	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# deliveries	8698	8758	8599	8316	8512	8045	8191	8105	7814	7696
Median	6.5	6.4	6.5	6.4	6.3	6.5	6.5	6.3	6.4	6.6
Mean	14.7	16.2	15.8	15.8	15.6	14.9	12.8	12.7	11.9	13.2

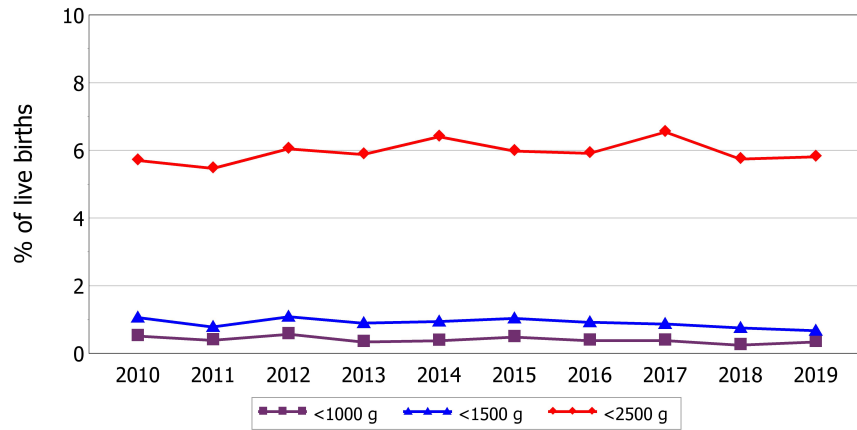
5.11 Maternal postpartum hospital length of stay (hours) by type of delivery and year, Nova Scotia, 2010-2019



Type of delivery		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Spontaneous vaginal	N	5558	5665	5669	5440	5603	5321	5307	5218	4921	4704
	Median	44.3	45.1	44.0	43.4	42.7	42.0	39.2	39.0	38.2	38.4
	Mean	48.4	49.9	48.7	47.5	47.1	48.3	46.5	46.3	44.3	45.2
Assisted vaginal	N	782	761	708	641	661	638	690	743	728	754
	Median	53.9	55.3	54.4	53.0	53.2	50.4	51.0	48.0	45.3	45.5
	Mean	59.5	60.9	60.8	59.2	61.0	58.9	59.3	55.9	53.5	53.1
Caesarean section	N	2358	2331	2222	2235	2247	2086	2193	2143	2164	2238
	Median	74.2	74.2	74.1	73.3	72.6	71.8	62.3	59.6	55.5	55.4
	Mean	76.5	77.0	76.8	75.0	74.1	76.2	69.7	68.5	65.1	65.2

Section 6:
Fetal and Infant Health Outcomes

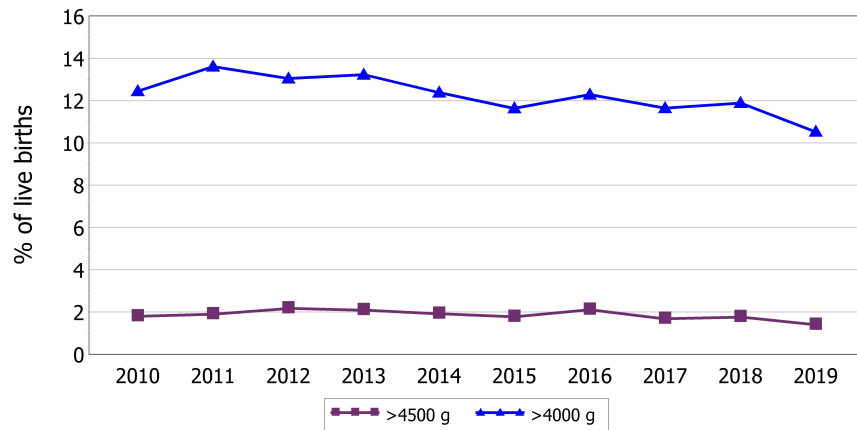
6.1 Low birth weight by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births*	8807	8854	8700	8420	8607	8129	8286	8208	7890	7799
<1000 g	0.5%	0.4%	0.6%	0.3%	0.4%	0.5%	0.4%	0.4%	0.2%	0.3%
<1500 g	1.1%	0.8%	1.1%	0.9%	0.9%	1.0%	0.9%	0.9%	0.7%	0.7%
<2500 g	5.7%	5.5%	6.0%	5.9%	6.4%	6.0%	5.9%	6.5%	5.7%	5.8%

* With known birth weight.

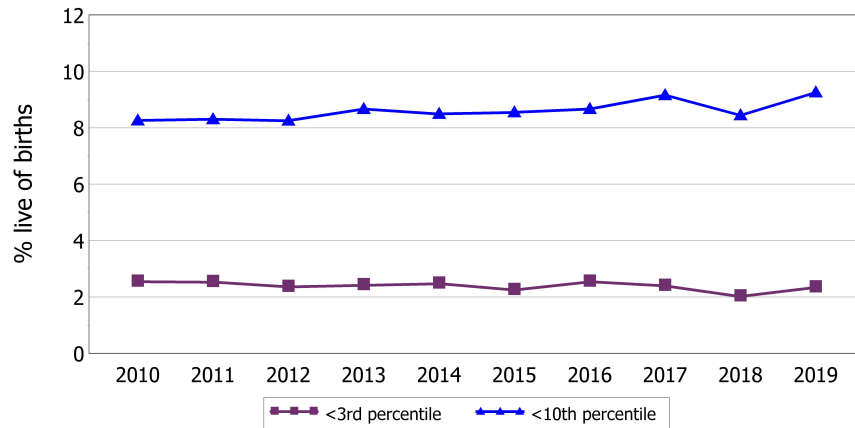
6.2 Macrosomia by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births*	8807	8854	8700	8420	8607	8129	8286	8208	7890	7799
>4500 g	1.8%	1.9%	2.2%	2.1%	1.9%	1.8%	2.1%	1.7%	1.8%	1.4%
>4000 g	12.4%	13.6%	13.0%	13.2%	12.4%	11.6%	12.3%	11.6%	11.9%	10.5%

* With known birth weight.

6.3 Small for gestational age by year, Nova Scotia, 2010-2019

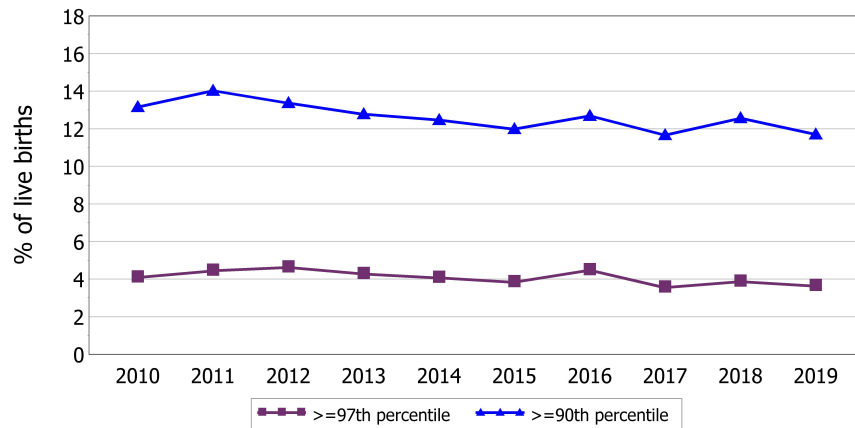


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births*	8779	8826	8661	8398	8582	8108	8274	8198	7888	7788
<3rd percentile	2.5%	2.5%	2.4%	2.4%	2.5%	2.2%	2.5%	2.4%	2.0%	2.3%
<10th percentile	8.3%	8.3%	8.3%	8.7%	8.5%	8.5%	8.7%	9.2%	8.4%	9.3%

* With known birth weight and gestational age.

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].

6.4 Large for gestational age by year, Nova Scotia, 2010-2019

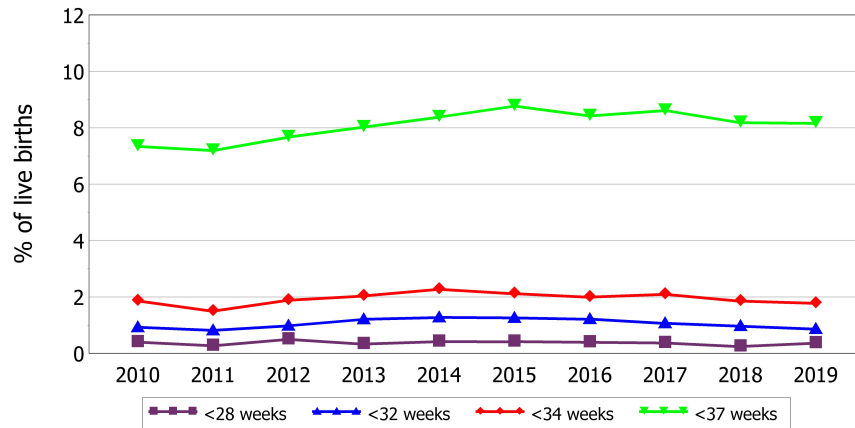


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births*	8779	8826	8661	8398	8582	8108	8274	8198	7888	7788
≥97th percentile	4.1%	4.4%	4.6%	4.3%	4.1%	3.8%	4.5%	3.5%	3.9%	3.6%
≥90th percentile	13.2%	14.0%	13.4%	12.8%	12.5%	12.0%	12.7%	11.7%	12.6%	11.7%

* With known birth weight and gestational age.

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].

6.5 Preterm births by year, Nova Scotia, 2010-2019

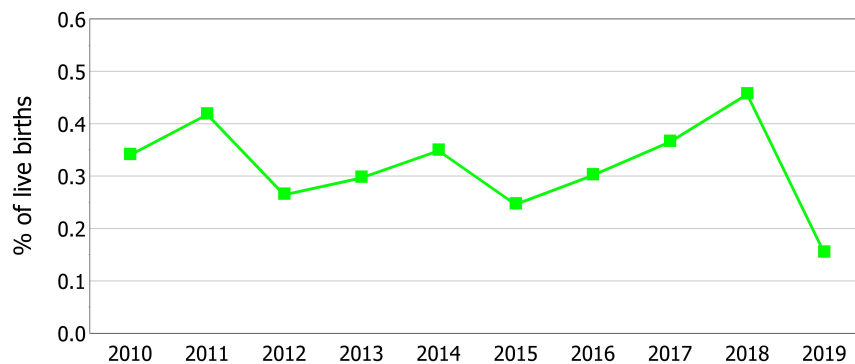


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births*	8654	8702	8502	8306	8496	8027	8229	8173	7882	7779
<28 weeks	0.4%	0.3%	0.5%	0.3%	0.4%	0.4%	0.4%	0.4%	0.2%	0.4%
<32 weeks	0.9%	0.8%	1.0%	1.2%	1.3%	1.3%	1.2%	1.1%	1.0%	0.9%
<34 weeks	1.9%	1.5%	1.9%	2.0%	2.3%	2.1%	2.0%	2.1%	1.9%	1.8%
<37 weeks	7.3%	7.2%	7.7%	8.0%	8.4%	8.8%	8.4%	8.6%	8.2%	8.2%

* With known gestational age.

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.

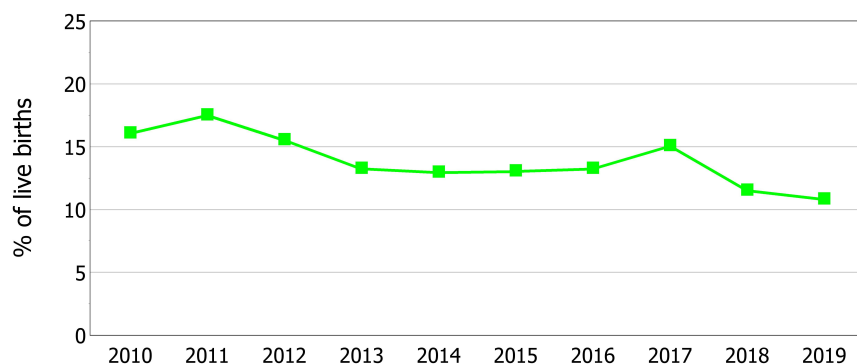
6.6 Birth injury by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births	8816	8857	8702	8425	8610	8132	8291	8210	7892	7804
Birth injury	0.3%	0.4%	0.3%	0.3%	0.3%	0.2%	0.3%	0.4%	0.5%	0.2%

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).

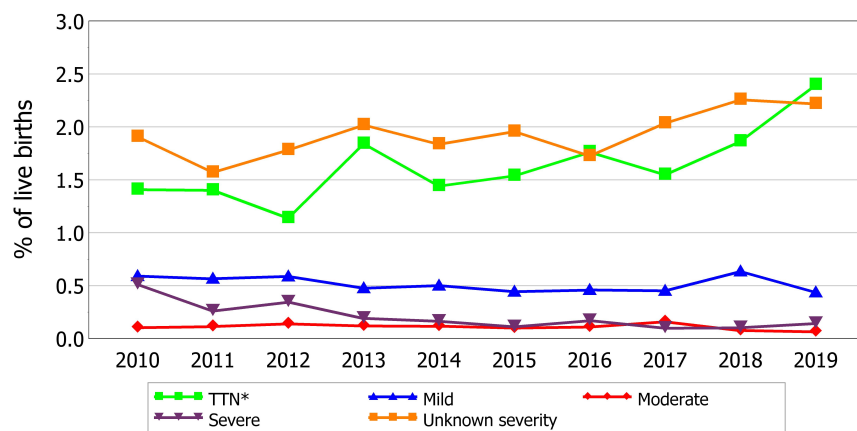
6.7 Phototherapy by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births	8816	8857	8702	8425	8610	8132	8291	8210	7892	7804
Received phototherapy	16.1%	17.5%	15.5%	13.2%	12.9%	13.0%	13.2%	15.0%	11.5%	10.8%

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, 2010-2019

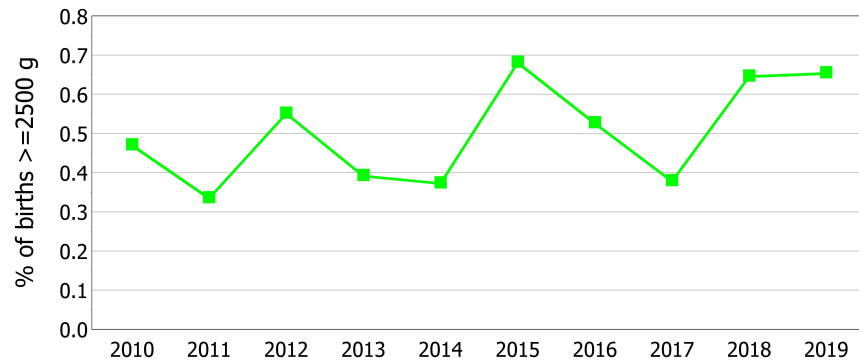
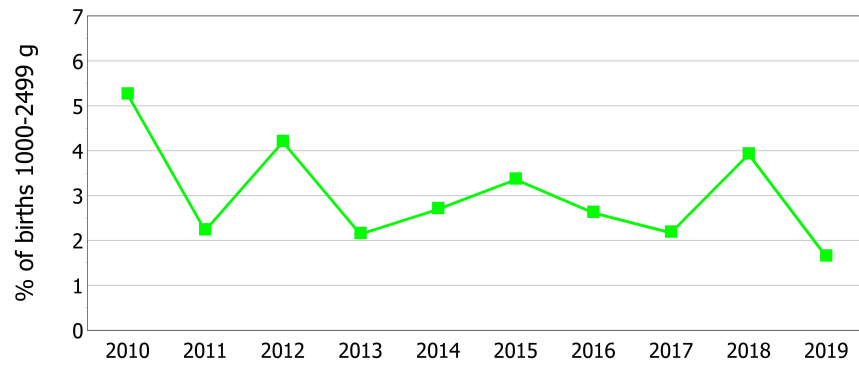
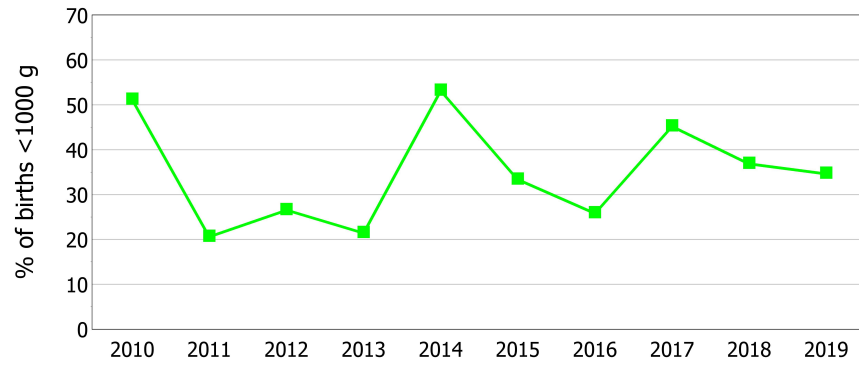


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births	8816	8857	8702	8425	8610	8132	8291	8210	7892	7804
TTN*	1.4%	1.4%	1.1%	1.8%	1.4%	1.5%	1.8%	1.5%	1.9%	2.4%
Mild	0.6%	0.6%	0.6%	0.5%	0.5%	0.4%	0.5%	0.5%	0.6%	0.4%
Moderate	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%
Severe	0.5%	0.3%	0.3%	0.2%	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%
Unknown severity	1.9%	1.6%	1.8%	2.0%	1.8%	2.0%	1.7%	2.0%	2.3%	2.2%
Total RDS	4.5%	3.9%	4.0%	4.6%	4.1%	4.1%	4.2%	4.3%	4.9%	5.3%

* Transient tachypnea of the newborn.

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.

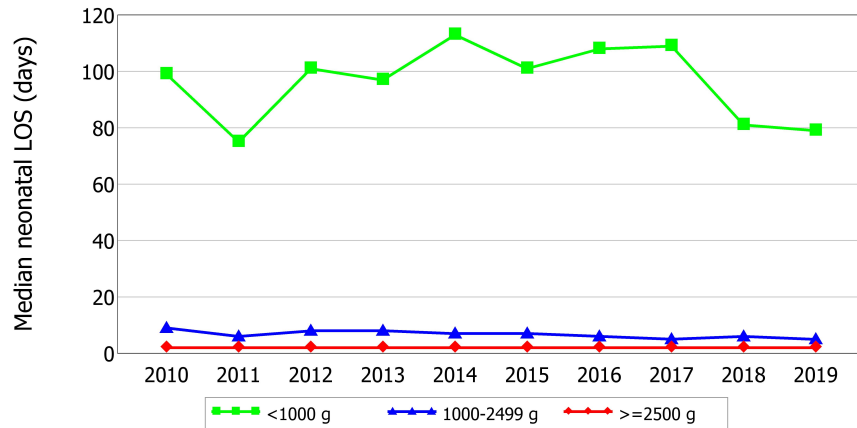
6.9 Neonatal sepsis by birth weight and year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births <1000 g	45	34	49	28	32	39	31	31	19	26
Neonatal sepsis	51.1%	20.6%	26.5%	21.4%	53.1%	33.3%	25.8%	45.2%	36.8%	34.6%
# live births 1000-2499 g	457	450	477	467	519	447	459	506	434	427
Neonatal sepsis	5.3%	2.2%	4.2%	2.1%	2.7%	3.4%	2.6%	2.2%	3.9%	1.6%
# live births ≥2500 g	8305	8370	8174	7925	8056	7643	7796	7671	7437	7346
Neonatal sepsis	0.5%	0.3%	0.6%	0.4%	0.4%	0.7%	0.5%	0.4%	0.6%	0.7%

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

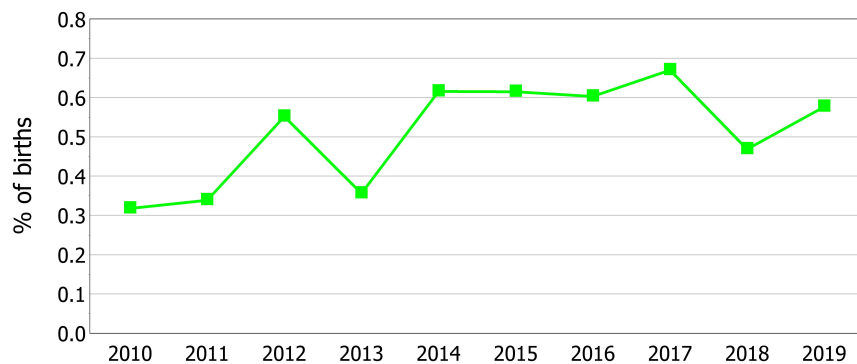
6.10 Newborn length of stay (days) by birth weight and year, Nova Scotia, 2010-2019



Birth weight		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<1000 g	N*	32	28	36	20	20	26	13	21	16	12
	Median	99.2	74.6	101.3	97.4	112.6	101.1	107.7	109.0	81.3	78.6
	Mean	139.8	84.6	98.5	119.1	124.9	97.2	112.8	108.8	91.4	87.4
1000-2499 g	N*	449	443	466	460	512	442	452	493	428	399
	Median	9.2	6.0	8.3	7.7	7.3	6.5	6.2	5.4	6.0	5.4
	Mean	17.8	14.0	15.7	17.7	17.4	16.0	16.0	14.0	14.9	12.5
≥2500 g	N*	8295	8361	8169	7918	8048	7635	7782	7655	7427	7311
	Median	2.2	2.3	2.2	2.2	2.1	2.1	2.0	2.0	1.9	2.0
	Mean	2.8	2.8	2.8	2.7	2.8	2.7	2.6	2.5	2.7	2.5

* Number of births of infants who survived to hospital discharge.

6.11 Neonatal withdrawal from maternal use of opioids by year, Nova Scotia, 2010-2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
# live births	8816	8857	8702	8425	8610	8132	8291	8210	7892	7804
Neonatal withdrawal	0.3%	0.3%	0.6%	0.4%	0.6%	0.6%	0.6%	0.7%	0.5%	0.6%

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 kg/m²

Normal weight: BMI 18.5 to 24.9 kg/m²

Overweight: BMI 25.0 to 29.9 kg/m²

Obese: BMI ≥30.0 kg/m²

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, 4000 g and 4500 g. The American College of Obstetricians and Gynecologists supports use of the 4500 g threshold for diagnosis of macrosomia because morbidity increases sharply beyond this weight, but acknowledges there is some increased risk of morbidity at weights >4000 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 grams 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. <http://pediatrics.aappublications.org/content/108/2/e35.full.html>]

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]