



Eastern Avalon Perinatal Health Surveillance Report 2005



**Newfoundland and Labrador
Provincial Perinatal Program**

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The NLPPP is pleased to present the Eastern Avalon Perinatal Health Surveillance Report 2005 and wishes to recognize the following for their diligent work in bringing this task to completion.

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Forward

The Newfoundland and Labrador Provincial Perinatal Program is pleased to present the *Eastern Avalon Perinatal Health Surveillance Report 2005*, a review of perinatal health for pregnant women and their newborns. This report is an important reference document as it can help identify perinatal risk factors, determine effective interventions, educate health care providers and the public, and recommend appropriate allocation of resources.

As part of the Newfoundland and Labrador Provincial Perinatal Program's mandate, the development of a province wide surveillance program is underway, with two regions (St. John's and Labrador) now part of the data collection. For this report, information pertaining to maternal demographics, maternal behaviours, medical interventions, and maternal and newborn diagnoses are extracted from individual prenatal and health records through the former Health Care Corporation of St. John's (now part of Eastern Health).

This report, which presents both self-reported and diagnosed health information for the past four fiscal years (April 01, 2001 to March 31, 2005), is the initial step toward provincial perinatal health reporting.

Readers are encouraged to review the technical notes at the back prior to reviewing the report. The technical notes provide a background on the source of data used, collection methods, limitation of some indicators, specific calculations, and statistical significance.

Executive Summary

The Newfoundland and Labrador Provincial Perinatal Program has within its mandate a provincial perinatal surveillance program (PPSP). To date, the Provincial Perinatal Program collects maternal (prenatal to postnatal) and neonatal data from the Eastern Avalon and Labrador, with plans for the remaining regions to become integrated into the perinatal database.

This report, using data extracted from individual prenatal and hospital health records from 2001/02 to 2004/05 fiscal years, aims to provide a “picture” of perinatal health in the Eastern Avalon population.

The Eastern Avalon, for purposes of this report, is defined as the area included under the former Institutional Health Board of the Health Care Corporation of St. John’s and St. John’s Nursing Home Board. This section extends from St. Catherine’s on the southern shore to Conception Bay South, the northeast Avalon, St. John’s, Mount Pearl and Bell Island.

Women’s health services in this region are provided through the Children’s and Women’s Health Program, Health Sciences Centre, Eastern Health Authority. In 2004, 41.2% of all live births in the province occurred in the Eastern Avalon. Although the Children’s and Women’s Health Program serves as the referral site for all high-risk obstetrics in this province, data for this report is limited to women who are residents of the Eastern Avalon only. Women who resided outside the Eastern Avalon, but gave birth in the Children’s and Women’s Health Program, were not included in this population based report.

This report is divided into three sections: 1) Maternal Health and Behaviour, 2) Health Services and 3) Fetal and Infant Health.

Maternal Health and Behaviour

Women continue to have their families later in their reproductive years. In 2000, 41.9% of all live births in Canada were to women 30 years and older, compared with 23.7% in 1981. In the Eastern Avalon over the last four fiscal years (2001/02 to 2004/05), 51.1% of women giving birth were 30 years of age and older. There is evidence that increasing maternal age is associated with adverse outcomes for mother and infant, such as increased risk of genetic anomalies, antepartum complications, labour and delivery complications, preterm birth, multiple birth and low birth weight.

Approximately 51% of women who gave birth had their first baby, 37% their second baby and 12% had their third or more.

Smoking and Exposure to Environmental Tobacco Smoke (Second Hand Smoke) During Pregnancy

Cigarette smoking and exposure to environmental tobacco smoke (ETS) during pregnancy have serious implications for fetal, infant and child health. Babies, born to mothers who smoke or are exposed to ETS, have an increased risk of low birth weight, preterm birth, stillbirth and Sudden Infant Death Syndrome (SIDS).

During 2001/02 to 2004/05, 16.9% of women from the Eastern Avalon smoked during pregnancy. In 1998-99, the rate of smoking during pregnancy in the Atlantic Provinces was 24.8%, while the Canadian rate was 19.4%. It is important to note, however, that maternal smoking is self-disclosed and may be under reported.

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The proportion of non-smoking mothers who were exposed to ETS steadily decreased over the past four fiscal years, from 15.7% in 2001/02 to 8.0% in 2004/05.

Maternal Alcohol Use

Alcohol consumption during pregnancy is the leading cause of preventable birth defects and developmental disabilities in Canada. Fetal Alcohol Spectrum Disorder (FASD) is the umbrella term that describes the range of disabilities associated with prenatal alcohol exposure.

In the Eastern Avalon, 2.1% of women reported alcohol consumption during pregnancy in the last four fiscal years. National data reports a rate of 14.6% (1998-99). It is likely that maternal alcohol use was underreported, possibly as a result of maternal reluctance to disclose alcohol use and/or by the process by which this information was obtained by health care providers. Strategies to improve data collection in this area should be considered.

Maternal Pre-pregnancy Weight (Underweight and Overweight/Obese)

Body Mass Index (BMI) is the most common method of determining if an individual is within a healthy body weight range and is calculated by weight divided by height squared (kg/m^2). The international standard of BMI classifies adults as underweight (< 18.50), acceptable weight ($18.50-24.99$), overweight ($25.0-29.99$) or obese (≥ 30.00).

Babies of mothers who are underweight are at increased risk for preterm birth, intrauterine growth restriction and low birth weight. The 2003 provincial rate for underweight women was 2.4%, compared to the 2003 national rate of 4.1%. The percentage of underweight pregnant women in Eastern Avalon over the past four fiscal years was 3.1%.

Mothers who are overweight or obese are more likely to deliver a high birth weight baby. High birth weight is associated with caesarean birth, shoulder dystocia and birth trauma. Overweight or obese mothers are also at increased risk for gestational diabetes and hypertension. In Newfoundland and Labrador, the numbers of overweight (31.0%) and obese (19.5%) women exceeded the national average. In the Eastern Avalon, almost half of pregnant women (49.1%) had a BMI of 25.0 or greater; 26.5% of pregnant women were overweight and 22.6% were obese.

It is important to note that the BMI could not be calculated for over 50% of women in the perinatal database. This was due to incomplete documentation of pre-pregnancy weight and/or height on health records by care providers.

Weight Gain During Pregnancy

Insufficient or excessive weight gain during pregnancy also affects pregnancy outcomes. Low weight gain increases the risk of a low birth weight baby, while excessive weight gain increases the risk of induced labour, caesarean birth, high birth weight and obesity following child birth.

In the Eastern Avalon, 18.4% of women gained insufficient weight during their pregnancy, while 46.2% of women exceeded recommended pregnancy weight gain. The incidence of excessive weight gain was highest among obese women (53.8%).

Diabetes (Gestational and Pre-existing)

Diabetes involves the inability of the body to effectively metabolize carbohydrates, resulting in abnormally high blood glucose levels. Pre-existing diabetes refers to the presence of this condition prior to pregnancy, while gestational diabetes (GDM) develops during pregnancy. Both pre-existing and gestational diabetes place pregnant women at increased risk for complications, such as high birth weight, while the baby is at increased risk for birth trauma, neonatal hypoglycaemia and stillbirth or neonatal death.

According to medical literature, the general incidence of gestational diabetes is 2% to 4% of pregnant women. During the past four fiscal years in the Eastern Avalon, 3.8% of pregnant women developed gestational diabetes. In Canada, between 1984 and 1996, the proportion of pregnant women with pre-existing diabetes fell from 0.7% to 0.4%. In the Eastern Avalon over the past four fiscal years, the proportion of pregnant women with pre-existing diabetes was 0.8%.

Hypertensive Disorders

Hypertension is the most common pregnancy complication. Hypertensive disorders, including pre-existing (chronic) and gestational (develops during pregnancy) hypertension, result in fetal and maternal morbidity and is currently one of the leading causes of maternal death in Canada. Mothers with hypertension are at risk for placental abruption, seizures, multi-organ dysfunction and cerebral vascular accidents, while complications for the baby include intrauterine growth restriction (IUGR), intrauterine fetal death and neonatal death.

In the Eastern Avalon, both the incidence of pre-existing and gestational hypertension increased. Pre-existing hypertension increased from 0.7% in 2001/02 to 1.2% in 2002/03 and remained elevated for the next two fiscal years. Gestational hypertension increased from 5.4% in 2001/02 to 10.5% and 8.9% in the last two fiscal years. According to medical literature, gestational hypertension affects approximately 5% to 10% of all pregnancies.

Folic Acid Supplementation

Women who could become pregnant are advised to take a multivitamin containing 0.4 mg to 1.0 mg of folic acid daily. The promotion of maternal preconception folic acid supplementation and the introduction of food fortification with folic acid in 1998 have resulted in a decrease in the rate of neural tube defects (NTDs). Within Canada, the rate of NTDs vary by region with, historically, Newfoundland and Labrador having the highest incidence.

For optimal NTD prevention, it is essential that folic acid supplementation be taken prior to pregnancy. In Newfoundland and Labrador, the proportion of women aged 19 to 44 years taking a vitamin supplement containing folic acid, increased from 17% in 1997/98 to 28% in 2000/01. In the Eastern Avalon, 77% of pregnant women reported taking folic acid supplements. However, key information of whether the folic acid was taken before pregnancy is missing from 83% of the prenatal records. Of the data available, 54% of women initiated taking folic acid after confirmation of pregnancy, when it is largely ineffective. Complete data is essential to determine if this is common practice.

Health Services

The availability of family physicians who offer maternity services is decreasing. Many women are considered to be low risk during their pregnancy, but are cared for by specialists. Approximately 87% of women who gave birth in the Eastern Avalon had an obstetrician as their primary care provider.

Over the past four fiscal years, the mean length of stay for all women in hospital giving birth was 3.8 days. The mean length of stay for caesarean births was 5.3 days versus 3.2 days for vaginal births. In Canada in 2000/01, the mean length of stay for caesarean births was 4.6 days versus 2.6 days for vaginal births.

Maternal Serum Screening (MSS)

Maternal Serum Screening (MSS) is a blood test that screens fetuses for an increased risk of open neural tube defects, Down syndrome and Trisomy 18. The Society of Obstetricians and Gynaecologists of Canada (SOGC), recommends that where feasible, MSS should be made available to all women in Canada during the second trimester of pregnancy.

MSS uptake rates in Canada ranged from highs of 51% in Ontario and 71% in Manitoba, to a low of 11% in Alberta. Since the inception of the MSS program in 2002 in Newfoundland and Labrador, the MSS uptake rate was between 20% to 22%. In the Eastern Avalon, MSS uptake was 13.6%.

Fetal Ultrasound

Fetal ultrasound is a common non-invasive diagnostic procedure that can assess the size, age and health status of the fetus, as well as detect multiple births and some birth defects. SOGC recommend that a single screening ultrasound be performed in all pregnancies between 16 to 20 weeks.

During the past four fiscal years in the Eastern Avalon, 96% of pregnant women had an ultrasound at some point in their pregnancy, while 59% had an ultrasound in the recommended 16 to 20 week range.

Induction of Labour

Labour induction is a method of artificially initiating labour, which according to SOGC should only be considered when the benefits outweigh the potential risks. Induction, while linked with the reduced risk of stillbirth and perinatal death, is also linked to an increased risk of caesarean birth, abnormal fetal heart rate patterns, increased rate of operative vaginal delivery, delivery of a pre-term infant and post partum haemorrhage. Induction rates are higher among first time mothers, women who are obese and those who have gained excessive weight during pregnancy.

The induction rate in Canada in 2000/01 was 22.0%, compared to the provincial average that year of 30.4%. In the Eastern Avalon, the induction rate for the past four fiscal years was 29.7%. The most common indications for labour induction were post-term pregnancy (40.3%), rupture of membranes before the onset of labour (26.4%) and hypertension (15.9%).

Epidural Analgesia

The most common and effective pain management intervention in labour is epidural analgesia. However, epidurals have been associated with longer labour, caesarean section, oxytocin augmentation, maternal fever and hypotension.

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In Canada in 2001/02, 45.7% of women who gave birth vaginally received epidural analgesia, compared to 34.6% of women in Newfoundland and Labrador. In the Eastern Avalon for the years 2001/02 to 2004/05, 48.8% of women who gave birth vaginally received epidural analgesia. The epidural rate in the Eastern Avalon for all women who laboured, irregardless of whether they gave birth by caesarean or vaginally, was 54.0%. Of these women, 70.2% were first time mothers. National or provincial statistics are not available for comparison.

Caesarean Section

Caesarean birth rates have been steadily increasing in developed countries. The World Health Organization recommends that rates should not exceed 10% to 15% of all births. Caesarean section places the mother at increased risk for operative and post-operative complications, such as hemorrhage and infection, and longer hospital stay and recovery time. Caesarean birth also increases the baby's risk of respiratory distress and accidental lacerations. Research has identified several risk factors for caesarean delivery: older maternal age, induction of labour, gestational age beyond 40 weeks, extremes of neonatal birth weight (i.e. low birth weight and high birth weight) and maternal pre-pregnancy weight and height.

In Canada in 2001/02, the caesarean rate was 22.5%, while the rate in Newfoundland and Labrador was higher at 26.6%. In the Eastern Avalon for the last four fiscal years, the rate was 26.8%. Of note, is the increase in the proportion of women having a caesarean in 2003/04 and 2004/05 to over 28%. Also, of those women who delivered by caesarean, only 51.7% laboured, indicating 48.3% of all caesarean births were either pre-booked (elective) or emergency caesarean births without labour.

Fetal and Infant Health

During the past four fiscal years in the Eastern Avalon, 78.4% of newborns were of a healthy birth weight between 2500-3999 grams (5 lbs 8 oz to 8 lbs 13 oz) with an average weight of 3448 grams (7 lbs 8 oz). Notably, 15.6% of newborns were of a high birth weight (≥ 4000 grams).

In 2001 in Canada, the rate of low birth weight babies less than 2500 grams (5 lbs 8 oz) was 5.5%, while in Newfoundland and Labrador it was slightly lower at 5.4%. In the Eastern Avalon for the years 2001/02 to 2004/05, the rate was 6.0%. Approximately 75% of low birth weight newborns were born preterm (before 37^{0/7} weeks gestation).

The majority of newborns (93%) had healthy APGAR scores (≥ 7) within the first minute following birth, signifying a healthy initial transition to extra-uterine life.

Preterm Birth

Preterm birth is birth occurring at less than 37^{0/7} week's gestation and accounts for 75% to 85% of all perinatal mortality in Canada. Preterm birth is associated with a higher risk of neurodevelopmental disabilities (such as cerebral palsy), chronic respiratory problems, infections and vision problems.

Although birth before 37 weeks puts infants at increased risk of death during infancy, births before 32 weeks gestation account for nearly 50% of neurological morbidity and about 60% of perinatal deaths. Known risk factors for preterm birth are: single marital status, younger or older maternal age, previous preterm delivery, smoking, low pre-pregnancy weight, low or high pregnancy weight gain, multiple pregnancy, infection and stress.

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Nationally and provincially, the incidence of preterm birth has been increasing. In 2000, the national rate was 7.6%, while in Newfoundland and Labrador the rate was even higher at 8.0%. In the Eastern Avalon, the preterm birth rate increased from 7.2% in 2001/02 to 8.6% in 2004/05. Also of note, is the increase in the rate of extremely preterm infants (< 26 weeks gestation) from 1.3% in 2001/02 to an average of 4.0% over the last three fiscal years.

Macrosomia (High Birth Weight)

Macrosomia, or high birth weight, refers to weight at delivery of 4000 grams (8 lbs, 13 oz) or greater. Macrosomic babies are at increased risk for a number of birth complications, the most serious of which is shoulder dystocia, while mothers of macrosomic babies are at increased risk for caesarean delivery. The risks associated with macrosomia increase even more with newborns weighing 4500 grams (9 lbs, 14 oz) or greater. Maternal risk factors for macrosomia are high pre-pregnancy weight, excessive pregnancy weight gain, gestational age beyond 40 weeks, genetic factors and pre-existing or gestational diabetes.

Nationally and provincially, the incidence of high birth weight babies has been increasing over the past nine years. In 2000, the national rate was 12.0%, while the rate in Newfoundland and Labrador was 15.4%. For the years 2001/02 to 2004/05 the macrosomia rate in the Eastern Avalon was 15.6%. Of note, is the increase in the proportion of newborns weighing 4500 grams or more. Medical literature cites the incidence of newborns weighing 4500 grams or greater at 1.5%. In the Eastern Avalon, the rate increased from 2.8% in 2001/02 and 2002/03 to 3.4% in 2004/05.

Breastfeeding

Breastfeeding provides optimal food for infants, as well as positive health benefits for mothers and babies. Breast milk is linked to improved cognitive and sensory development, particularly in preterm and low birth weight babies. It also contains unique immunological properties that protect the infant against respiratory and gastrointestinal infectious disease. In addition, breast milk may protect against SIDS, diabetes, lymphoma and allergic disease, and may help prevent childhood and adolescent obesity. For the mother, breastfeeding reduces the incidence of postpartum bleeding, aids in weight loss, improves postpartum bone remineralization, increases the space between pregnancies and reduces the risk of ovarian and breast cancer.

In 2003, the national breastfeeding initiation rate was 84.5%. Newfoundland and Labrador, however, had the lowest initiation rate in the country (62.7%), while British Columbia had the highest (93.3%). The breastfeeding initiation rate in the Eastern Avalon for the last four fiscal years was 66.2%, while the breastfeeding rate at time of hospital discharge was 62.8%. Approximately 3% of mothers, who initiated breastfeeding, discontinued before they left hospital. No data was available in the Eastern Avalon on the duration of exclusive breastfeeding.

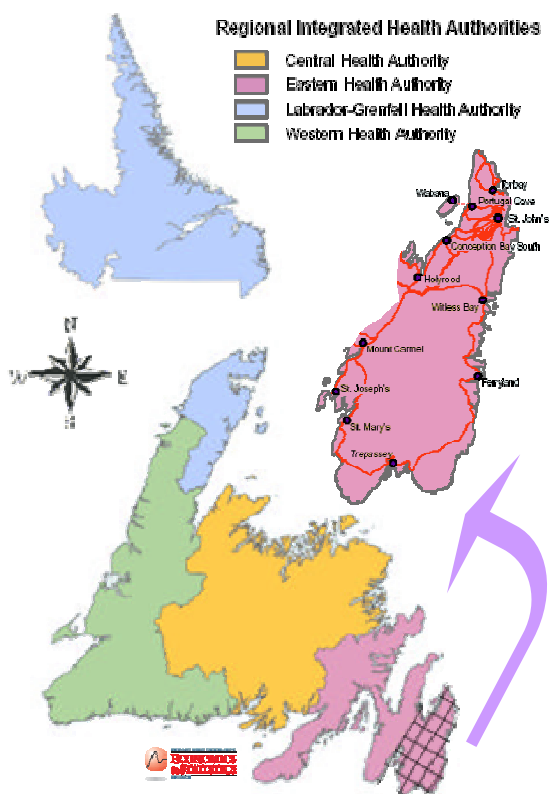
Introduction

Perinatal surveillance aims to improve the health of all pregnant women and newborns through monitoring and reporting health indicators and health outcomes. Monitoring of indicators provides information on provincial trends, patterns of risk and protective factors. This type of information is useful in understanding perinatal morbidity and mortality.

The collection, maintenance, analysis and dissemination of perinatal data are essential in the evaluation of obstetrical care and in making recommendations for best practice. This surveillance can help improve the identification of women at risk, determine effective interventions, educate health care providers and the public, recommend appropriate allocation of resources and assist in quality assurance initiatives.

The Newfoundland and Labrador Provincial Perinatal Program has within its mandate a provincial perinatal surveillance program (PPSP). To date, the Provincial Perinatal Program collects maternal (prenatal to postnatal) and neonatal data from the Eastern Avalon and Labrador, with plans for the remaining regions of the province to become integrated into the perinatal database.*

This report, using data extracted from individual prenatal and hospital health records from 2001/02 to 2004/05 fiscal years, aims to provide a “picture” of perinatal health in the Eastern Avalon population.



The **Eastern Avalon**, for purposes of this report, is defined as the area included under the former Institutional Health Board of the Health Care Corporation of St. John's and St. John's Nursing Home Board. This section extends from St. Catherine's on the southern shore to Conception Bay South, the northeast Avalon, St. John's, Mount Pearl and Bell Island (see shaded/enlarged area on map).

Women's health services in this region are provided through the Children's and Women's Health Program, Health Sciences Centre, Eastern Health Authority. In 2004, 41.2% of all live births in the province occurred in the Eastern Avalon.

Although the Children's and Women's Health Program serves as the referral site for all high-risk obstetrics in this province, **data for this report is limited to women who are residents of the Eastern Avalon only**. Women who resided outside the Eastern Avalon, but gave birth in the Children's and Women's Health Program, were not included in this population based report.

This report is divided into three sections: **1) Maternal Health and Behaviour, 2) Health Services and 3) Fetal and Infant Health**

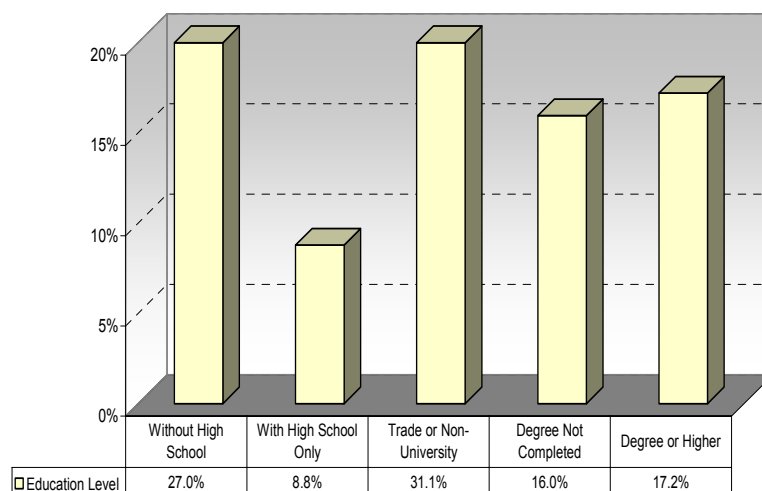
These three sections contain corresponding profiles and explore a number of indicators in depth. Rates are presented from the Eastern Avalon, as well as when available from the province of Newfoundland and Labrador, and Canada. No statistical comparisons were computed from the Eastern Avalon data, as this area represents an entire population.

* Perinatal data has been collected from the Eastern Avalon since the 2001-02 fiscal year and from Labrador since January 2005.

Eastern Avalon Profile*

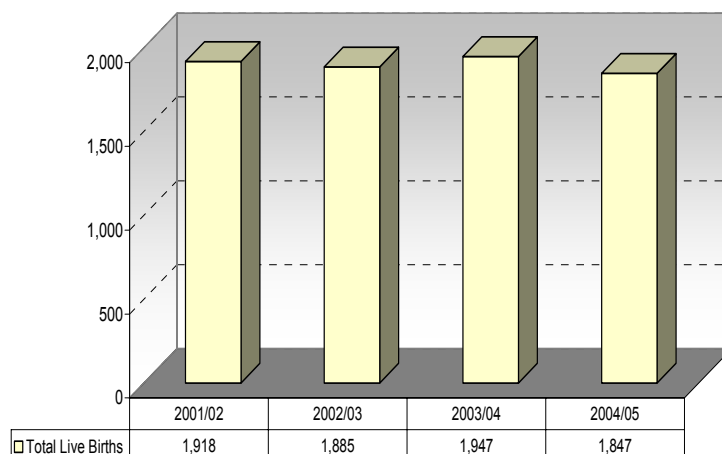
- Population of 189,590 in 2001 - a decline of 1.6% from 1996. In this same time period, the province as a whole, experienced a population decline of 7%.
- In 2001, 27.0% of the adult population did not complete high school, while 48.5% had a trade or university degree.
- In 2001, 77% of people aged 18 to 64 were employed, compared to 74% provincially.
- Per capita personal income was \$21,500 in 2001, which was \$2,300 less than the national average and \$3,400 more than the province.
- In 2001, one half of lone-parent families had incomes less than \$24,800. Their counterparts in the rest of the province had incomes less than \$21,300.
- At some point during 2001, 12% of people received income support.
- For this report, Eastern Avalon encompassed over 65 communities. Approximately 85% of women who gave birth lived in St. John's, Mount Pearl, Paradise, Conception Bay South or Torbay.**
- Between 2001/02 and 2004/05 the total number of live births was 7,486. The number of live births per year ranged from 1,847 to 1,947.**
- The number of births in the region decreased by 2.9% from 1995 to 2004.**

Highest Level of Education for those 20 years and over, 2001



Source: Newfoundland and Labrador Statistics Agency

Total Number of Live Births in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

* Eastern Avalon Profile data comes from Community Accounts, an initiative of the Government of Newfoundland and Labrador Statistics Agency.

** Data source is the Newfoundland and Labrador Provincial Perinatal Database.



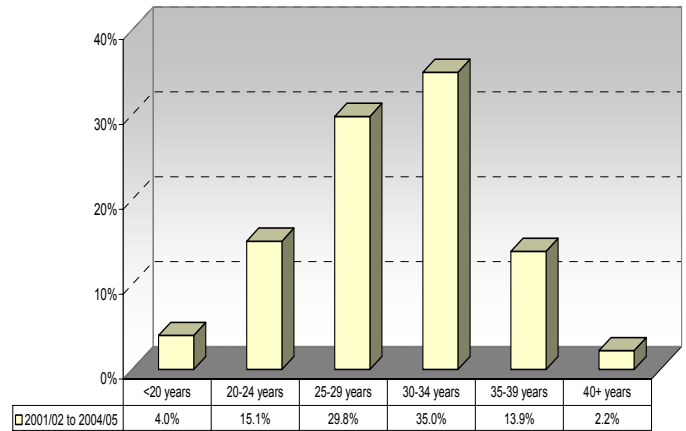
Maternal Health and Behaviour

Maternal Profile

For 2001/02 to 2004/05 in Eastern Avalon:

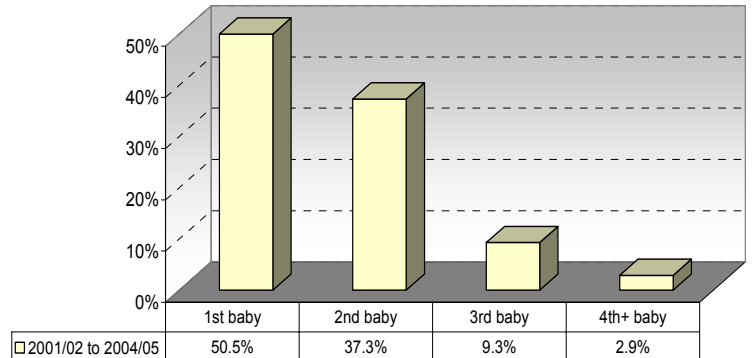
- The average age of women giving birth was 29 years.
- The majority (51.1%) of women giving birth were 30 years of age and older (In 2000, 41.9% of all live births in Canada were to women 30 years or older, compared with 23.7% in 1981^{1,2}).
- 72% of women giving birth had a partner to provide support.
- One half (50.5%) of women giving birth were first time mothers.
- During the last four fiscal years, 34.7% of women attended prenatal classes.
- 86.6% of women who attended prenatal classes were first time mothers.
- 74% of women gave birth at term.*
- 98% of women gave birth to a singleton. Of multiple births, twin births were most common.
- Approximately 1 in every 70 births was a twin.

Age Distribution of Women Giving Birth in Eastern Avalon, 2001/02 to 2004/05



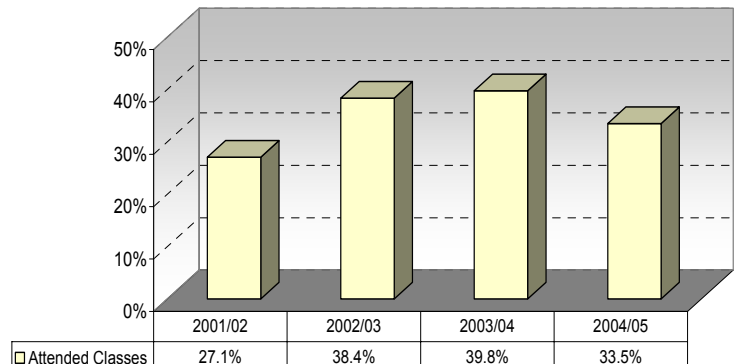
Source: Newfoundland and Labrador Provincial Perinatal Database

Parity of Women Giving Birth in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Prenatal Class Attendance of Women Giving Birth in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

* Term is considered between 37^{0/7} to 40^{6/7} weeks gestation.

Maternal Smoking

Cigarette smoking during pregnancy adversely affects pregnancy outcomes.

Intrauterine growth restriction (IUGR) is the most documented adverse effect of smoking during pregnancy.¹ Tobacco smoke contains more than 2,000 chemicals, and nicotine and carbon monoxide are two of the chemicals believed to have specific negative effects on the developing fetus.² Nicotine impairs circulation between the uterus and placenta by vasoconstriction, and carbon monoxide binds with fetal hemoglobin decreasing the amount of oxygen available to the fetus, resulting in restricted fetal growth.^{1,2} Newborns whose mothers smoked can weigh 88 grams to nearly 250 grams less than those born to non-smoking mothers.³

Prenatal smoking also increases the risk of preterm birth, spontaneous abortion, pregnancy complications, stillbirth and neonatal death.⁴ For pregnant and new mothers, smoking puts their baby and young children at risk for sudden infant death syndrome (SIDS), impaired physical and intellectual development, asthma and respiratory infections.⁵

Women who abstain from smoking before conception or during the first trimester are at significantly reduced risk of having a low birth weight baby compared with women who smoke throughout pregnancy.⁶ However, smoking cessation in the second or third trimester can also improve fetal growth and therefore should be encouraged at any time during pregnancy.²

Canada

In the 1998-1999 National Longitudinal Survey of Children and Youth, 19.4% of Canadian women reported smoking during pregnancy.⁷ This number had declined from 23.5% in the 1994-1995 cycle of the survey. However, maternal smoking rates varied across provinces, with British Columbia having the lowest rate (13.0%) and the

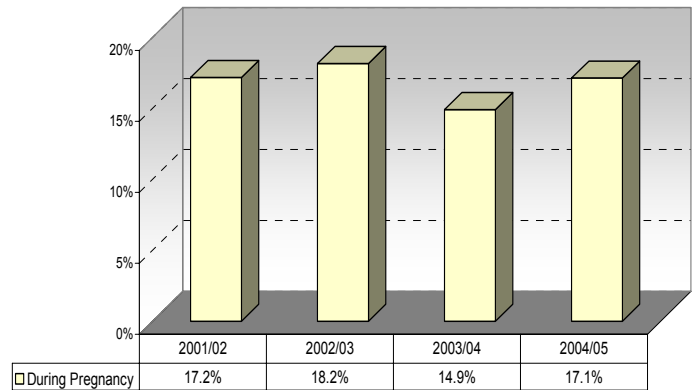
Atlantic provinces having the highest rate (24.8%). Younger mothers were more likely to report smoking during their pregnancy.⁷

Eastern Avalon

Between 2001/02 and 2004/05, 16.9% of mothers reported smoking during pregnancy. Approximately 59% of mothers who smoked during pregnancy were between 20 and 29 years of age.

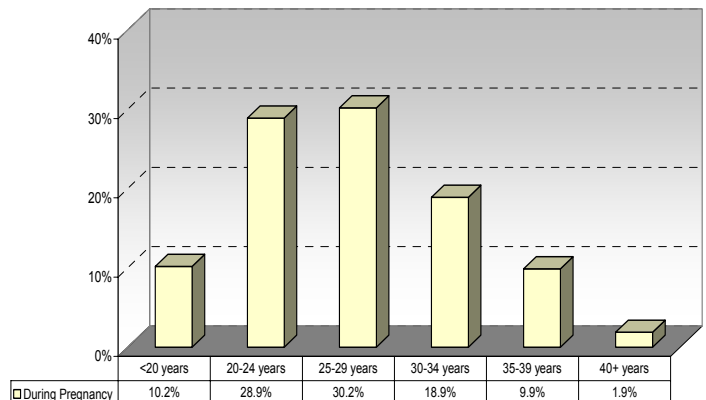
It should be noted that both national and regional rates are based on self-reported data. Smoking during pregnancy may be viewed as socially undesirable, thereby contributing to underreporting.

Maternal Smoking in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Age Groups of Mothers in Eastern Avalon who Smoked During Pregnancy, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Environmental Tobacco Smoke

Poor infant outcomes have been linked to a pregnant woman’s exposure to second-hand smoke, also known as environmental tobacco smoke (ETS). ETS, is both the smoke that comes from the burning of a tobacco product and that which is exhaled by smokers. It is made up of the same harmful toxins that smokers inhale but at even greater levels, impacting fetal, infant and child health.

Babies of mothers exposed to smoke are generally smaller at birth than babies of non-smokers.¹ Moreover, these babies also are at a higher risk for preterm or very preterm birth, low birth weight, SIDS, ear infections, hearing problems, upper respiratory infections, bronchitis, pneumonia and asthma.^{2,3} Prenatal exposure to ETS also has a negative effect on mental development, with its impact amplified in children who are socio-economically disadvantaged.⁴

ETS exposure through non-smoking pregnant women has been found to be a major risk factor for higher health services use during the child’s first 18 months of life. Prenatal exposure to ETS is also associated with increased infant hospitalization.⁵

The effects of ETS exposure during pregnancy can persist beyond the perinatal period into childhood. Children having prenatal exposure to ETS have a higher risk of learning problems, infections and other illnesses.³

Canada

Statistics are unavailable nationally and provincially on exposure of pregnant women to ETS.

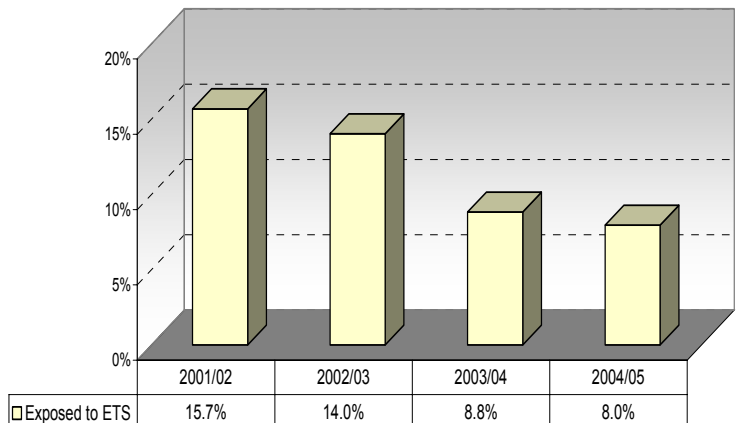
In Canada during 2000/01, 25.3% of non-smoking females 12 years and older were reported being exposed to ETS. The highest proportion of females exposed to second-hand smoke was in the North West Territories (37.3%) and the lowest was in British Columbia (17.8%).⁶

During the same time period, 29.5% of females in Newfoundland and Labrador were reported being exposed to ETS.⁶

Eastern Avalon

From 2001/02 to 2004/05, the proportion of all non-smoking mothers who were reportedly being exposed to ETS steadily decreased from 15.7% to 8.0%.

Prenatal ETS Exposure of Non-Smoking Women in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Maternal Alcohol Use

A mother's use of alcohol in pregnancy is the leading cause of preventable birth defects and developmental disabilities among Canadian children.¹ Fetal Alcohol Spectrum Disorder (FASD) is an umbrella term that describes the range of disabilities associated with prenatal exposure to alcohol.

The effects of alcohol consumption during pregnancy vary depending on factors such as the quantity of alcohol consumed, stage(s) of pregnancy when consumption took place, mother's ability to metabolize alcohol, as well as the genetic characteristics of the fetus.²

As a result, the current recommendation states: **there is no safe amount of alcohol to drink during pregnancy, nor is there a safe time to drink alcohol during pregnancy.**³

The characteristics of women who use alcohol are variable and inclusive of all socio-economic groups. Women identified as most at risk to engage in moderate to heavy alcohol use during pregnancy are: employed or a student, received an annual income of less than \$10,000 or more than \$50,000, college educated, unmarried, a smoker, and of minority race or ethnicity.⁴

It is likely that maternal alcohol use is frequently underreported. Many women may not disclose prenatal use because it is considered socially undesirable behaviour. Furthermore, studies have shown that health care providers do not routinely ask women about their use of alcohol.⁵ The way in which women are asked about their alcohol consumption can also influence their willingness to disclose accurate information.

Canada

The 1998-1999 cycle of the National Longitudinal Survey of Children and Youth (NLSCY) found that 14.6% of children under the age of two had a mother who reported consuming alcohol during pregnancy.⁶ It is

believed that as many as one in four infants are exposed to alcohol during early gestation.⁷

The incidence of FASD in Canada has been estimated to be 9 of every 1000 live births.³ Across the country incidence rates vary, climbing to as high as 46 per 1000 birth in some aboriginal communities.⁴

Eastern Avalon

Between 2001/02 and 2004/05, the percentage of women who reported drinking during pregnancy was 2.1%. Yearly rates ranged from 1.9% to 2.9%.

When compared to national trends, it is likely that maternal alcohol use was severely underreported.

Maternal Alcohol Use During Pregnancy in Eastern Avalon, 2001/02 to 2004/05

| | 2001/02 | 2002/03 | 2003/04 | 2004/05 |
|-------------|---------|---------|---------|---------|
| Alcohol Use | 2.1% | 1.9% | 2.9% | 1.7% |

Pre-Pregnancy Weight

A woman's weight prior to pregnancy significantly impacts pregnancy outcome. Body Mass Index (BMI), which relates weight to height, is the most common method of determining if an individual's weight is within a healthy range.¹ For the purpose of this report, BMI will be discussed according to four international standard categories.

International BMI (kg/m²) Categories¹

| <i>Under-weight</i> | <i>Acceptable weight</i> | <i>Over-weight</i> | <i>Obese</i> |
|---------------------|--------------------------|--------------------|--------------|
| <18.50 | 18.50-24.99 | 25.00-29.99 | ≥30.00 |

Babies of mothers who are underweight before pregnancy are at increased risk for preterm birth, intrauterine growth restriction and low birth weight.^{2,3} Low birth weight (< 2500 grams) has been linked to developmental problems as well as increased mortality and morbidity following birth and in early childhood.^{2,4} Maternal factors associated with being underweight are: food insecurity, stress, alcohol and drug abuse, smoking, chronic dieting and eating disorders.²

Mothers who are overweight or obese are more likely to deliver a high birth weight baby (≥ 4000 grams).² High birth weight is associated with a number of serious complications such as prolonged labour, caesarean section, birth trauma to mother and baby, and perinatal mortality.^{2,5} Women with a high BMI also are at greater risk for hypertension, gestational diabetes and preterm delivery.³

Canada and Newfoundland and Labrador

In 2003, there was a greater rate of overweight and obese women aged 18 to 64 years of age in Newfoundland and Labrador than in Canada. Conversely, the province had a lower rate of underweight women when compared nationally.⁶

BMI-based Weight Trends of Women in Canada and NL, 2003⁶

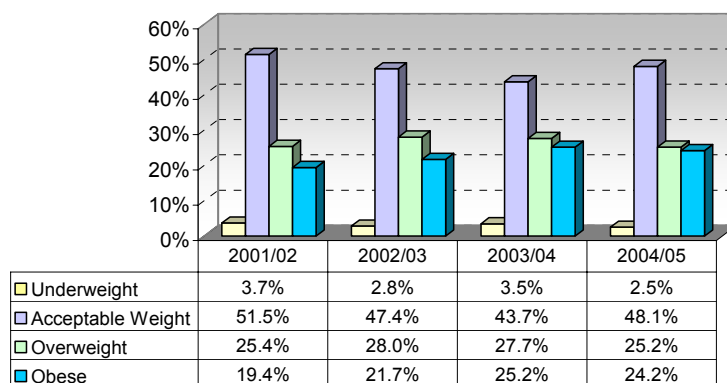
| | <i>Under-weight</i> | <i>Acceptable weight</i> | <i>Over-weight</i> | <i>Obese</i> |
|---------------|---------------------|--------------------------|--------------------|--------------|
| Canada | 4.1% | 52.1% | 25.7% | 13.9% |
| NL | 2.4% | 41.6% | 31.0% | 19.5% |

Eastern Avalon

The proportion of women underweight prior to pregnancy in the Eastern Avalon, from 2001/02 to 2004/05, was 3.1%.

In the last four fiscal years, the mean pre-pregnancy BMI of women giving birth increased from 25.9 to 26.6. Almost half of pregnant women (49.1%) had a pre-pregnancy BMI of 25.0 or greater; 26.5% were overweight and 22.6% were obese.

Pre-Pregnancy BMI of Women Giving Birth in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Pre-pregnancy BMI was not available for over 50% of women. In these cases pre-pregnancy weight, height or both were not documented on the patients' health records.

Gestational Weight Gain

Health Canada’s recommendations for weight gain during pregnancy are based on a woman’s pre-pregnancy Body Mass Index (BMI). Women with a low pre-pregnancy BMI have a recommended weight gain that is higher than those women with normal or high pre-pregnancy BMI. Similarly, women with a high pre-pregnancy BMI have a lower recommended weight gain than women with normal BMI.¹

Health Canada’s Recommendations for Gestational Weight Gain¹

| Body Mass Index (kg/m ²) | | |
|--------------------------------------|--------------------------------|-------------------------------|
| < 20 | 20- 27 | > 27 |
| 12.5 –18.0 kg (28 – 40 lb) | 11.5 – 16.0 kg (25 – 35 lb) | 7.0 – 11.5 kg (15 – 25 lb) |

Lifestyle and biological factors such as diet, exercise, placental function and genetics can influence gestational weight gain.² Amount of weight gain during pregnancy is also influenced by health care provider advice.²

Both low gestational weight gain and low pre-pregnancy weight have been linked with an increased risk of delivering a low birth weight baby (< 2500 grams).³ However, proper gestational weight gain can reduce this risk in women with low pre-pregnancy weight.¹

Gaining too much weight during pregnancy also affects pregnancy outcomes. Excessive gestational weight gain increases the risk of induced labour, emergency cesarean section, a high birth weight delivery (≥ 4000 grams) and obesity following childbirth.^{4,5}

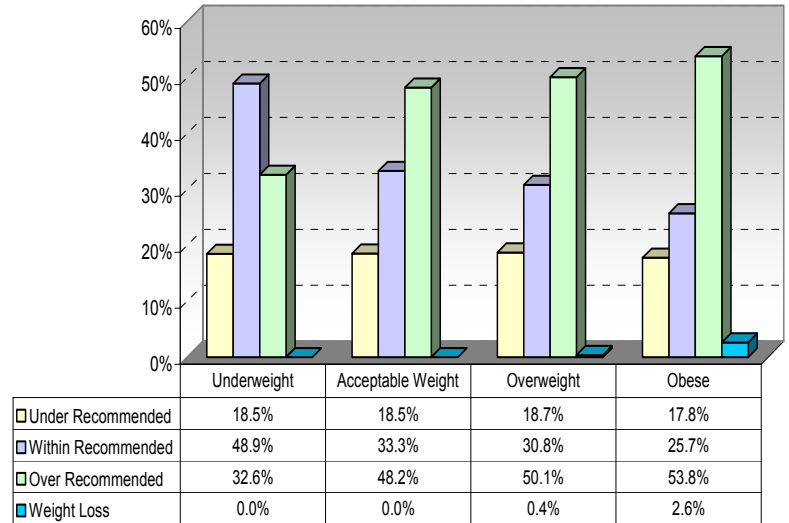
Canada

Statistics are not available on gestational weight gain in Canada.

Eastern Avalon

From 2001/02 to 2004/05, as pre-pregnancy BMI increased, the proportion of pregnant woman exceeding the recommended weight range also increased. Approximately 51% of women who were average weight, overweight or obese gained more than they should during pregnancy. The incidence of excessive weight gain was highest among obese women (53.8%).

Gestational Weight Gain Practices of Women from Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

BMI and delivery weight data was missing from over 60% of health records of women giving birth between 2001/02 and 2004/05.

Diabetes Mellitus

Diabetes involves the inability of the body to effectively metabolize carbohydrates, resulting in abnormally high blood glucose levels.

Pre-existing Diabetes Mellitus

Pre-existing diabetes refers to the presence of this condition prior to pregnancy. Pre-pregnancy diabetes can either be Type I (insulin dependent) or Type II (non-insulin dependent).

Women with pre-existing diabetes are at increased risk for miscarriage, preterm labour, high birth weight (≥ 4000 grams) and congenital anomalies.^{1,2} However, blood sugar management prior to conception and throughout pregnancy can greatly reduce the risk of complications for all women with pre-existing diabetes.¹

A Canadian study in 2002 found that the proportion of pregnant women with pre-existing diabetes fell from 0.7% to 0.4% between 1984 and 1996.³

Gestational Diabetes Mellitus (GDM)

Gestational diabetes is defined as carbohydrate intolerance that is first detected during pregnancy.⁴

Severe or untreated GDM increases the risk of fetal high birth weight and is also associated with an increased frequency of maternal hypertensive disorders and the need for caesarean delivery.⁵

Risk factors for the development of GDM include: previous history of diabetes, family history of diabetes, previous high birth weight baby, previous unexplained stillbirth, previous neonatal hypoglycaemia, advanced maternal age and obesity.⁵

Women with GDM are at increased risk for the development of diabetes, usually Type II, after pregnancy; this risk is enhanced if women are also obese.⁵

Babies of mothers with diabetes are at increased risk for such complications as birth trauma, hypoglycaemia and stillbirth or neonatal death.⁷

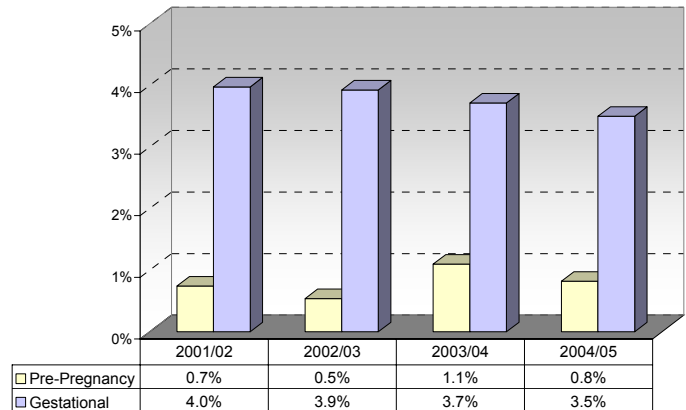
According to medical literature, GDM develops in 2% to 4% of pregnant women.^{8,9} A Canadian study in 2002, reported the incidence in Canada of women with gestational diabetes increased from 0.3% to 2.7% between 1984 and 1996, attributable to increased detection by universal GDM screening.³

Eastern Avalon

Between 2001/02 and 2004/05, 0.8% of mothers giving birth had pre-pregnancy diabetes. This is notably higher than the 0.4% rate cited in the 2002 Canadian study.

The proportion of women diagnosed with gestational diabetes was 3.8%. This corresponds to the incidence cited in medical literature.

Prevalence of Diabetes in Women Giving Birth in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Hypertensive Disorders

Hypertension, is the most common pregnancy complication.¹ Pre-existing (also known as chronic) hypertension refers to the presence of this condition prior to pregnancy or before 20 weeks' gestation, while a new onset of elevated blood pressure readings after 20 weeks' requires the consideration and exclusion of gestational hypertension.¹ Hypertensive disorders, including pre-existing and gestational hypertension, result in fetal and maternal morbidity and is currently one of the leading causes of maternal death in Canada.²

The causes of chronic hypertension are uncertain; however heredity, diet and lifestyle factors are thought to be involved.

The underlying cause of gestational hypertension is unknown but risk factors are: family history, extremes of reproductive age, primigravida (first baby), multiple gestation, diabetes, renal disease, hypertension prior to pregnancy and collagen vascular disease.^{3,4,5} Women who have had gestational hypertension have an increased risk of developing hypertension later in life.³

Hypertensive disorders can result in adverse maternal outcomes such as placental abruption, seizures, multi-organ dysfunction, cerebral vascular accidents, and in rare cases, death.⁶ Complications for the baby include intrauterine asphyxia, intrauterine growth restriction (IUGR) and fetal or neonatal death.⁶

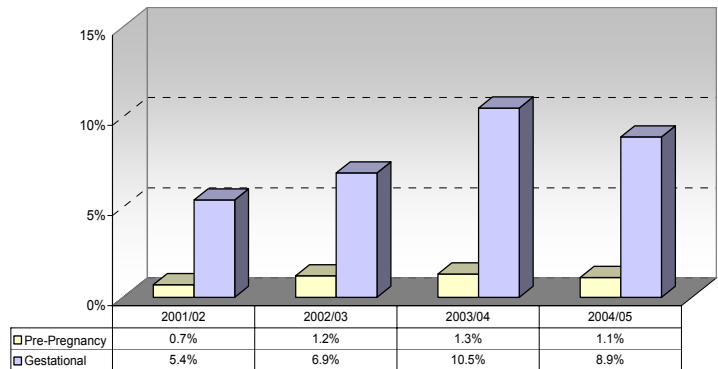
According to medical literature, hypertensive disorders affects approximately 5 to 10% of all pregnancies.^{1,3,5}

Eastern Avalon

Between 2001/02 and 2004/05, the percentage of mothers with pre-existing and gestational hypertension has increased. The most marked increase has occurred in the incidence of gestational hypertension, rising

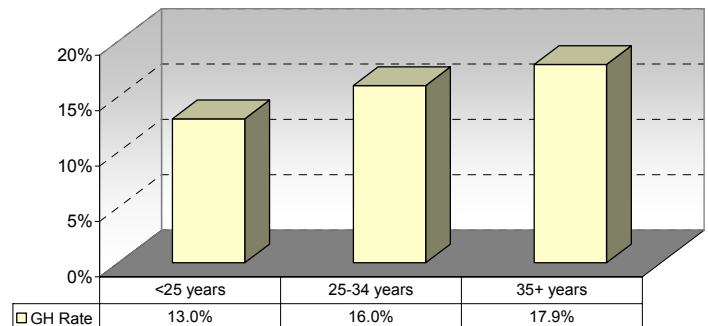
from 5.4 in 2001/02 to a high of 10.5 in 2003/04. As maternal age increased, so did the incidence of gestational hypertension (17.9% for women 35+ years of age compared to 13.0% for women less than 25 years of age).

Prevalence of Hypertension in Women Giving Birth in Eastern Avalon, 2001/02 to 2004/05



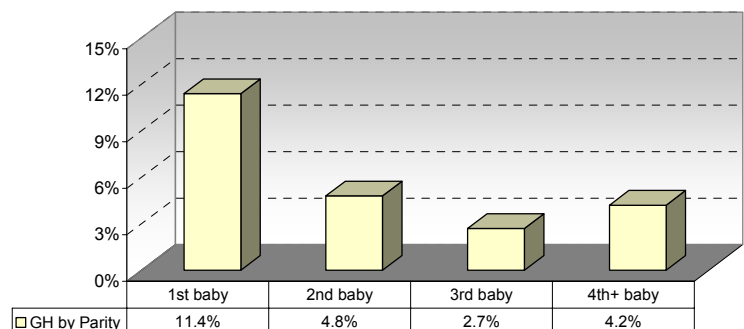
Source: Newfoundland and Labrador Provincial Perinatal Database

Gestational Hypertension by Age in Women Giving Birth in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Gestational Hypertension by Parity in Women Giving Birth in Eastern Avalon, 2001/02 to 2004/05



Folic Acid Supplementation

Women who can become pregnant are advised to take a multivitamin containing 0.4 to 1.0 milligrams of folic acid daily.¹ The promotion of preconception folic acid supplementation and the introduction of food fortification with folic acid in 1998 have resulted in a decrease in the rate of neural tube defects.²

Neural tube defects (NTDs) result from the failure of the neural tube to close 25 to 27 days post conception. Open neural tube defects include anencephaly, spina bifida and encephalocele.³

Approximately 90% to 95% of NTDs occur in families where there is no history of NTDs, resulting in miscarriage, stillbirth, mild to severe disability, or death in early childhood.³ Within Canada, the rate of NTDs varies by region and, historically, Newfoundland and Labrador has had the highest incidence.^{2,4}

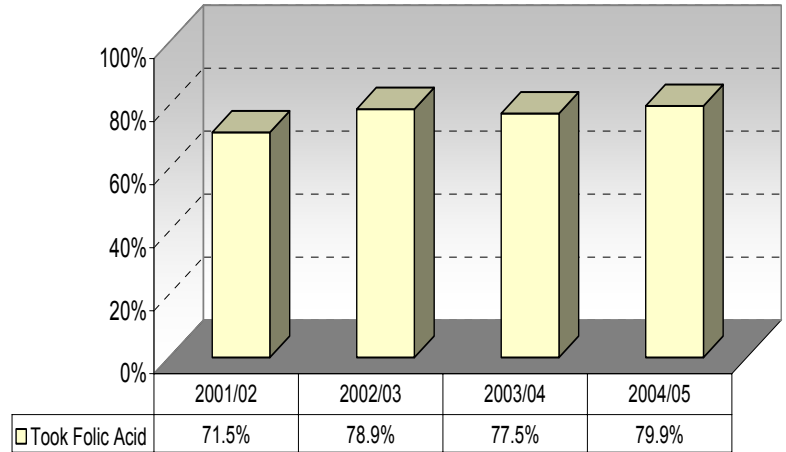
Newfoundland and Labrador

The proportion of women aged 19 to 44 years taking a vitamin supplement containing folic acid increased from 17% in 1997/98 to 28% in 2000/01.²

Eastern Avalon

In the Eastern Avalon, between 2001/02 to 2004/05, 77% of pregnant women reported taking folic acid supplements during pregnancy. However, key information of whether the folic acid was taken before pregnancy is missing from 83% of the prenatal records in the past four fiscal years. Of the data available, 54% of these women initiated taking folic acid after confirmation of pregnancy, when it is largely ineffective. Complete data is essential to determine if this is common practice.

Folic Acid Supplement Use During Pregnancy in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database



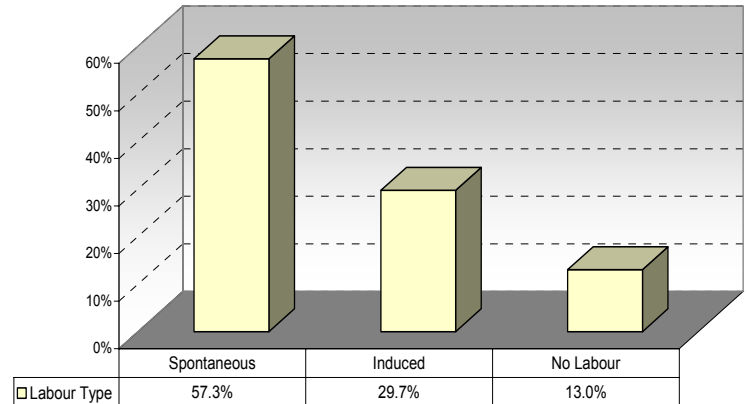
Health Services

Health Services Received* Profile

For 2001/02 to 2004/05 in Eastern Avalon:

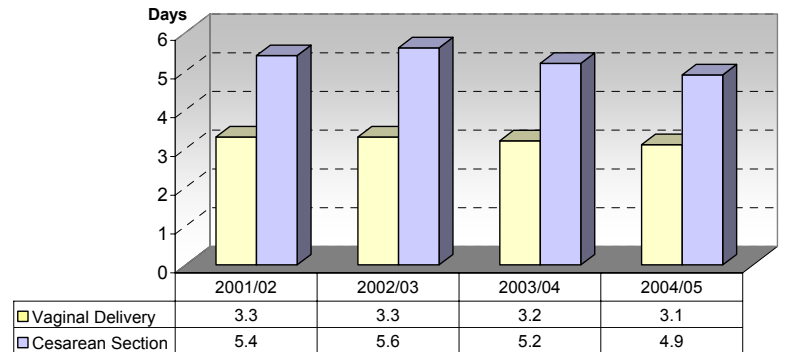
- 57.3% of women giving birth between 2001/02 and 2004/05 began labour spontaneously. The remaining 42.7% of women had their labour induced, or did not labour.
- 87.0% of women who gave birth between 2001/02 and 2004/05 had an obstetrician as their primary caregiver at delivery.
- 12.9% of women had a family practitioner as their primary caregiver.
- 12.7% of births were assisted by the use of forceps, vacuum or both.
- The mean length of stay (LOS) in hospital for all women giving birth was 3.8 days; mean LOS for caesarean births was 5.3 days versus 3.2 days for vaginal births.
- In Canada in 2000/01, the mean LOS in hospital was 4.6 days for caesarean births versus 2.6 for vaginal birth.¹
- The mean LOS in hospital for women giving birth with gestational hypertension was 6.4 days versus 3.5 days for women without gestational hypertension.
- The mean LOS for newborns in hospital ranged from a high of 4.2 days in 2003/04 to a low of 3.7 days in 2004/05.

Labour Type of Women in Eastern Avalon, 2001/02 to 2004/05 combined



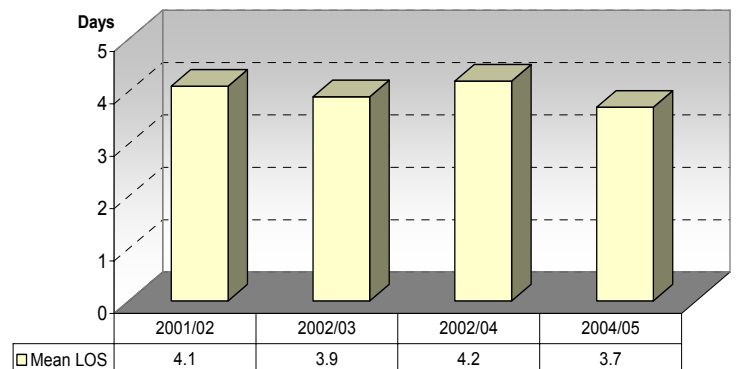
Source: Newfoundland and Labrador Provincial Perinatal Database

Mean Hospital Length of Stay (LOS) by Delivery Type for Women Giving Birth in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Mean Newborn Hospital Length of Stay (LOS) in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

* Not all health services offered within each hospital facility are included in this population based report.

Maternal Serum Screening

Maternal Serum Screening (MSS) is offered to women of all ages during the second trimester of pregnancy. It is a blood test that screens fetuses for an increased risk of open neural tube defects, Down syndrome and Trisomy 18.

Society of Obstetricians and Gynaecologists of Canada (SOGC), recommends that, where feasible, MSS should be available to all women in Canada between 15 to 20 weeks of pregnancy.^{1,2} If at increased risk, a mother may choose to have further definitive testing.³

Canada and Newfoundland and Labrador

In 2000, MSS uptake rates in Canada ranged from highs of 51% in Ontario and 71% in Manitoba to a low of 11% in Alberta.⁴

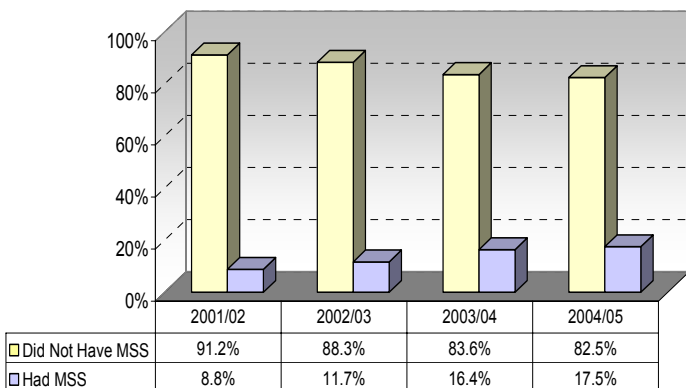
The MSS uptake rate in Newfoundland and Labrador has been relatively low, remaining between 20-22% since the inception of the MSS program in 2002.

Eastern Avalon

Uptake of MSS in the Eastern Avalon was 13.6%.

Data is not available to distinguish how many mothers declined to have MSS, from those mothers who were not offered the test by their physician.

Maternal Serum Screening Uptake in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Fetal Ultrasound

Fetal ultrasound is a common non-invasive diagnostic procedure that may be used to determine the size, age and health status of the baby.^{1,2} An ultrasound can also detect multiple births (e.g. twins or triplets) as well as diagnose some birth defects.^{2,3}

SOGC recommends that a single screening ultrasound should be performed in all pregnancies between 16 to 20 weeks.¹

Canada and Newfoundland & Labrador

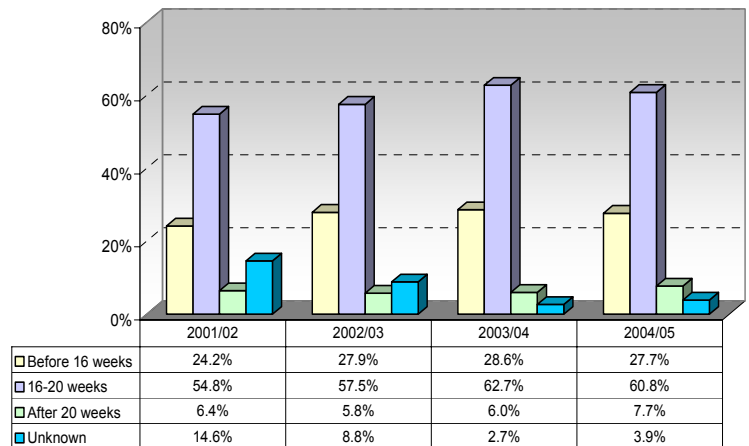
Statistics on ultrasound use nationally and provincially is not available for comparison.

Eastern Avalon

The proportion of women having an ultrasound anytime during their pregnancy over the past four fiscal years has increased from 92.2% in 2001/02 to 97.5% in 2004/05.

The proportion of ultrasounds performed during the recommended 16-20 week period ranged from 54.8% in 2001/02 to over 60% from 2003/04 onward (an average of 59%). Approximately 27% of all ultrasounds were performed before 16 weeks gestation.

Ultrasound Uptake Among Women Giving Birth in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Labour Induction

Labour induction is a method of artificially initiating labour and is a common obstetrical procedure.¹ It has been linked with the reduced risk of stillbirth and perinatal death.^{2,3}

A post-term pregnancy is one that exceeds 42 weeks gestation and is one of the most common reasons to induce labour when the pregnancy reaches 41^{0/7} weeks.^{2,4} Other indications include: premature rupture of membranes (PROM)^{*}, intrauterine growth restriction (IUGR), maternal pre-pregnancy or gestational diabetes, abruption, low volume of amniotic fluid and fetal death.^{1,2} Also, an elective induction is sometimes performed for psychosocial or geographic reasons.²

The World Health Organization recommends that induction of labour be reserved for specific medical indications and no region should have rates higher than 10%.⁵ The Society of Obstetricians and Gynaecologists of Canada states that induction should only be considered when the benefits of vaginal delivery outweigh the potential risks of induction.² Induction is linked to an increased risk of delivery of a pre-term infant, caesarean delivery, excessive uterine activity, prolonged labour, increased need for pain management, uterine rupture, abnormal fetal heart rate patterns, increased rate of operative vaginal delivery and postpartum haemorrhage.^{1,2,5,6,7}

The use of induction is generally higher among women who are Caucasian, having their first child, are obese and gained excessive weight during pregnancy.^{1,8}

Canada and Newfoundland and Labrador

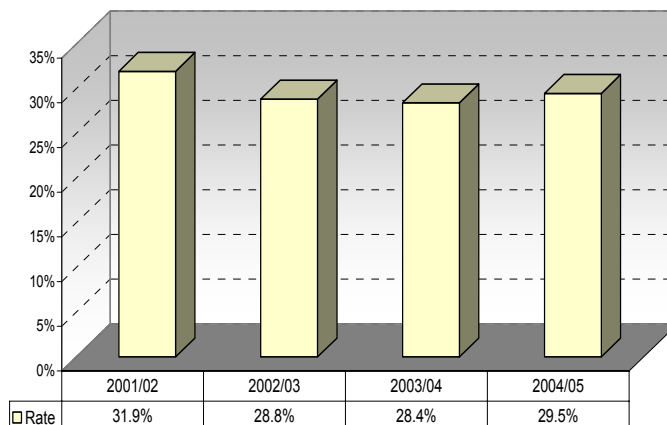
In 2000/01, 22.0% of all women giving birth in Canada were induced; up from 16.5% in 1991/92.⁹ During the same period, the rate of induction in Newfoundland and Labrador was 30.4%.⁹

* PROM is rupture of membranes prior to onset of labour and does not imply preterm birth.

Eastern Avalon

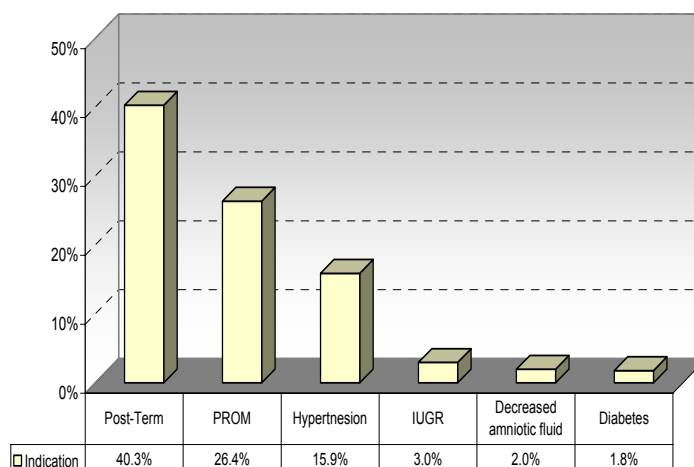
In the Eastern Avalon, 29.7% of all women giving birth between 2001/02 and 2004/05 were induced. The most common indication for induction was management of post-term pregnancy.

Labour Induction Rate for Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Common Indications for Labour Induction in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

It is important to note that there is ambiguity in the ICD 10 classification** of surgical/medical induction and augmentation of labour, which may influence the validity of current induction rates.

** International Statistical Classification of Diseases and Related Health Problems, 10th Revision

Pain Management: Epidural Use

The use of pain management strategies during labour is becoming increasingly widespread. The most common and effective medicated pain intervention is epidural analgesia.¹

Epidural analgesia in labour has been implicated in a number of pregnancy outcomes. There has been considerable debate on its relationship with caesarean section—with some research pointing to a positive association and others refuting a relationship at all.^{2,3} Epidural use has been linked to an increase in the length of labour, more frequent oxytocin augmentation, maternal fever and hypotension.⁴

Several factors influence the use of epidurals in labour, such as physician preference and the availability of staff and resources to facilitate epidural use. In addition, epidural use is more common among Caucasians, women with higher maternal age and women having their first baby.¹

Canada and Newfoundland and Labrador

In 2001-2002, 45.7% of women who had vaginal births in Canada had epidural analgesia. The frequency of epidural use varies with Nunavut reporting the lowest percentage of use at 4.5% and Quebec reporting the highest use at 60.3%. In the same time period, 34.6% of women who had vaginal births in Newfoundland and Labrador had epidural analgesia.¹

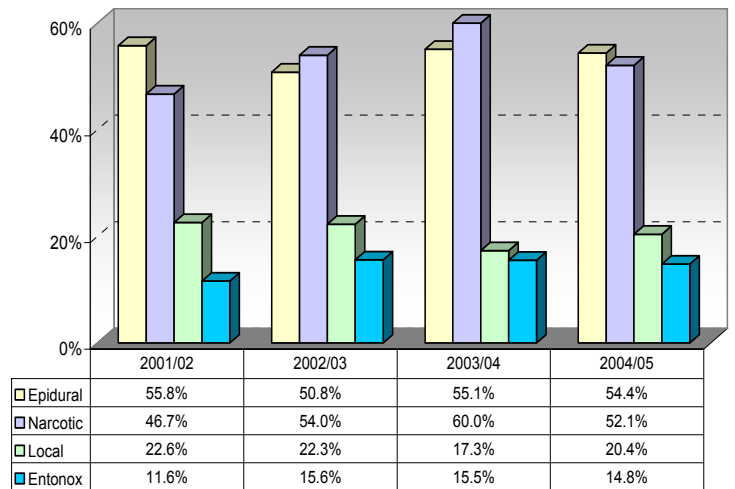
It is important to note that these national and provincial rates apply only to women who delivered vaginally and does not include those who laboured and gave birth by caesarean.

Eastern Avalon

For the past four fiscal years, the epidural rate among women who had a vaginal birth was 48.8%. However, for all women who laboured in the Eastern Avalon, irregardless of whether they gave birth vaginally or by caesarean section, the rate of epidural analgesia was 54.0%.

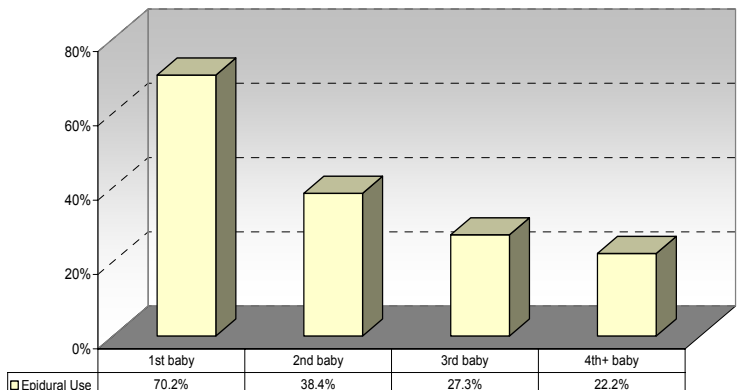
Of those women who received epidural analgesia during labour, 70.2% were first time mothers.

Most Common Forms of Pain Management in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Parity of Mothers Having Epidurals who Laboured in Eastern Avalon, 2001/02 to 2004/05 combined



Source: Newfoundland and Labrador Provincial Perinatal Database

Caesarean Birth

Today, caesarean birth is a common operative procedure. Escalation of caesarean rates has triggered debate concerning its overuse. The World Health Organization recommends a rate of 10% to 15% of all births.¹

Absolute indications for caesarean delivery are such complications as major placental abruption and cephalopelvic disproportion.² The majority of caesareans are performed for non-reassuring fetal heart rate patterns, abnormal fetal presentation, failure of labour to progress, or repeat caesarean section.^{3,4}

Caesarean birth is associated with increased risk for such operative and post-operative complications as hemorrhage and infection, and longer maternal hospital stay and recovery time.^{5,6} In addition, delivery by caesarean increases the newborn's risk of respiratory distress and accidental lacerations.^{5,6}

Research has identified several risk factors for caesarean delivery: older maternal age, induction of labour, gestational age beyond 40 weeks, extremes of neonatal birth weight (< 2500 grams and ≥ 4000 grams), maternal pre-pregnancy weight and maternal height.^{4,7,8,9}

A strategy employed to lower the caesarean rate is the encouragement of women who have had a previous caesarean birth, to attempt a vaginal birth (or VBAC).⁴

Canada and Newfoundland and Labrador

The caesarean section rates in Canada have been steadily rising. In 2001/02, the rate was 22.5%.⁹

During this same time period, Newfoundland and Labrador had an overall caesarean rate of 26.6%, which was higher than the Canadian average.

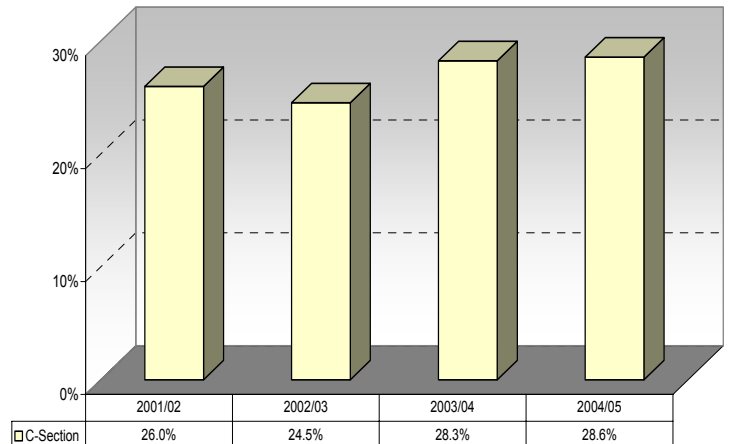
In 2001/02 Canada's successful VBAC rate was 26.7%, down from 35.0% in 1997/98.⁹ Since 2001/02, the successful VBAC rate in the Eastern Avalon has decreased from 11.5% to 8.2% in 2004/05.

Eastern Avalon

Between 2001/02 and 2004/05, approximately one in four women (26.9%) gave birth via caesarean. Of note, is the increase in the proportion of women having a caesarean in 2003/04 and 2004/05, to over 28%.

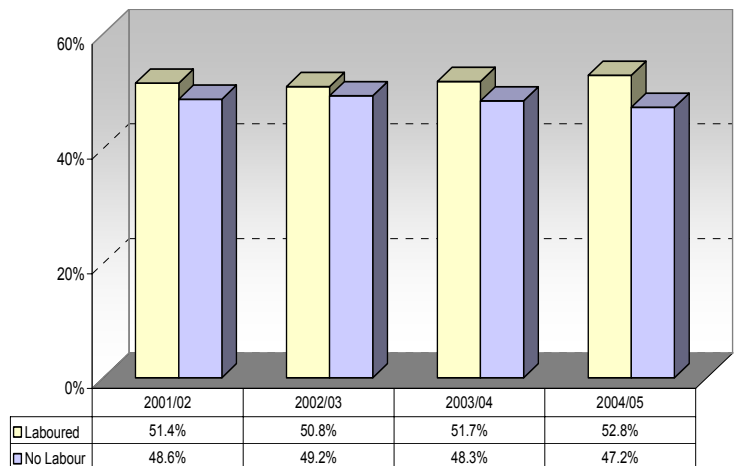
Of those women who delivered by caesarean, 48.3% did not labour, indicating a large number of pre-booked (elective) or emergency caesarean sections.

Caesarean Section Rate in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Caesarean Section Rate Based on Labour Status in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database



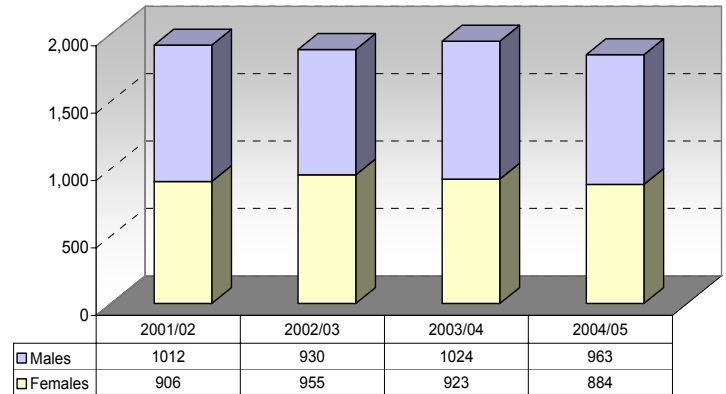
Fetal and Infant Health

Fetal and Infant Profile

For 2001/02 to 2004/05 in Eastern Avalon:

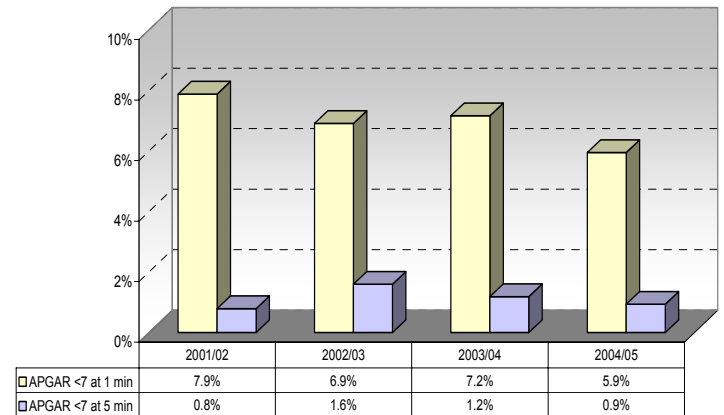
- The proportion of babies born at; term was 74%, pre-term was 7.8% and post-term was 18.2%.
- The majority (78.4%) of babies born had an average birth weight between 2500-3999 grams (5 lbs 8 oz – 8 lbs 13 oz).
- The mean birth weight was 3448 grams (7 lbs 8 oz).
- 6.0% of newborns were of a low birth weight less than 2500 grams (5 lbs 8 oz at birth).
- In 2001, the low birth rate (<2500 grams) in Canada was 5.5%.¹
- In Newfoundland and Labrador the rate was slightly less than the national average at 5.4%.¹
- Approximately 75% of low birth weight newborns were born before 37^{0/7} weeks gestation (preterm).
- Slightly more males than females were born each year except in 2002/03
- Approximately 93% of newborns had healthy APGAR scores within the first minute of life, indicating a healthy initial transition to extrauterine life.
- The majority of newborns with APGAR less than 7 one minute after birth had an improved APGAR at five minutes.
- The number of stillbirths per year declined from 13 in 2001/02 to 8 in the three years following.
- 15.6% of newborns were of high birth weight, 4000 grams (8 lbs 13 oz) or greater.

Number of Male and Female Live Births in Eastern Avalon, 2001/02 to 2004/05



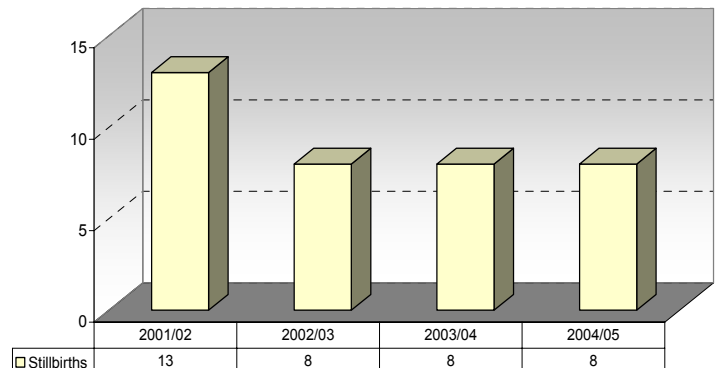
Source: Newfoundland and Labrador Provincial Perinatal Database

APGAR Scores of Babies Born in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Number of Stillbirths in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Preterm Birth

Preterm birth is birth occurring before 37^{0/7} weeks gestation.

Preterm birth accounts for 75% to 85% of perinatal mortality in Canada and is associated with a higher risk of neurodevelopmental disabilities (such as cerebral palsy), chronic respiratory problems, infections and vision problems.¹ Although birth before 37 weeks puts infants at increased risk of death during infancy, births before 32 weeks gestation account for nearly 50% of neurological morbidity and about 60% of perinatal deaths.^{2,3}

Known risk factors for preterm birth are: single marital status, younger or older maternal age, previous preterm delivery, smoking, low pre-pregnancy weight, low or high pregnancy weight gain, multiple pregnancy, infection and stress.^{2,4}

Canada

The rate of preterm birth, has been increasing over the last decade in Canada, with an increase to 7.6% in 2000 from 6.6% in 1991.²

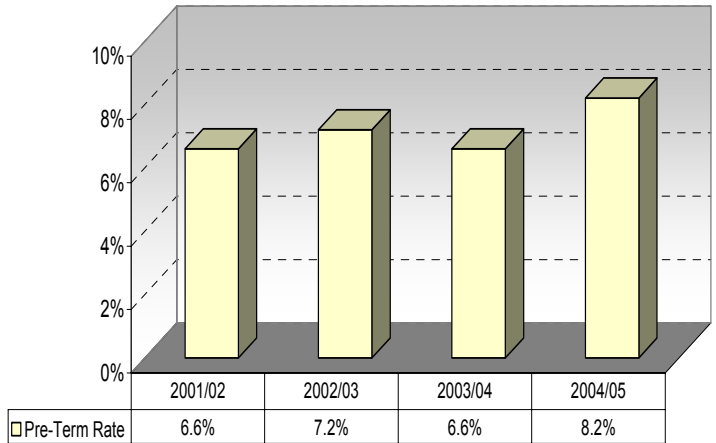
Newfoundland and Labrador

The provincial preterm birth rate has both exceeded the national average and demonstrated an upward trend. The rate increased to 8.0% in 2000 compared to 7.4% in 1997.^{2,5}

Eastern Avalon

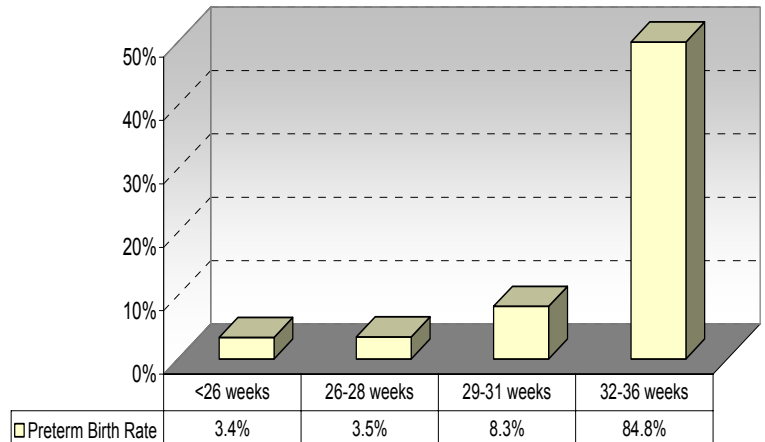
The rate of preterm birth has slightly increased from 7.2% in 2001/02 to 8.6% in 2004/05. Furthermore, an increase in extremely preterm births (<26 weeks) was observed between 2001/02 and subsequent years.

Preterm Birth Rate in Eastern Avalon, 2001/02 to 2004/05



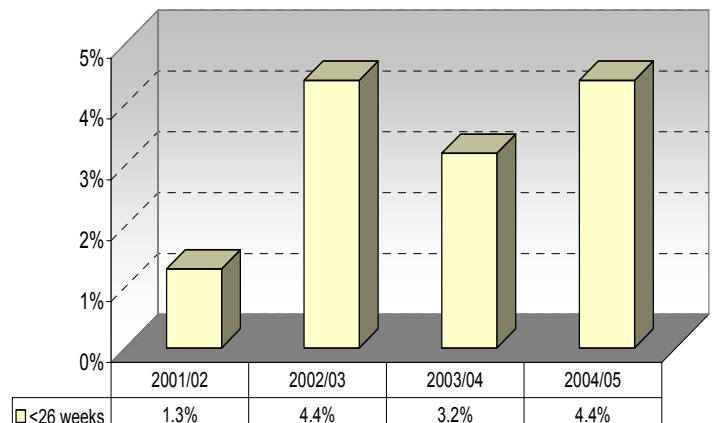
Source: Newfoundland and Labrador Provincial Perinatal Database

Preterm Birth Rate by Age in Eastern Avalon, 2001/02 to 2004/05 combined



Source: Newfoundland and Labrador Provincial Perinatal Database

Extremely Preterm Birth Trends in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Macrosomia (High Birth Weight)

Macrosomia, or high birth weight, refers to weight at delivery of 4000 grams (8 lbs, 13 oz) or greater.

Macrosomic babies are at increased risk for a number of birth complications, such as fractures of the humerus or clavicle, damage to facial or brachial plexus nerves and the most serious risk, shoulder dystocia.^{1,2} Mothers of macrosomic babies are at an increased risk for caesarean section, or vaginal birth with birth trauma.¹⁻³ The risks associated with high birth weight increase even more with babies born weighing 4500 grams (9 lbs, 14 oz) or greater.

Risk factors for macrosomia are: maternal diabetes, history of macrosomia, high maternal pre-pregnancy weight, excessive gestational weight gain, multiparity, male fetus, gestational age more than 40 weeks, maternal birth weight, maternal height and maternal age less than 17 years.¹⁻³ The strongest risk factor for macrosomia is pre-pregnancy or gestational diabetes, which increases the risk of macrosomia two-fold.²

Efforts to prevent macrosomia have focused on optimal blood glucose management of diabetic mothers, as well as healthy pre-pregnancy weight and gestational weight gain.²

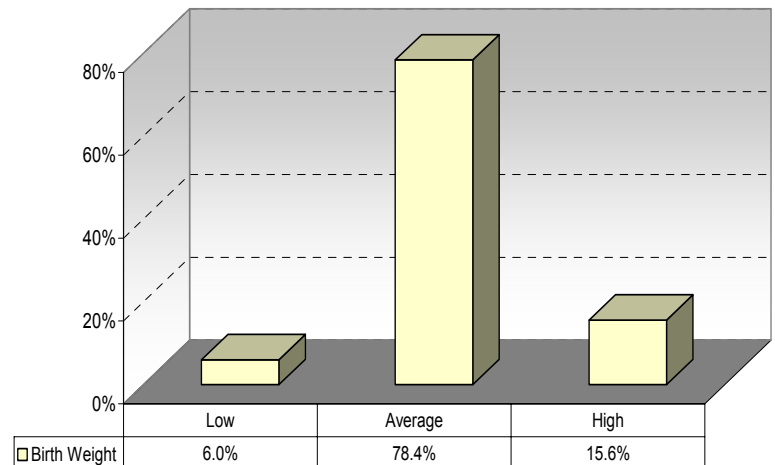
Canada and Newfoundland & Labrador

In Canada, the rate of macrosomic babies has been increasing over the last nine years. In 2000, the rate was 12.0%, as compared to 9.5% in 1991. In 2000, the province's rate of macrosomia was 15.4%, which exceeded the national rate.⁴

Eastern Region

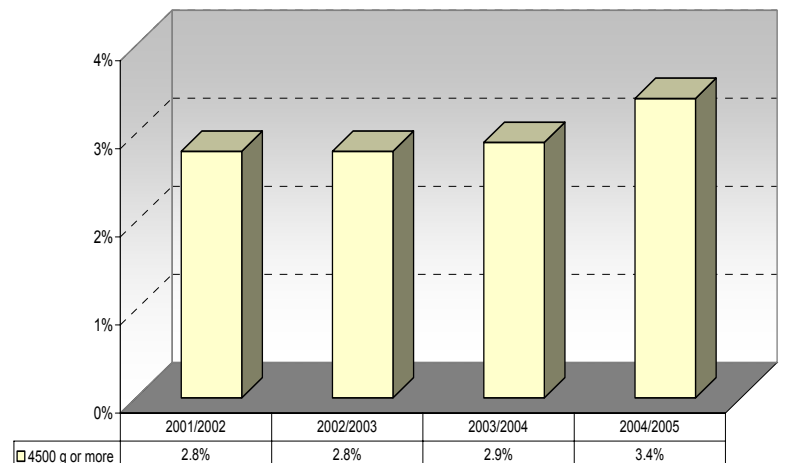
For the years 2001/02 to 2004/05 the macrosomia rate in the Eastern Avalon was 15.6%. Of note, is the increase in the proportion of newborns weighing 4500 grams or more at birth. The rate has increased from 2.8% in 2001/02 and 2002/03 to 3.4% in 2004/05. Medical literature cites the incidence of newborns weighing 4500 grams or greater at 1.5%.⁵

Birth Weight of Babies Born in Eastern Avalon, 2001/02 to 2004/05 combined



Source: Newfoundland and Labrador Provincial Perinatal Database

High Birth Weight Births (≥ 4500 grams) in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

Breastfeeding

Breastfeeding provides optimal food for infants, as well as positive health benefits for mothers and babies.^{1,2}

Health Canada and the World Health Organization recommend exclusive breastfeeding for the first six months of life for healthy term infants. Breast milk should then be complemented with nutrient-rich, solid foods for up to two years or more.^{1,3}

The immunological properties of breast milk are unique, protecting the infant against respiratory and gastrointestinal infectious disease.^{2,3} Improved cognitive and sensory development have also been linked to breast milk, particularly in preterm and low birth weight babies.^{3,4} In addition, breastfeeding may protect against other conditions such as SIDS, diabetes, lymphoma and allergic disease, and may help prevent childhood and adolescent obesity.^{4,5}

In the mother, breastfeeding reduces the incidence of postpartum bleeding, aids in weight loss, improves postpartum bone remineralization, increases the space between pregnancies and reduces the risk of ovarian and breast cancer.^{1,3}

A woman's decision to breastfeed is influenced by her knowledge, attitudes and beliefs about breastfeeding, as well as those of her partner, family and health care provider.⁶

Mothers, who are young, have low income or low education, are at highest risk of choosing not to breastfeed.

Canada

Breastfeeding rates in Canada have been steadily increasing since the 1960's when breastfeeding initiation was only 38%.⁷ In 2003, 84.5% of mothers in Canada initiated breastfeeding.⁸

Within Canada, breastfeeding initiation rates increase from east to west.⁶ In 2003, Newfoundland and Labrador had the lowest rate (62.7%) and British Columbia had the

highest rate (93.3%).⁸ During this time, only 18.7% of mothers in Canada and 11.1% of mothers in Newfoundland and Labrador had breastfed exclusively for at least six months.⁸

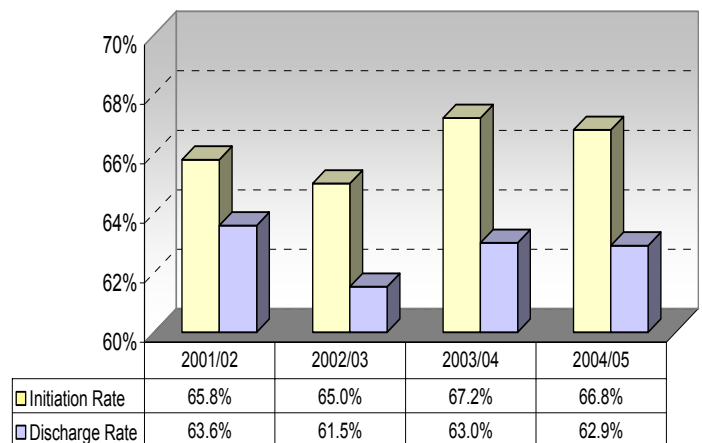
Eastern Avalon

The breastfeeding initiation rate* in the Eastern Avalon for the last four fiscal years was 66.2%.

The proportion of babies being breastfed at the time of hospital discharge was lower than the initiation rate, for the last four fiscal years at 62.8%. Approximately 3% of mothers who initiated breastfeeding discontinued before they left hospital.

Currently, data is not available on the duration of exclusive breastfeeding in the Eastern Avalon.

Babies Breastfed Rates in Eastern Avalon, 2001/02 to 2004/05



Source: Newfoundland and Labrador Provincial Perinatal Database

* Rates of breastfeeding initiation are obtained by the Provincial Perinatal Program from the provincial neonatal screening program.

Conclusion

This surveillance report summarizes perinatal health indicators in the Eastern Avalon portion of the province. It demonstrates the unique system that captures health information from the prenatal to the postnatal/neonatal periods of life. The Provincial Perinatal Program hopes this report will provide an opportunity for all stakeholders such as care providers, decision/policy makers, researchers and the general public to further understand the perinatal health issues affecting this region. This report is available on our website at www.nlppp.ca. Additional reports will be released in the near future. Your feedback is welcomed.



Highlights*

Maternal Health and Behaviour

- 51.1% of women giving birth were 30 years of age and older.
- Approximately 51% of women who gave birth had their first baby, 37% their second baby and 12% had their third or more.
- 16.9% of women smoked during pregnancy while the proportion of non-smoking mothers who were exposed to ETS steadily decreased over the past four fiscal years, from 15.7% in 2001/02 to 8.0% in 2004/05.
- 2.1% of women reported alcohol consumption during pregnancy in the last four fiscal years.
- Almost half of pregnant women (49.1%) had a pre-pregnancy BMI of 25.0 or greater; 26.5% of pregnant women were overweight and 22.6% were obese. It is important to note that the pre-pregnancy BMI could not be calculated for over 50% of women due to incomplete documentation of height and/or weight.
- 18.4% of women gained insufficient weight during their pregnancy, while 46.2% of women exceeded recommended pregnancy weight gain. The incidence of excessive weight gain was highest among obese women (53.8%).
- 3.8% of pregnant women developed gestational diabetes while the proportion of pregnant women with pre-existing diabetes was 0.8%.
- Both the incidence of pre-existing and gestational hypertension has increased. Pre-existing hypertension increased from 0.7% in 2001/02 to 1.2% in 2002/03 and remained elevated for the next two fiscal years. Gestational hypertension increased from 5.4% in 2001/02 to 10.5% and 8.9% in the last two fiscal years.
- 77% of pregnant women reported taking folic acid supplements. However, key information of whether the folic acid was taken before pregnancy was missing from 83% of the prenatal records. Of the data available, 54% of women initiated taking folic acid after confirmation of pregnancy, when it is largely ineffective in the prevention of neural tube defects.

Health Services

- Approximately 87% of women who gave birth had an obstetrician as their primary care provider.
- The mean length of stay for all women in hospital who gave birth was 3.8 days. The mean length of stay for caesarean births was 5.3 days versus 3.2 days for vaginal births.

* Unless specified the rates refer to women or infants who resided within the Eastern Avalon during fiscal years 2001/02 to 2004/05

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- Maternal Serum Screening uptake was 13.6%.
- 96% of pregnant women had an ultrasound at some point in their pregnancy, while 59% had an ultrasound in the recommended 16 to 20 week range.
- The induction rate for the past four fiscal years was 29.7%. The most common indications for labour induction were post-term pregnancy (40.3%), rupture of membranes before the onset of labour (26.4%) and hypertension (15.9%).
- 48.8% of women who gave birth vaginally received epidural analgesia. The epidural rate for all women who laboured, irregardless of whether they gave birth by caesarean or vaginally, was 54.0%. Of these women, 70.2% were first time mothers.
- For the last four fiscal years, the caesarean section rate was 26.8% with a notable increase in the proportion of women having a caesarean in 2003/04 and 2004/05 to over 28%. Also, of those women who delivered by caesarean since 2001/02, only 51.7% laboured, indicating 48.3% of all caesarean births were either pre-booked (elective) or emergency caesarean births without labour.

Fetal and Infant Health

- 78.4% of newborns were of a healthy birth weight between 2500-3999 grams (5 lbs 8 oz to 8 lbs 13 oz) with an average weight of 3448 grams (7 lbs 8 oz). Notably, 15.6% of newborns were of a high birth weight (≥ 4000 grams).
- The rate of low birth weight babies less than 2500 grams was 6.0%. Approximately 75% of low birth weight newborns were born preterm (before 37^{0/7} weeks gestation).
- The majority of newborns (93%) had healthy APGAR scores (≥ 7) within the first minute following birth, signifying a healthy initial transition to extra-uterine life.
- The preterm birth rate increased from 7.2% in 2001/02 to 8.6% in 2004/05. Also of note, was the increase in the rate of extremely preterm infants (< 26 weeks gestation) from 1.3% in 2001/02 to an average of 4.0% over the last three fiscal years.
- The macrosomia rate (4000 grams or greater) was 15.6%. Of note, was the increase in the proportion of newborns weighing 4500 grams or more to 3.4% in 2004/05 from 2.8% in 2002/03.
- The breastfeeding initiation rate was 66.2%, while the breastfeeding rate at time of hospital discharge was 62.8%. Approximately 3% of mothers, who initiated breastfeeding, discontinued before they left hospital. No data was available on the duration of exclusive breastfeeding.

Technical Notes

Data Time Period:

- April 01, 2001 to March 31, 2005.

Provincial Perinatal Surveillance Program:

- The Provincial Perinatal Surveillance Program is included within the mandate of the Newfoundland and Labrador Provincial Perinatal Program.
- The database of the Provincial Perinatal Surveillance Program contains variables pertaining to maternal demographics, maternal behaviours, medical interventions, and maternal and newborn diagnoses.
- Data elements of interest were imported into Microsoft Excel and Statistical Package for Social Sciences (SPSS) for analysis.
- Several indicators presented in this report were generated from ICD-10-CA and the Canadian Classification of Health Interventions (CCHI) systems of coding diagnoses and procedures.
- A number of indicators are based on self-reported data (e.g. smoking, ETS and alcohol use). Caution should be taken when considering this type of data; it may be subject to over- or underreporting.
- Some indicators (e.g. pre-pregnancy weight, gestational weight gain and time of folic acid supplementation initiation) are poorly captured due to poor documentation on patient prenatal records. In some cases, very large amounts of data are missing, limiting conclusions that may be drawn.
- Routine data quality assurance checks are undertaken by the Provincial Perinatal Program, Eastern Health, the Newfoundland and Labrador Centre for Health Information (NLCHI) and the Canadian Institute for Health Information (CIHI).
- Not all data obtained from the Provincial Perinatal Surveillance Program database were presented in graph form. There may be situations where the data were presented in text only.

Calculations:

- Body Mass Index (BMI) was calculated by dividing weight (kg) by height (m²).
- The VBAC rate refers to the number of women delivering by VBAC, divided by the total number of women bearing children after previous caesarean delivery times 100.

Statistical Significance:

- As the data from the Eastern Avalon represents an entire population, statistical tests and comparisons to national and provincial rates were not explored. The use of adjectives, such as greater or lower, were used to describe rates.

Glossary

Acceptable pre-pregnancy weight: a BMI 20 to 27, according to Health Canada guidelines.

Acceptable weight: according to international standards, a Body Mass Index (BMI) of 18.50 to 24.99.

Anencephaly: A neural tube defect involving severe structural defects of the brain and skull. Fetuses with anencephaly do not survive.

Amniocentesis: a diagnostic procedure performed by inserting a hollow needle through the abdominal wall into the uterus and withdrawing a small amount of fluid from the sac surrounding the fetus.

APGAR score: a score rating a newborn's colour, pulse, responsiveness, muscle activity and breathing. It is calculated at 1 minute and 5 minutes after birth. Ten is a perfect score; scores between 7 and 10 usually indicate the newborn is doing well.

Body Mass Index (BMI): relates weight to height and is the most common method of determining if an individual's weight is within a healthy range.

Breastfeeding discharge rate: the proportion of newborns who are being breastfed at time of discharge from hospital.

Breastfeeding initiation: the time at which the newborn first receives breast milk.

Caesarean section: a surgical method of delivery where an incision is made through the abdomen and uterus.

Congenital anomaly: an abnormality that is present at birth; also known as a birth defect. The abnormality may be structural, functional or metabolic in nature.

Diabetes mellitus: a condition where the body cannot metabolize carbohydrates, resulting in abnormally high blood glucose levels (see also **Pre-pregnancy diabetes** and **Gestational diabetes**).

Down syndrome: a condition where a person has three copies of chromosome 21 instead of two; also known as Trisomy 21. It is the most common chromosomal cause of intellectual disability.

Elective Induction: labour induction performed in the absence of any medical indications.

Encephalocele: protrusion of brain tissue through a congenital fissure in the skull.

Environmental Tobacco Smoke (ETS): includes the smoke that comes from the burning of a tobacco product and the smoke that is exhaled by smokers; also known as second-hand smoke or passive smoking. ETS is made up of the same harmful toxins that smokers inhale.

Epidural analgesia: the injection of a local anesthetic into the epidural space of the lumbar or sacral region of the spine, inducing regional anesthesia from the abdomen or pelvis downward.

Exclusive breastfeeding: the practice of feeding an infant only breast milk (including expressed breast milk).

Extremely low birth weight: a weight at birth of less than 1000 grams.

Extremely preterm birth: a birth at less than 29^{0/7} weeks of gestation.

Fetal Alcohol Spectrum Disorder (FASD): an umbrella term that describes a range of disabilities that may affect individuals whose mothers drank alcohol during pregnancy.

Fetal Alcohol Syndrome (FAS): a condition defined by the presence of facial abnormalities, impaired prenatal and/or postnatal growth and central nervous system or neurobehavioural disorders. It is the most visible presentation of FASD.

Folic Acid: one of the B vitamins especially important for a woman to take before conception to help prevent neural tube defects in a fetus.

Gestational diabetes mellitus (GDM): involves the presence of diabetes with onset or recognition during pregnancy. This condition generally does not persist after delivery (see also **Diabetes mellitus**).

Gestational hypertension: high blood pressure that develops after 20 weeks gestation. This condition generally does not persist beyond 42 days postpartum.

Gestational weight gain: the amount of weight gained during pregnancy.

High birth weight: a weight at birth 4000 grams or greater; also known as large for gestational age or macrosomia.

High pre-pregnancy weight: a BMI more than 27 prior to pregnancy, according to Health Canada guidelines.

Hypertension: a condition where blood pressure is above the normal range (see also **Pre-existing hypertension** and **Gestational hypertension**).

Induction: a method of artificially initiating labour through the use of drugs or surgery.

Intrauterine growth restriction (IUGR): describes the slowed growth of the fetus during pregnancy. A fetus is said to have IUGR if its weight is below the 10th percentile for gestational age.

Large for gestational age: See **High birth weight**.

Low birth weight: a weight at birth of less than 2500 grams.

Low pre-pregnancy weight: a BMI less than 20.00 prior to pregnancy, according to Health Canada guidelines.

Macrosomia: See **High birth weight**.

Maternal Serum Screening: a non-invasive blood test that provides a risk estimate of a fetus having Down's syndrome, Trisomy 18 or a neural tube defect. It is offered to women in their second trimester of pregnancy.

Neonatal: Pertaining to the first four weeks after birth.

Neural tube defects: congenital defects of the central nervous system caused by improper development during embryogenesis. Neural tube defects include anencephaly, spina bifida and encephalocele.

Normal birth weight: a weight at birth of between 2500 and 4000 grams.

Overweight: a BMI of 25.00 to 29.99, according to International standards.

Parity: the number of pregnancies that have progressed beyond the stage of abortion.

Perinatal: the period before, during and one month after birth.

Placenta previa: a condition where the placenta partially or completely covers the cervix because of its low position in the uterus. During labour the placenta may separate from the uterine wall.

Placental abruption: premature detachment of the placenta from the wall of the uterus causing bleeding.

Post term birth: a birth at 42^{0/7} or more weeks of gestation (World Health Organization). For purposes of this report gestation greater than 41 completed weeks has been used in the analysis of post term to comply with SOGC recommendations for induction of labour.

Post term pregnancy: a pregnancy that reaches at least 42 weeks of gestation (World Health Organization). For purposes of this report gestation greater than 41 completed weeks has been used in the analysis of post term to comply with SOGC recommendations for induction of labour.

Pre-existing diabetes: the presence of diabetes prior to pregnancy. It persists after delivery and may be classified as either Type I (insulin dependent) or Type II (non-insulin dependent).

Pre-existing hypertension: the presence of high blood pressure that predates pregnancy or is diagnosed prior to 20 weeks gestation; also known as chronic hypertension. This condition does not resolve after delivery.

Prenatal: the period between conception and birth in which a baby is developing; also known as antenatal.

Preterm birth: a birth before 37^{0/7} weeks of gestation.

Spina Bifida: a congenital defect in which the spinal column is imperfectly closed so that part of the meninges or spinal cord protrudes, often resulting in hydrocephalus and other neurological disorders.

Sudden Infant Death Syndrome (SIDS): the sudden and unexplained death of an infant under one year of age; also known as crib death. It is the most common cause of death in the postnatal period.

Term Birth: a birth between 37^{0/7} and 41^{6/7} weeks of gestation.

Trisomy 18: a condition where a person has three copies of chromosome 18 instead of two; also known as Edwards' syndrome.

Underweight: a BMI of less than 18.50, according to International standards.

Very low birth weight: a weight at birth of less than 1500 grams.

Very preterm birth: a birth before 32^{0/7} weeks of gestation.

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Appendix - Data Summary Tables

| MATERNAL HEALTH AND BEHAVIOUR | | | | | |
|--------------------------------------|----------------|----------------|----------------|----------------|----------------|
| | 2001/02 | 2002/03 | 2003/04 | 2004/05 | Average |
| Age of Mother | | | | | |
| <20 years | 4.6% | 4.2% | 3.8% | 3.6% | 4.0% |
| 20-24 years | 15.1% | 15.8% | 15.1% | 14.5% | 15.1% |
| 25-29 years | 30.0% | 28.9% | 30.2% | 29.9% | 29.8% |
| 30-34 years | 35.3% | 34.1% | 34.7% | 35.8% | 35.0% |
| 35-39 years | 12.9% | 15.3% | 14.0% | 13.5% | 13.9% |
| 40+ years | 2.2% | 1.7% | 2.1% | 2.7% | 2.2% |
| Total | 1,886 | 1,859 | 1,911 | 1,830 | 1,872 |
| Parity of Women | | | | | |
| 1st baby | 49.5% | 50.6% | 52.1% | 49.9% | 50.5% |
| 2nd baby | 39.4% | 36.8% | 35.3% | 37.8% | 37.3% |
| 3rd baby | 8.4% | 10.1% | 9.4% | 9.3% | 9.3% |
| 4th+ baby | 2.8% | 2.6% | 3.2% | 3.0% | 2.9% |
| Prenatal Cass Attendance | 27.1% | 38.4% | 39.8% | 33.5% | 34.7% |
| Smoked During Pregnancy | 17.2% | 18.2% | 14.9% | 17.1% | 16.9% |
| Smoking By Age | | | | | |
| <20 years | 12.3% | 9.8% | 10.6% | 7.7% | 10.1% |
| 20-24 years | 29.5% | 30.4% | 26.2% | 29.3% | 28.9% |
| 25-29 years | 30.1% | 28.6% | 29.1% | 33.1% | 30.2% |
| 30-34 years | 18.1% | 20.5% | 20.2% | 16.7% | 18.9% |
| 35-39 years | 7.2% | 9.8% | 11.7% | 11.3% | 10.0% |
| 40+ years | 2.7% | 0.9% | 2.1% | 1.9% | 1.9% |
| Exposed to ETS | 15.7% | 14.0% | 8.8% | 8.0% | 11.6% |
| Alcohol Use | 2.1% | 1.9% | 2.9% | 1.7% | 2.2% |
| Pre-Pregnancy BMI | | | | | |
| Underweight | 3.7% | 2.8% | 3.5% | 2.5% | 3.1% |
| Acceptable Weight | 51.5% | 47.4% | 43.7% | 48.1% | 47.7% |
| Overweight | 25.4% | 28.0% | 27.7% | 25.2% | 26.6% |
| Obese | 19.4% | 21.7% | 25.2% | 24.2% | 22.6% |
| Diabetes Mellitus | | | | | |
| Pre-Pregnancy | 0.7% | 0.5% | 1.1% | 0.8% | 0.8% |
| Gestational | 4.0% | 3.9% | 3.7% | 3.5% | 3.8% |
| Hypertension | | | | | |
| Pre-Pregnancy | 0.7% | 1.2% | 1.3% | 1.1% | 1.1% |
| Gestational | 5.4% | 6.9% | 10.5% | 8.9% | 7.9% |
| Gestational Hypertension | | | | | |
| 1st baby | 8.0% | 11.0% | 14.8% | 11.7% | 11.4% |
| 2nd baby | 3.1% | 3.4% | 5.5% | 7.2% | 4.8% |
| 3rd baby | 1.9% | 1.1% | 6.1% | 1.8% | 2.7% |
| 4th+ baby | 1.9% | 2.1% | 8.1% | 3.7% | 4.0% |
| Folic Acid Supplementation | 71.5% | 78.9% | 77.5% | 79.9% | 77.0% |

Appendix - Data Summary Tables

| HEALTH SERVICES | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|
| | 2001/02 | 2002/03 | 2003/04 | 2004/05 | Average |
| Labour Type | | | | | |
| Spontaneous | 55.3% | 59.1% | 57.9% | 57.0% | 57.3% |
| Induced | 31.9% | 28.8% | 28.4% | 29.5% | 29.7% |
| No Labour | 12.7% | 12.1% | 13.7% | 13.5% | 13.0% |
| Mean Hospital Length of Stay (LOS) | | | | | |
| Vaginal Delivery | 3.2 days | 3.3 days | 3.2 days | 3.1 days | 3.2 days |
| Caesarean Section | 5.4 days | 5.6 days | 5.2 days | 4.9 days | 5.3 days |
| Gestational Hypertension | 7.2 days | 6.9 days | 6.2 days | 5.6 days | 6.5 days |
| No Gestational Hypertension | 3.7 days | 3.6 days | 3.5 days | 3.4 days | 3.6 days |
| Newborns | 4.1 days | 3.9 days | 4.2 days | 3.7 days | 4.0 days |
| Maternal Serum Screening | | | | | |
| Screening | 8.8% | 11.7% | 16.4% | 17.5% | 13.6% |
| No Screening | 91.2% | 88.3% | 83.6% | 82.5% | 86.4% |
| Fetal Ultrasound | | | | | |
| Before 16 weeks gestation | 24.2% | 27.9% | 28.6% | 27.7% | 27.1% |
| 16-20 weeks gestation | 54.8% | 57.5% | 62.7% | 60.8% | 59.0% |
| After 20 weeks gestation | 6.4% | 5.8% | 6.0% | 7.7% | 6.5% |
| Unknown | 14.6% | 8.8% | 2.7% | 3.9% | 7.5% |
| Common Pain Management | | | | | |
| Epidural | 55.8% | 50.8% | 55.1% | 54.4% | 54.0% |
| Narcotic | 46.7% | 54.0% | 60.0% | 52.1% | 53.2% |
| Local | 22.6% | 22.3% | 17.3% | 20.4% | 20.7% |
| Entonox | 11.6% | 15.6% | 15.5% | 14.8% | 14.4% |
| Parity of Mothers with Epidural who Laboured | | | | | |
| 1st baby | 72.8% | 66.5% | 70.5% | 71.2% | 70.3% |
| 2nd baby | 38.3% | 36.6% | 39.8% | 38.9% | 38.4% |
| 3rd baby | 33.8% | 22.6% | 29.8% | 23.6% | 27.5% |
| 4th+ baby | 20.4% | 15.0% | 20.0% | 32.7% | 22.0% |
| Caesarean Section | | | | | |
| Overall | 26.0% | 24.5% | 28.3% | 28.6% | 26.9% |
| Laboured | 51.4% | 50.8% | 51.7% | 52.8% | 51.7% |
| No Labour | 48.6% | 49.2% | 48.3% | 47.2% | 48.3% |
| VBAC | 11.5% | 10.8% | 11.0% | 8.2% | 10.4% |

Appendix - Data Summary Tables

| FETAL AND INFANT HEALTH | | | | | | |
|--------------------------------|----------------|----------------|----------------|----------------|----------------|--|
| | 2001/02 | 2002/03 | 2003/04 | 2004/05 | Average | |
| Live Births | | | | | | |
| Males | 1,012 | 930 | 1,024 | 963 | 982 | |
| Females | 906 | 955 | 923 | 884 | 917 | |
| Total | 1,918 | 1,885 | 1,947 | 1,847 | 1,899 | |
| APGAR Scores | | | | | | |
| Less than 7 @ 1 min | 7.9% | 6.9% | 7.2% | 5.9% | 7.0% | |
| Less than 7 @ 5 min | 0.8% | 1.6% | 1.2% | 0.9% | 1.1% | |
| Stillbirths | 13 | 8 | 8 | 8 | 9 | |
| Pre-Term | | | | | | |
| Less than 37 weeks | 6.6% | 7.2% | 6.6% | 8.2% | 7.2% | |
| Less than 26 weeks | 1.3% | 4.4% | 3.2% | 4.4% | 3.3% | |
| Birth Weight | | | | | | |
| Low (0-2499 grams) | 5.6% | 6.3% | 6.5% | 5.6% | 6.0% | |
| Average (2500-3999 grams) | 78.7% | 77.5% | 77.7% | 79.8% | 78.4% | |
| High (≥4000 grams) | 15.7% | 16.2% | 15.8% | 14.6% | 15.6% | |
| (≥4500 grams) | 2.8% | 2.8% | 2.9% | 3.4% | 3.0% | |
| Breastfeeding | | | | | | |
| Initiation Rate | 65.8% | 65.0% | 67.2% | 66.8% | 66.2% | |
| Hospital Discharge Rate | 63.6% | 61.5% | 63.0% | 62.9% | 62.8% | |

