

5.6

The Geography of Healthy Pregnancy in BC

One of the key pillars of ActNow BC involves promoting healthy pregnancies, especially with respect to ensuring that mothers refrain from drinking alcohol during pregnancy.

Alcohol consumption during pregnancy acts as a toxic substance that can damage the brain and central nervous system cells in the developing fetus. The damage to the fetus is permanent, and children born with fetal alcohol spectrum disorder (FASD) have speech and vision impairment, learning problems, generally a poor memory, attention deficit disorder and hyperactivity, and overall poor conditions and prospects for healthy development into adulthood (Health Canada, 2001).

Fetal brain development occurs throughout pregnancy. Alcohol affects the ability of the brain to organize and communicate information. An important challenge for the individual with FASD is that emotions and consequences of decisions are often not well understood (Ministry of Health, 2005). Some children with FASD have no outward symptoms. Others have distinct physical facial features, such as shortened eye slits, flattened mid face, a flattened midline ridge between nose and lip, as well as a thin upper lip.

There does not appear to be any known safe amount of alcohol that can be consumed during pregnancy. The lifetime costs for those with FASD have been estimated in the order of \$1.5 million. Individuals with FASD require a lot of nurturing, understanding, and community supports, as well as a stable home environment, and responsive school supports. Diagnosing this condition at birth is not always easy, and it may be several years before a diagnosis can be made.

The reader is cautioned that data with respect to FASD are very incomplete and, therefore, it is difficult to map it accurately for the whole province for the purposes of this Atlas. While sample responses were very small, the CCHS showed that approximately 84% of women aged 15 to 54 in BC answering the question about drinking during pregnancy indicated that they did not drink during their last pregnancy. However, only 79% of those aged 35 to 54 indicated that they did not drink during their last pregnancy.

Healthy pregnancy, healthy birth, and healthy mothers-to-be and new mothers are all important wellness indicators,

and there are a series of other key indicators that can be used to measure these components. There is much research to show the very important relationship of healthy beginnings for healthy child development and moving into healthy adulthood. Having a good start is an important asset for future wellness, and an important determinant of health and wellness.

A total of 11 maps are provided to measure healthy pregnancy, childbirth, and motherhood. The first two look at the rates of alcohol-free and smoking-free pregnancies. The following three show babies born without perinatal or maternal complications, and without congenital anomalies.

The next set of three maps looks at the percentage of mothers who have babies in the healthiest age period of their life for having children, those children with the healthiest birth weight, and those babies who are born at full term. These are all important wellness indicators.

The following two maps show babies born with the healthiest conditions, and infant survival rates.

Finally, a map showing the location of Pregnancy Outreach Programs is provided. These programs help pregnant women who are at risk of poor birthing outcomes. As such, they are an important community asset for women without established prenatal care.

There are some cautions and caveats with respect to the Vital Statistics data used for the majority of maps. With respect to perinatal and maternal complications, there is not always complete documentation on the Physician Notice of Birth record. Second, the data only cover births occurring in BC to BC mothers. Caution, therefore, is required in analysing the maps, as some complicated births to BC mothers take place in neighbouring Alberta, especially for those living in East Kootenay, and to a lesser extent in the Northeast.

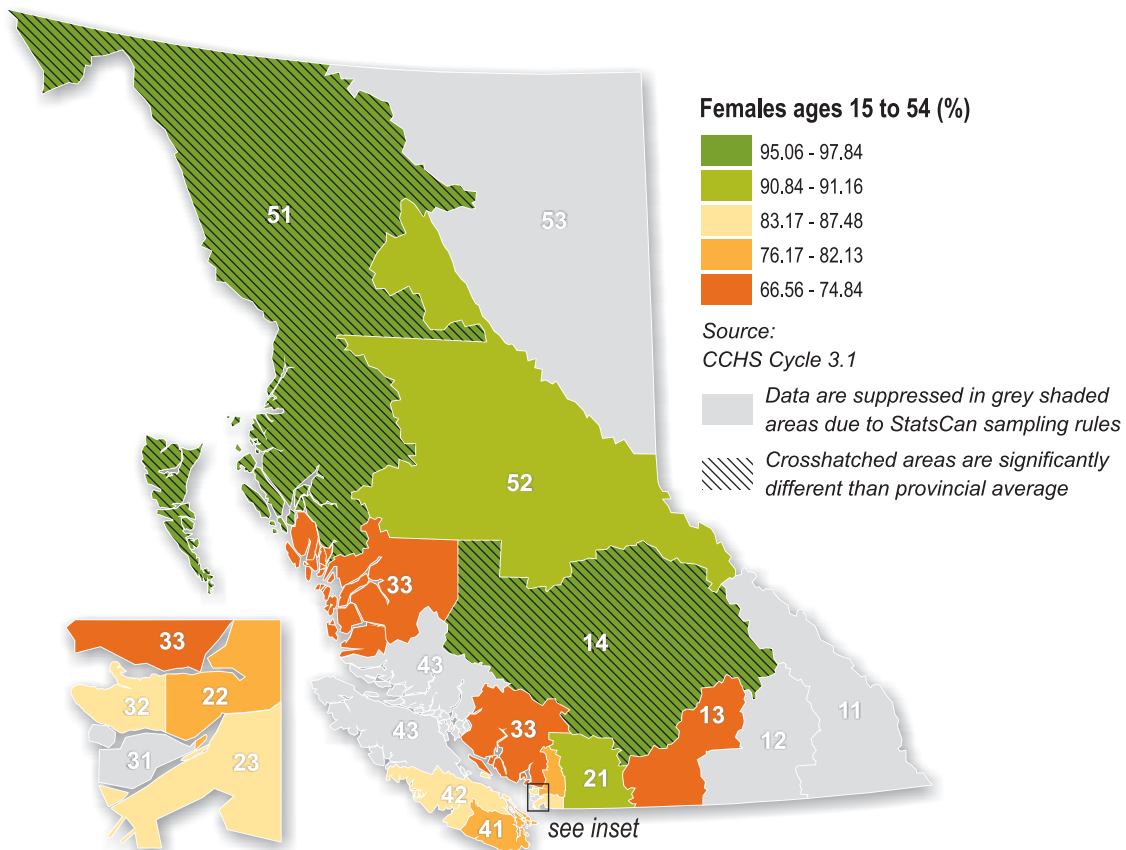
Did not drink alcohol during last pregnancy

Health Canada has estimated that approximately 9 of every 1,000 infants are born with FASD annually (Ministry of Children and Family Development, 2006) as a result of alcohol consumption by expectant mothers. FASD is a national problem, but the rates in some First Nations and Inuit communities are much higher than the national average. These rates exist “within the context of the history of colonization and devaluation endured by First Nations and Inuit, which has resulted in a loss of culture” (Health Canada, 2001, p. 1). The prevalence of FASD in high-risk groups like Aboriginal peoples may be as high as 20% (Brynelsen, Conry, and Looch, 1998; Tait, 2003).

For BC as a whole, those women between the ages of 15 and 54 who answered negatively to the CCHS question about consuming alcohol during their last pregnancy represented 83.59% of respondents. A lower percentage of older women (aged 35-54) answered negatively (79.00%). Not all HSDAs can be mapped because of low numbers responding to the question. The range among HSDAs is more than 30 percentage points, indicating large variations between regions of the province for which data are available. Four HSDAs, Northwest, Thompson Cariboo Shuswap, Northern Interior, and Fraser East, all had alcohol-free pregnancies greater than 90%. The first two had significantly higher rates, statistically, than the provincial average. Okanagan in the interior, North Shore/Coast Garibaldi in the lower mainland, and South Vancouver Island all had values less than 80%.

Health Service Delivery Area	Females ages 15-54 (%)
051 Northwest	97.84
014 Thompson Cariboo Shuswap	95.06
052 Northern Interior	91.16
021 Fraser East	90.84
023 Fraser South	87.48
032 Vancouver	85.97
042 Central Vancouver Island	83.17
022 Fraser North	82.13
041 South Vancouver Island	76.17
033 North Shore/Coast Garibaldi	74.84
013 Okanagan	66.56
011 East Kootenay	F
012 Kootenay Boundary	F
031 Richmond	F
043 North Vancouver Island	F
053 Northeast	F
999 Province	83.59

F Data suppressed due to Statistics Canada sampling rules



Did not smoke during pregnancy

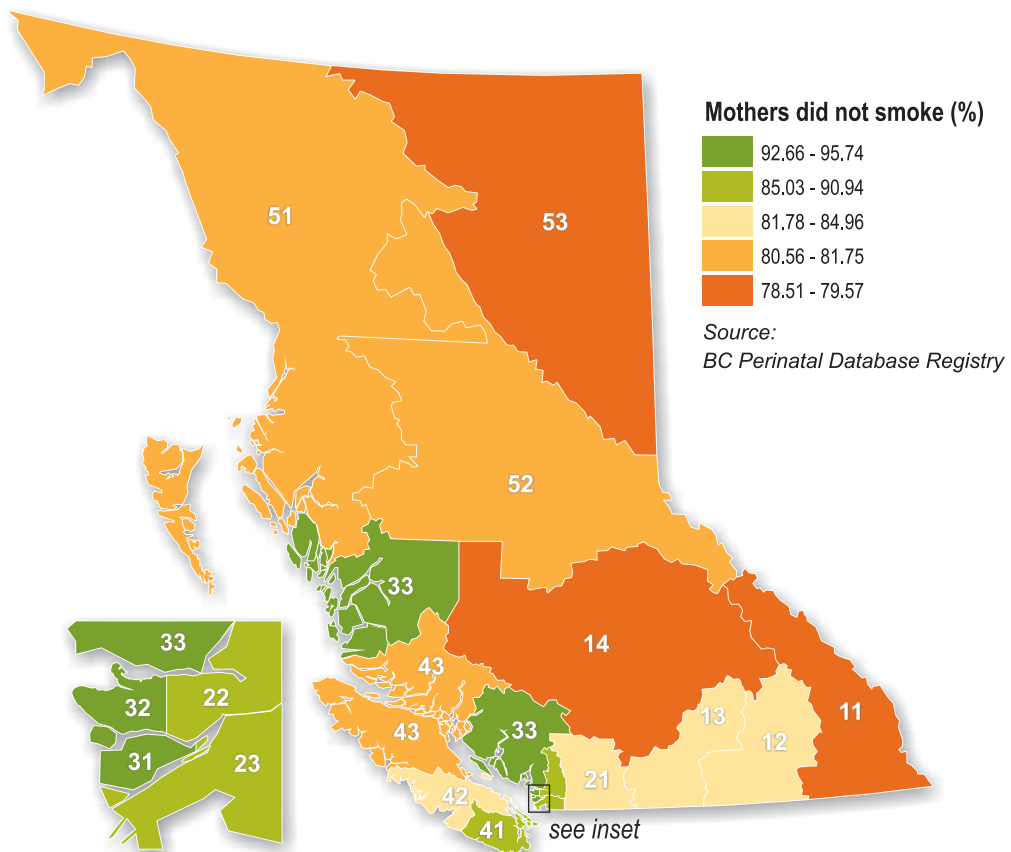
Tobacco smoke is one of the most important teratogens affecting pregnancy. In addition to concerns about birth defects, smoking is one of the main causes of low birth weight (<2,500 grams) by causing both pre-term delivery at less than 37 completed weeks of pregnancy, and intra-uterine growth restriction. Birth weight is an important indicator of wellness, and a healthy birth weight is a strong indicator for positive future development of the baby. A major focus of prenatal care in recent years has been smoking cessation among pregnant women.

Data from the BC Perinatal Database shows that, for the 4 year period 2000/01 to 2003/04, an average of 88.01% of women in BC did not smoke during their pregnancy. The range throughout the province, however, is quite high; 17 percentage points separate the highest (best) from the lowest HSDA, indicating large geographical variations in smoking rates during pregnancy.

In Vancouver, Richmond, North Shore/Coast Garibaldi, and Fraser North and Fraser South HSDAs, more than 90% of women did not smoke during their pregnancy. In the areas with the highest prevalence of smoking during pregnancy—Northeast, Thompson Cariboo Shuswap, and East Kootenay—less than 80% of women refrained from smoking during pregnancy.

Geographically, smoking during pregnancy increases eastward and northward as one moves away from the lower mainland HSDAs. Overall, the northern two-thirds of the province and East Kootenay region have the highest rates of smoking during pregnancy.

Health Service Delivery Area	Mothers did not smoke (%)
031 Richmond	95.74
032 Vancouver	95.37
033 North Shore/Coast Garibaldi	92.66
022 Fraser North	90.94
023 Fraser South	90.16
041 South Vancouver Island	85.03
021 Fraser East	84.96
012 Kootenay Boundary	83.99
013 Okanagan	83.78
042 Central Vancouver Island	81.78
051 Northwest	81.75
043 North Vancouver Island	81.35
052 Northern Interior	80.56
011 East Kootenay	79.57
014 Thompson Cariboo Shuswap	79.35
053 Northeast	78.51
999 Province	88.01



Births free of complications and anomalies

Data presented here are from the Vital Statistics Agency for the 5 calendar years 2001 to 2005, and include data only for babies born in BC to BC mothers. The cautions noted earlier need to be observed in viewing the patterns on the maps.

No maternal complications

For the 5 year period 2001 to 2005, on average less than 50% of all birthing mothers had a complication-free delivery. The range between the highest and lowest values for maternal complication-free births was 16 percentage points. The HSDAs in which mothers were most likely to remain healthy during pregnancy were Kootenay Boundary (58.44%), and Northeast, East Kootenay, Northern Interior, Fraser East, Okanagan, and Thompson Cariboo Shuswap, all with rates higher than 50%. This is a much different distribution than that reflecting complications between the fetus and neonate. Many lower mainland HSDAs had rates of complications higher than average, although the lowest rate of maternal complication-free birth was found in Central Vancouver Island (42.06%). Overall for the province, the number of pregnancies remaining free of complications, at 48.38%, leaves room for much improvement.

No perinatal complications

Perinatal complications affect the fetus after 20 weeks of pregnancy and/or the newborn up to 7 days of age. They affect one-third of BC babies. There was a range of 14 percentage points between HSDAs within the province, indicating substantial geographical variation in births with no perinatal complications. Similar to the areas in which women most often refrain from smoking, Richmond and Vancouver had the highest proportions of pregnancies free of perinatal complications at 70% or more. Fraser South and North Shore/Coast Garibaldi followed at 69.18% and 68.36% respectively, with Northeast at 67.70%. North and Central Vancouver Island had the lowest rate of pregnancies with healthy outcomes at 59.53% and 58.46% respectively.

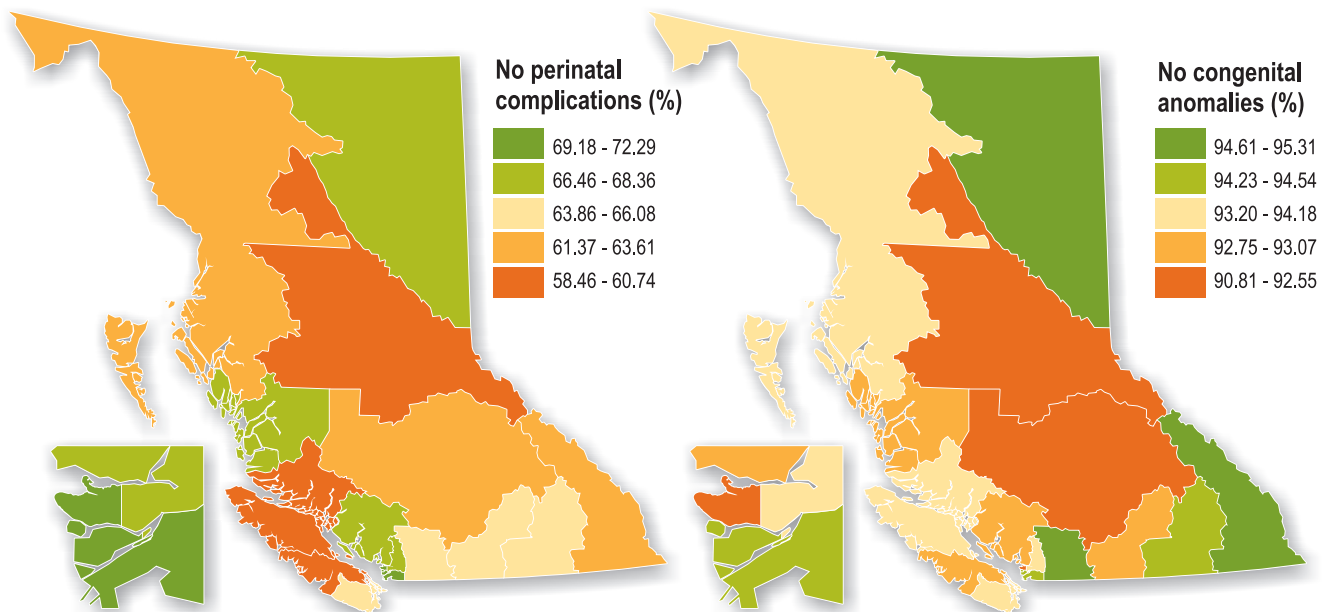
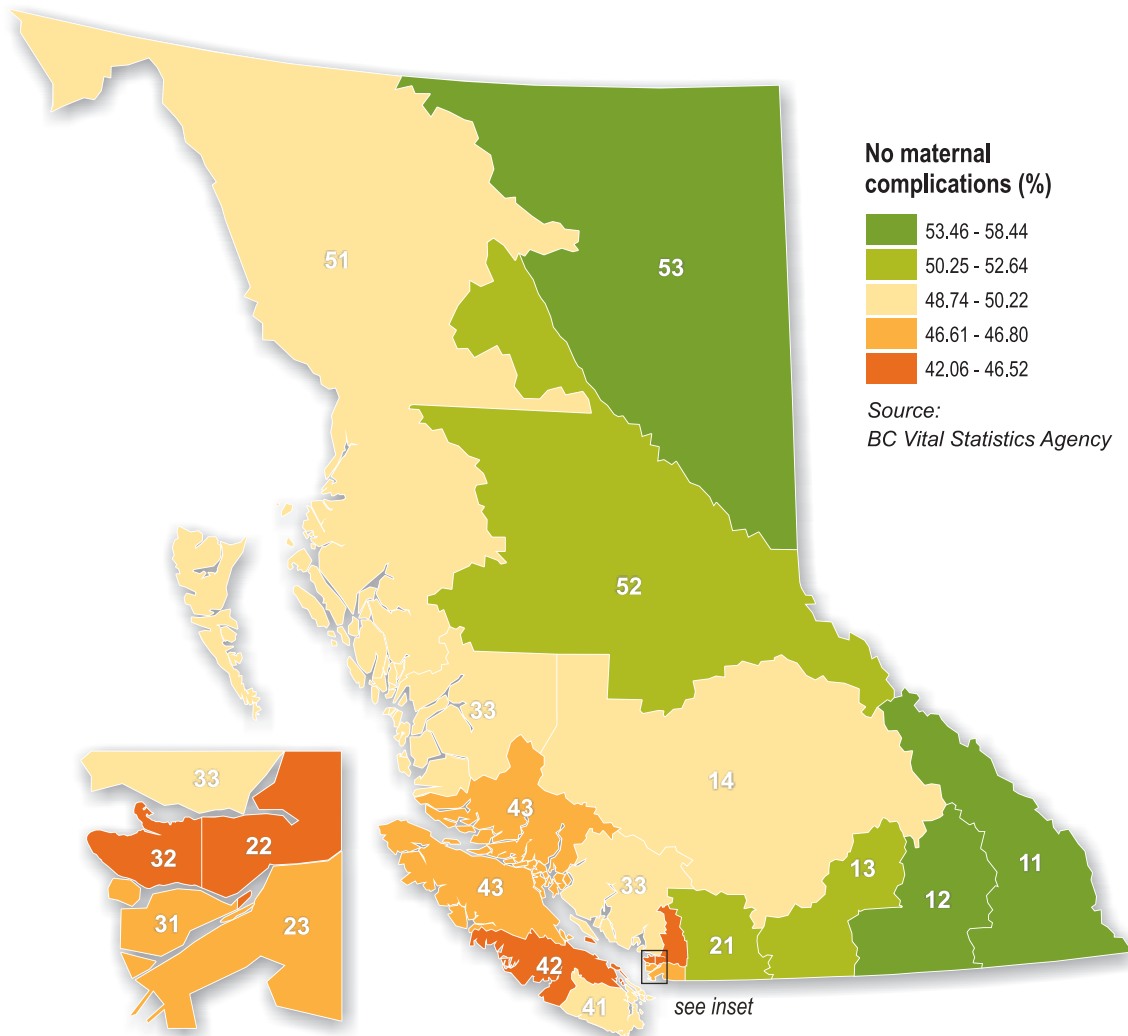
No congenital anomalies

Congenital anomalies among the fetus/newborn generally occur in 2% to 5% of pregnancies. In BC during the 5 year period 2001 to 2005, the regions with

Health Service Delivery Area	No complications or anomalies		
	maternal (%)	perinatal (%)	congenital (%)
012 Kootenay Boundary	58.44	65.86	94.39
053 Northeast	57.88	67.70	95.31
011 East Kootenay	53.46	61.72	94.61
052 Northern Interior	52.64	60.74	90.81
021 Fraser East	52.12	63.86	95.13
013 Okanagan	50.25	66.08	92.96
014 Thompson Cariboo Shuswap	50.22	61.37	92.26
041 South Vancouver Island	49.79	64.88	94.18
033 North Shore/Coast Garibaldi	49.11	68.36	93.07
051 Northwest	48.74	63.61	93.51
043 North Vancouver Island	46.80	59.53	93.97
023 Fraser South	46.69	69.18	94.23
031 Richmond	46.61	72.29	94.54
032 Vancouver	46.52	70.53	92.55
022 Fraser North	46.47	66.46	93.20
042 Central Vancouver Island	42.06	58.46	92.75
999 Province	48.38	66.37	93.49

rates less than 5% were Northeast and Fraser East. The lowest rates of pregnancies uncomplicated by congenital anomalies were in Northern Interior at 90.81%, followed by Thompson Cariboo Shuswap, Vancouver, Central Vancouver Island, and Okanagan, all being lower than 93%.

Births free of complications and anomalies



Healthiest pregnancies

The maps opposite provide three key indicators related to conditions for mother and child that improve the chances for the healthiest pregnancies and birth outcomes. These relate to the best age for pregnancy, baby's birthweight, and full gestational development of the baby.

Healthiest mother's age

Pregnancy complications such as prematurity and intrauterine growth restriction are more common among teen mothers. These complications and others, including pregnancy-related diabetes and hypertension, as well as hemorrhage, also occur more often in mothers aged 35 or older. During the last two decades, there has been a steady increase in the percentage of births occurring to women aged 34 or older, especially for women having their first baby, while live births to teenage mothers continue to fall. The net result, however, has been a reduction in the percentage of births to mothers in the healthiest age group (Vital Statistics Annual Report, 2005).

The percentage of births to mothers in the healthiest age group was 75.94%, but there was a 16 percentage point range in values among the HSDAs. Northeast, Fraser East, Northern Interior, and Thompson Cariboo Shuswap had the highest proportions of pregnancies occurring to mothers between 20 and 34 years of age (all over 80%). The lowest proportion of births to women in this age group was in North Shore/Coast Garibaldi at 66.32%, followed closely by Vancouver at 67.86%. Generally speaking, the percentage of healthiest age group pregnancies increased northward when moving from the lower mainland urban areas.

Healthy birthweight

The ideal weight for newborns is between 2,500 and 4,499 grams. Babies born too small for their gestational age (less than the 10th percentile) are vulnerable to hypoglycemia and other metabolic disorders. In addition to inadequate growth for a given gestational age, pre-term delivery is the major complication responsible for low birthweight. Premature birth is responsible for 75% of perinatal morbidity and mortality. Large babies are at risk for complications as well, but these are birth injuries related to a difficult delivery (e.g., facial palsy, and fractures of the clavicle).

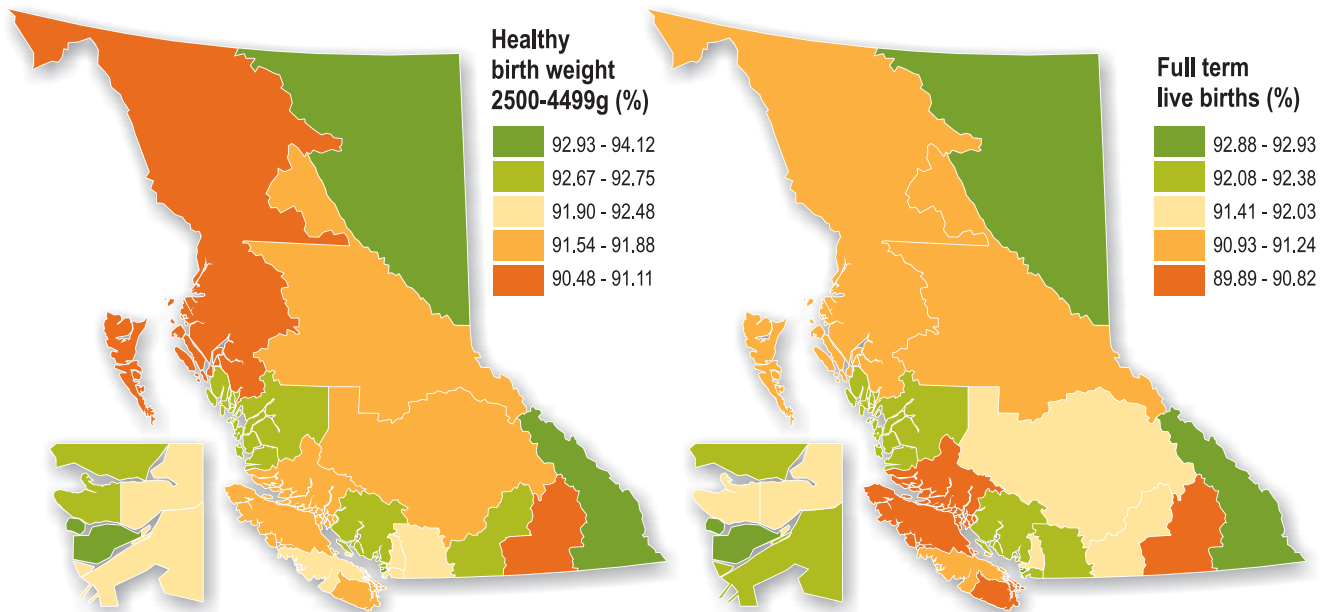
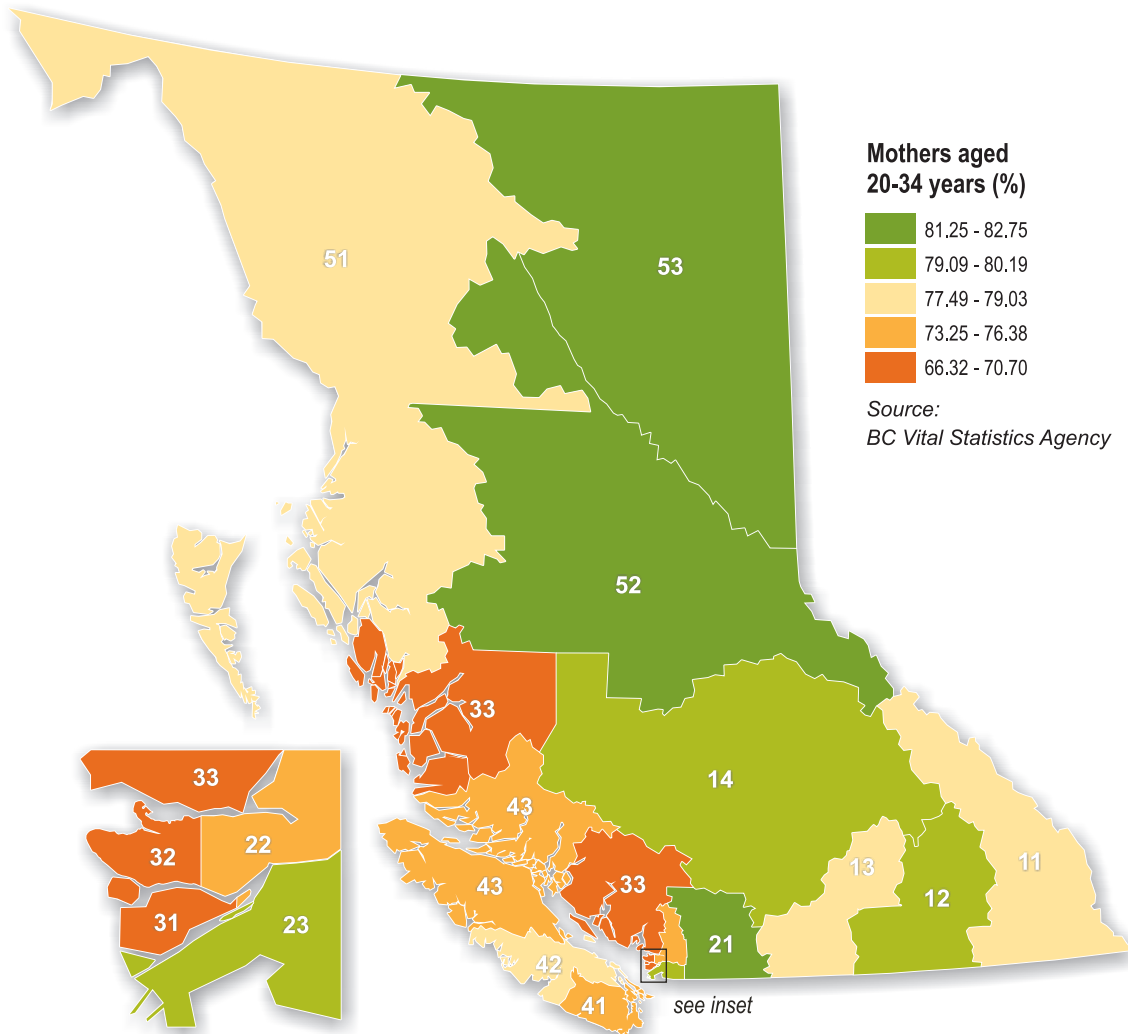
Health Service Delivery Area	Mothers aged 20-34 years (%)	Birth weight 2500-4499g (%)	Full term live births (%)
053 Northeast	82.75	93.46	92.93
021 Fraser East	82.65	92.48	92.08
052 Northern Interior	81.25	91.54	90.93
014 Thompson Cariboo Shuswap	80.19	91.88	91.41
012 Kootenay Boundary	79.38	90.48	89.89
023 Fraser South	79.09	92.30	92.18
013 Okanagan	79.03	92.75	91.58
011 East Kootenay	78.47	94.12	92.92
042 Central Vancouver Island	78.01	91.90	91.24
051 Northwest	77.49	91.11	90.97
043 North Vancouver Island	76.38	91.54	90.72
041 South Vancouver Island	74.27	91.84	90.82
022 Fraser North	73.25	92.29	92.03
031 Richmond	70.70	92.93	92.88
032 Vancouver	67.86	92.67	91.50
033 North Shore/Coast Garibaldi	66.32	92.72	92.38
999 Province	75.94	92.32	91.75

The highest proportion of babies with an optimal birthweight was found in East Kootenay and Northeast at 94.12% and 93.46% respectively. The areas with the lowest proportion were Kootenay Boundary and Northwest, at 90.48% and 91.11%. The average for the province was 92.32%.

Full term live births

More than 9 out of every 10 babies were born at full term. The areas with the highest proportion of babies born at full term (37 to 41 weeks of pregnancy) were concentrated in the northeast, southeast (East Kootenay), and southwest (Richmond, North Shore/Coast Garibaldi, and Fraser North, South, and East). The lowest proportion of full term births were Kootenay Boundary at 89.89% and North and South Vancouver Island at 90.72% and 90.82%. Rates of full term birth across Canada range from 90 to 92%.

Healthiest pregnancies



Healthiest babies

Data were collected for births with the following characteristics combined: no maternal or perinatal complications; no congenital anomalies; mother's age between 20 and 34 years old; birthweight between 2,500 and 4,499 grams; and full term. These are the characteristics associated with the healthiest babies overall, and therefore those babies with the potential for the healthiest start in life.

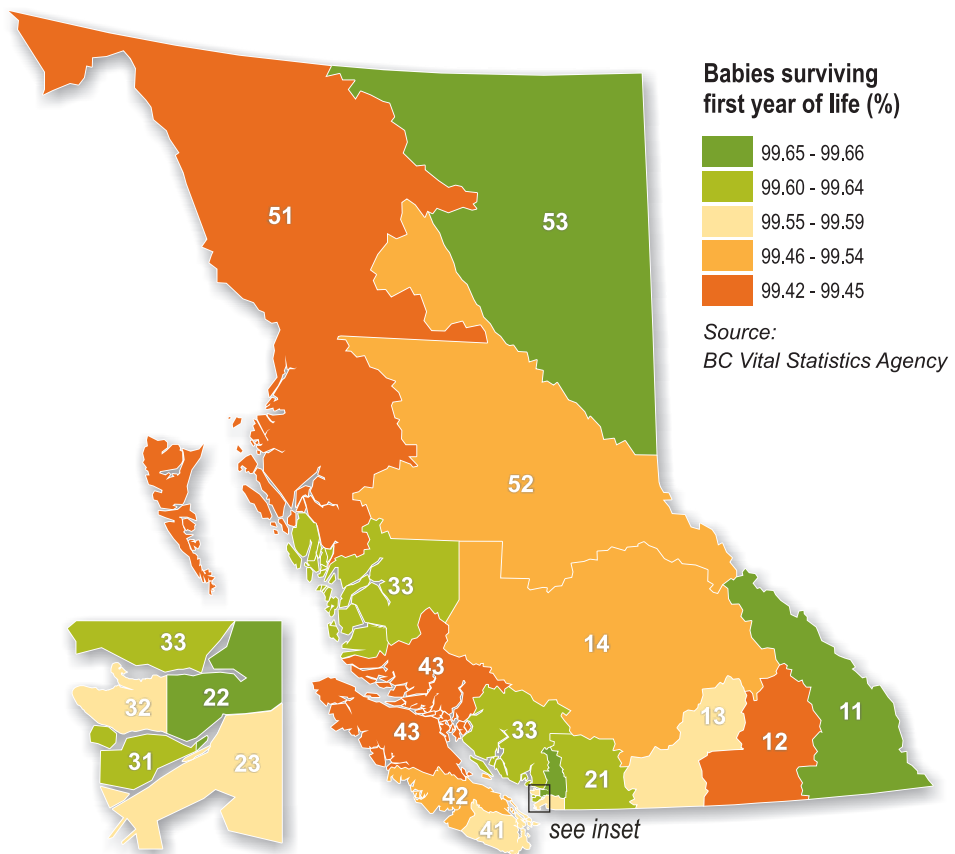
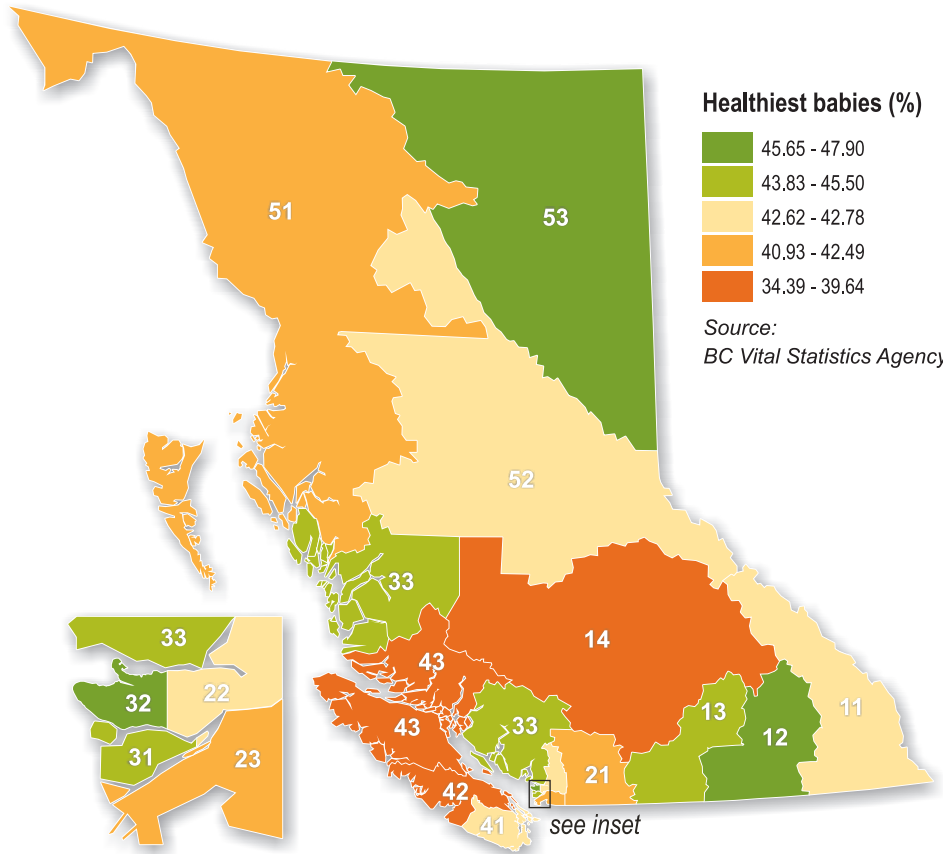
Provincially, less than half of babies were born with these combined characteristics (42.63%). The range from the highest percentage to the lowest was more than 13 percentage points, indicating much regional variation throughout the province. Overall, the highest proportion of healthiest babies was found in Kootenay Boundary, Northeast, and Vancouver and Richmond (all over 45%). The areas with the lowest proportions were found on Vancouver Island, with Central Vancouver Island at 34.39% and North Vancouver Island at 38.24%. Thompson Cariboo Shuswap was also below 40%.

Health Service Delivery Area	Healthiest babies (%)	Survival rate (%)
012 Kootenay Boundary	47.90	99.45
053 Northeast	47.54	99.65
032 Vancouver	45.65	99.59
031 Richmond	45.50	99.60
033 North Shore/Coast Garibaldi	44.71	99.65
013 Okanagan	43.83	99.59
041 South Vancouver Island	42.78	99.55
052 Northern Interior	42.73	99.46
011 East Kootenay	42.68	99.66
022 Fraser North	42.62	99.65
021 Fraser East	42.49	99.61
023 Fraser South	41.74	99.57
051 Northwest	40.93	99.45
014 Thompson Cariboo Shuswap	39.64	99.50
043 North Vancouver Island	38.24	99.42
042 Central Vancouver Island	34.39	99.52
999 Province	42.63	99.58

Infant survival rate

Most babies survive their first year of life and go on to develop in a healthy manner. A very small minority does not survive for a variety of reasons, some of which are related to the conditions already described. No region of the province is immune to the tragic loss of a child in infancy but, overall, the rate of infant survival was uniformly high in BC for the 10 year period 1996 to 2005. The highest rates of survival were concentrated in East Kootenay, Northeast, and Fraser North and North Shore/Coast Garibaldi. The lowest rates of survival were in North Vancouver Island, Kootenay Boundary, Northern Interior, and Northwest, all at 99.46% or lower.

Healthiest babies

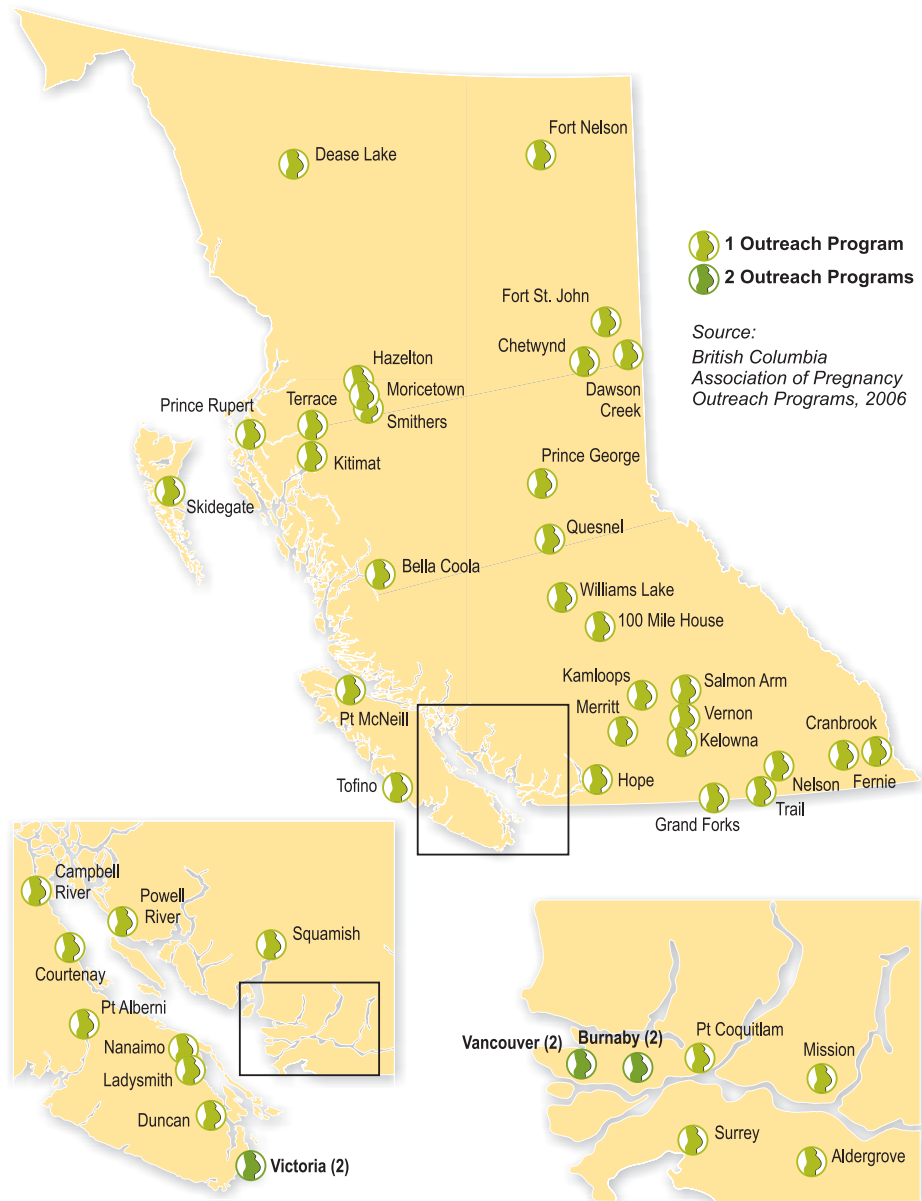


Pregnancy outreach programs

Located throughout the province, there is a series of centres providing specialized services supporting women to have healthy babies. Known as Pregnancy Outreach Programs, these centres have been created over the past two decades to reach out to women who do not have access to typical prenatal information and services. Many of these women are vulnerable to unhealthy pregnancies for several reasons, including substance abuse, spousal abuse, homelessness, and other conditions.

Pregnancy Outreach Programs are located in different types of centres for easy access. These include community centres, health centres, and native friendship centres. Women can access a variety of services at these centres, such as: nutrition and health counselling; food hampers, prenatal vitamins, and food vouchers; peer support groups; referrals to counselling services, life skills programs, parenting programs, and breastfeeding support; support to cut down or stop smoking and to reduce exposure to second-hand smoke; help to deal with an alcohol or drug issue; activities such as music therapy; and instruction on caring for and feeding a baby (Burglehaus, 2004).

In all, there are 46 Pregnancy Outreach Program centres scattered around the province to help improve the chances of healthy pregnancies and healthy beginnings.



Summary

The previous maps indicate that there is a considerable amount of variation throughout the province for most wellness indicators related to healthy pregnancies and healthy beginnings. These variations are not always consistent geographically. For example, smoking in pregnancy is least prevalent in the urbanized lower mainland area of the province, and the central interior and northern areas have the highest prevalence. This pattern is similar to others discussed earlier in the smoke-free section of the Atlas. On the other hand, the percentage of births to mothers in the healthiest age group is highest in the north and interior parts of the province, and less so in the lower mainland. This pattern is also similar for maternal complications.

Perinatal complications are also least prevalent in the lower mainland area of the province, but high in the northern and central parts of Vancouver Island and in Northern Interior, while congenital anomalies are high in Vancouver and the interior part of the province.

Healthy birthweight and full term babies show somewhat similar geographical patterns to each other. The best results occur in Northeast, East Kootenay, and Richmond. The good results in the eastern parts of the province may be related to data collection issues as noted earlier.

The lowest percentage of healthy babies, based on the combined criteria used here, are found on Vancouver Island (Central and North Vancouver Island) and the interior part of the province (Thompson Cariboo Shuswap), while babies born with the healthiest indicators overall are in HSDAs scattered around the province in Vancouver, Northeast, and Kootenay Boundary.

While the overall infant survival rate in the province is uniformly high, the variations in other indicators suggest that there is clearly room for improvement in healthy beginnings for the province's infants.

