

An overview of how northern BC compares to other socio-economically similar health regions in Canada on measures of Demography, Health Behavior, Health Status and Health System Performance.

Using the Statistics Canada Health Region Peer Groups

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The following is an unsolicited draft document prepared to bring some of the evidence about this subject into view and to stimulate discussion. It is not intended to reflect the official position of northern health towards any particular policy or issue. The contents herein are the responsibility of the author alone.

Table of Contents

Executive Summary.....	3
Background.....	3
Methods.....	3
Figure 1 Canada's Health Region Peer Groups Map.....	5
Table 1 - Northern BC's Health Region Peer Groups: E and H.....	5
Table 2 - Principle Characteristics of Health Region Peer Groups.....	6
Results - Demographics and Geography.....	7
Figure 2 - Percent Rural Population.....	7
Figure 3 - Percent Aboriginal Population.....	8
Figure 4 - Percent Visible Minority.....	9
Figure 5 - Percent Immigrants.....	10
Health Related Behaviors.....	11
Figure 6 - Percent Overweight or Obese.....	11
Figure 7 - Percent Heavy Drinkers.....	12
Figure 8 - Percent Heavy Smokers.....	13
Health Status.....	14
Figure 9 - Life Expectancy at Birth.....	14
Figure 10 - Infant Mortality per 1,000 Live Births.....	15
Figure 11 - All Causes of Death per 100,000 Population.....	16
Figure 12 - Unintended Injury Deaths per 100,000 Population.....	17
Health System Performance.....	18
Figure 13 - Pediatric Dental Surgery Rate per 1,000.....	18
Figure 14 - Ambulatory Care Sensitive Conditions per 100,000 Population.....	19
Figure 15 - Premature Mortality per 100,000 Population.....	20
Figure 16 - Avoidable Mortality (preventable causes) per 100,000 Population.....	21
Figure 17 - Avoidable Mortality (treatable causes) per 100,000 Population.....	22
Figure 18 - Potentially Avoidable Mortality per 100,000 Population.....	23
Figure 19- GPs and FPs per 100,000 Population.....	24
Figure 20 - Specialist Physicians per 100,000 Population.....	25
Discussion.....	26
References.....	28

Executive Summary

The Health Region Peer Group methodology, first published by Statistics Canada in 2003, allows us to compare ourselves with socio-economically similar health regions across Canada. It also opens up the possibility of comparing the relative effectiveness of health prevention, promotion, and intervention strategies across these similar regions.

In this discussion paper we compare northern British Columbia to our rural health region peer groups along four dimensions: Demographics; Health Related Behaviors; Health Status; and, Health System Performance. Our investigation confirms that; our rural peers are similar in terms of their demography and geography; that they perform poorly relative to the more urban and metropolitan regions along the dimensions of Health Behaviors, Health Status and Health System Performance; and, that along all dimensions, we (northern British Columbia), are more similar our rural health region peers, than we are we are to other areas of British Columbia.

Background

It would make sense to try to find other regions across Canada who are similar to us and from whom we can draw some relevant comparisons and understanding about our circumstances.

The health region peer group methodology developed by Statistics Canada allows us to compare our health region to others that are more socio-economically similar. (Statistics Canada, 2014). This methodology also introduces the possibility of comparing the relative effectiveness of health promotion, prevention and intervention strategies amongst regions that are similar to each other.

Methods

The peer group methodology has undergone several revisions: the latest revision, undertaken in 2011, contains 10 health region peer groups number "A – J". The Health Service Delivery Areas of northern B.C. belong to Peer Group "E" and "H". We added these letters to a map provided by Statistics Canada in order to create an intuitive visual representation of the peer groups.

We obtained data for the BC Health regions and for our peer groups (E and H) from the Statistics Canada Health Regions Profiles website. (Statistics Canada, 2013) .

Using Microsoft Excel software we then organized the data and created graphical representations of the following measures.

Demographics and Geography

- Percent of population residing in a rural area
- Percent of population that is considered Aboriginal
- Percent of population that is considered a Visible Minority
- Percent of population who are immigrants to Canada

Health Related Behaviors

- Percent of population who are obese or overweight
- Percent of population who are frequent Heavy Drinkers of Alcohol
- Percent of population who are current tobacco smokers

Health Status Measures

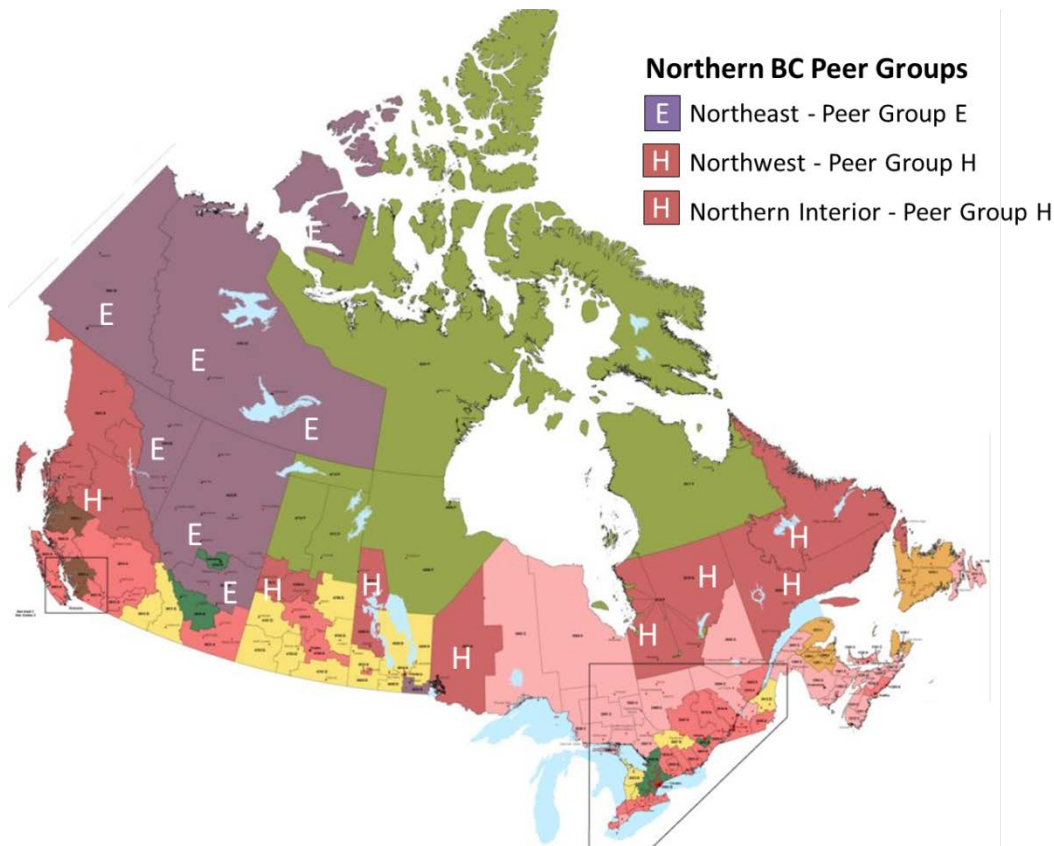
- Life Expectancy (measured in years) at birth
- Infant Mortality rate per 1,000 live births
- All Causes of Death per 100,000 population
- Unintended Injury Deaths per 100,000 population

Health System Measures

- Dental surgery cases per 1,000 population ages 1 – 5 years
- Hospitalizations for Ambulatory Care Sensitive Conditions
- Premature Mortality
- Potentially Avoidable Mortality
- Potentially Avoidable Mortality from preventable causes
- Potentially Avoidable Mortality from treatable causes
- GPs and Specialists per 100,000 population

For each of the above measures and their graphical-summaries: (Figures 2 to 20) the vertical red line indicates the British Columbia average value; and, the blue colored bars represent HSDAs in northern BC and the Canadian Health Region Peer Groups “E” and “H.”

Figure 1 Canada's Health Region Peer Groups Map



Map Source: <http://www.statcan.gc.ca/pub/82-583-x/2011001/article/11587-eng.pdf>

Table 1 - Northern BC's Health Region Peer Groups: E and H

Peer Group E Members	Peer Group H Members
Northeast, B.C.	Northwest, B.C.
Yukon	Northern Interior, B.C.
Northwest Territories	Prairie North, SK
Central Zone, AL	Prince Albert, SK
North Zone, AL	Parkland, MB
South Eastman, MB	Northwestern, ON
	Region du Nord, QU
	Region de la Cote, QU
	Labrador-Grenfell

Table 2 - Principle Characteristics of Health Region Peer Groups

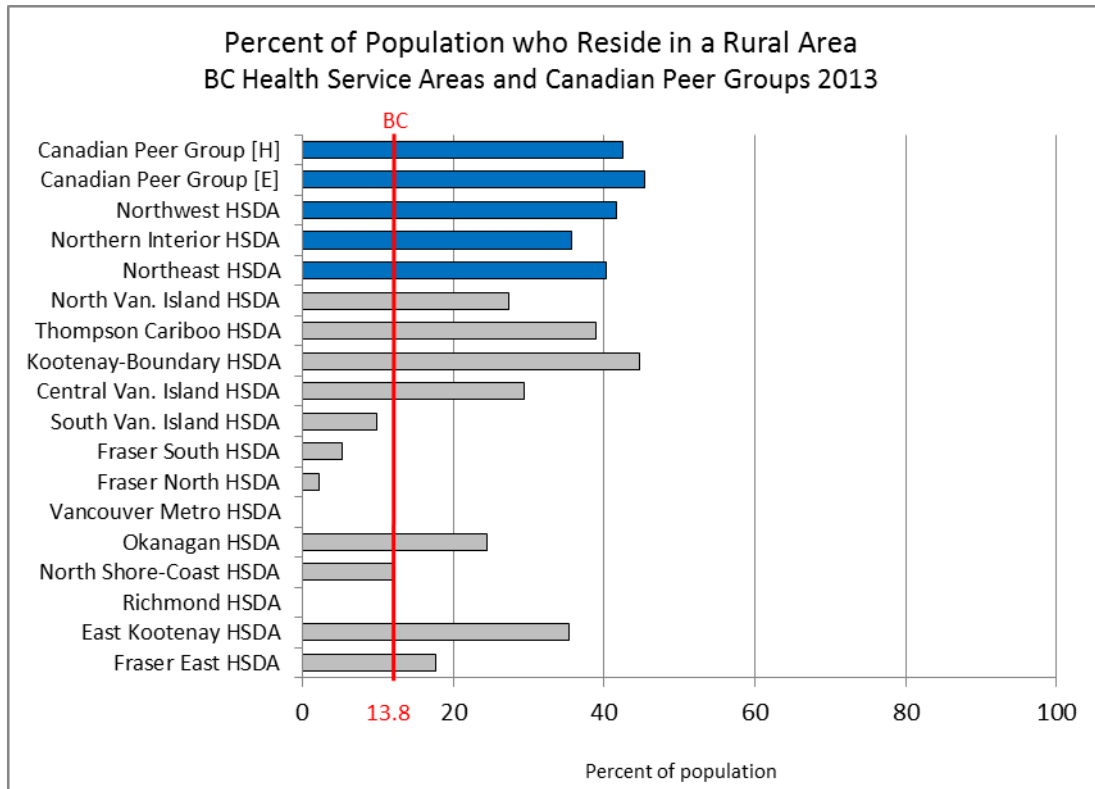
Peer Group	No. of Regions	% Canada Population	Health Region Peer Groups' Principal Characteristics
A	34	33.85%	Urban-rural mix from coast to coast Average percentage of Aboriginal population Average percentage of immigrant population
B	8	16.66%	Mainly urban centres in Ontario and Alberta. Moderately high population density / Low percentage of Aboriginal
C	20	10.06%	Sparsely populated urban-rural mix in Eastern and Central provinces Average percentage of Aboriginal population
D	15	4.83%	Mainly rural regions from Quebec to British Columbia Average percentage of Aboriginal population High employment rate
E	6	3.32%	Rural & remote regions in the Western provinces and Territories High proportion of Aboriginal population Average percentage of immigrant population
F	5	0.49%	Northern and remote regions Very high proportion of Aboriginal population Very low employment rate / Low proportion of immigrants
G	3	15.65%	Largest metro centres with an average population density Very low proportion of Aboriginal Average employment rate / Very high proportion of immigrants
H	8	1.83%	Rural and northern regions from coast to coast High proportion of Aboriginal population Low proportion of immigrants
I	7	1.73%	Mainly rural Eastern regions Average percentage of Aboriginal population Low employment rate / Very low percentage of immigrant
J	6	11.58%	Mainly urban centers in Ontario & B.C. with high population density Low proportion of Aboriginal population

This table summarizes the principle or defining characteristics of each peer group

Results

Demographics and Geography

Figure 2 - Percent Rural Population

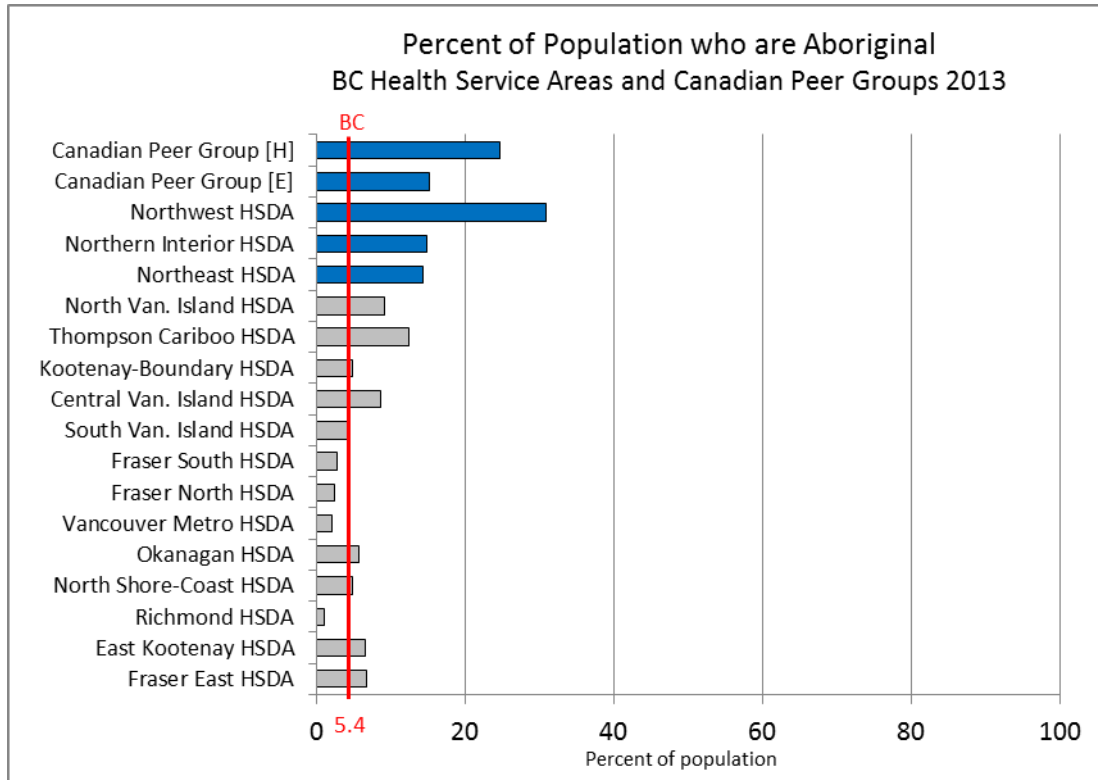


According to Statistics Canada, a population centre has a population of at least 1,000 and a population density of 400 persons or more per square kilometre. **All areas outside of the population centres are classified as rural areas.** (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: 2011 Census, Statistics Canada.

Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 3 - Percent Aboriginal Population

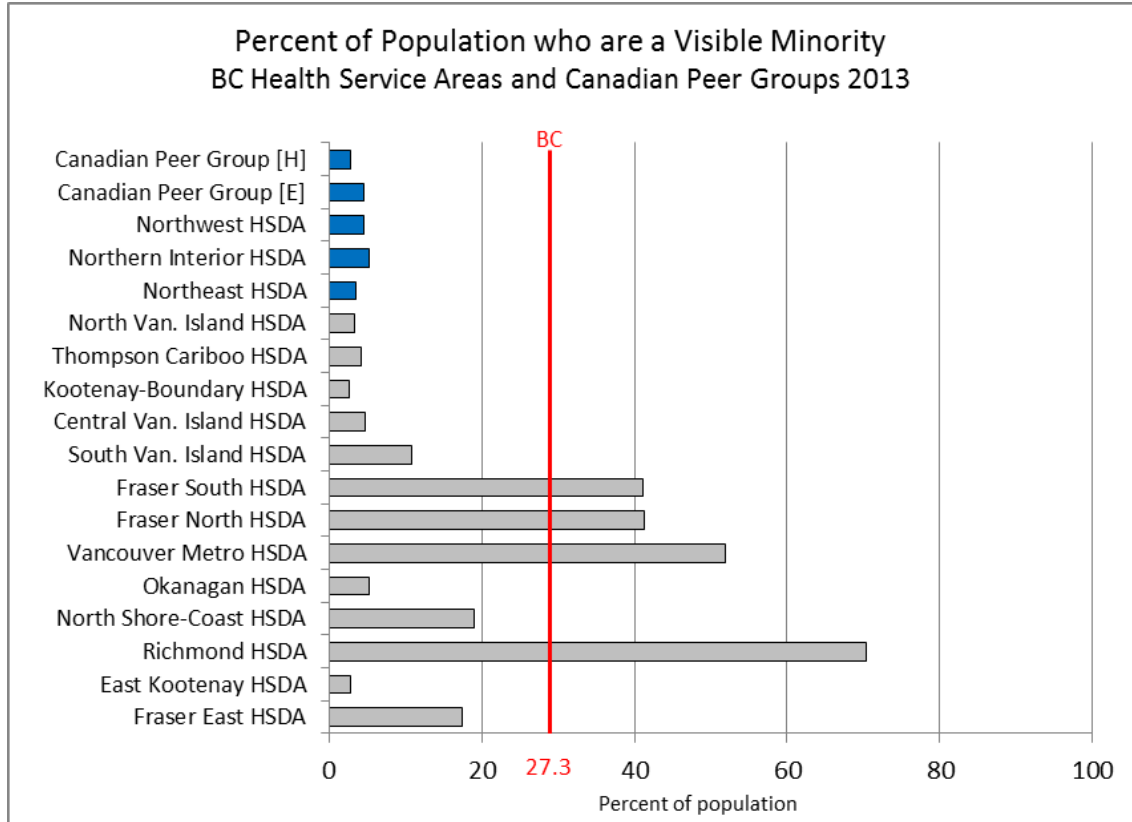


'Aboriginal identity' refers to whether the person reported being an Aboriginal person, that is, First Nations (North American Indian), Métis or Inuk (Inuit) and/or being a Registered or Treaty Indian (that is, registered under the *Indian Act* of Canada) and/or being a member of a First Nation or Indian band. Aboriginal peoples of Canada are defined in the *Constitution Act, 1982*, section 35 (2) as including the Indian, Inuit and Métis peoples of Canada (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: 2011 National Household Survey, Statistics Canada.

Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 4 - Percent Visible Minority

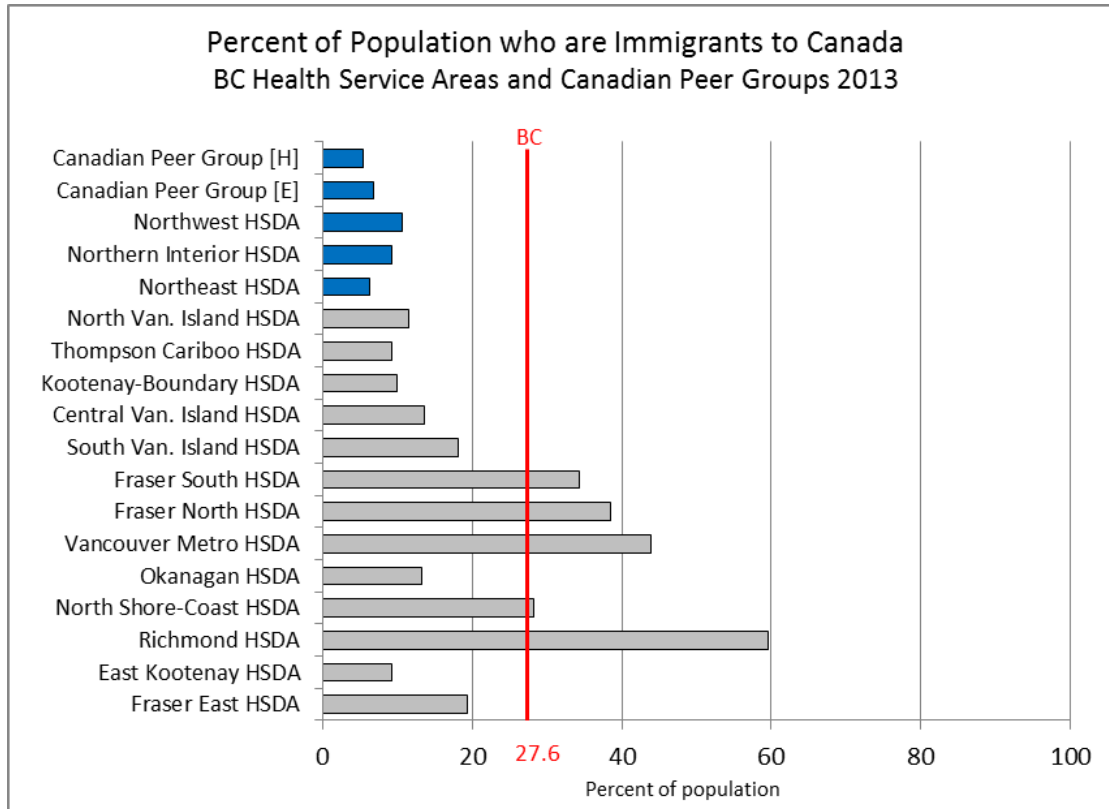


Visible minority refers to whether a person belongs to a visible minority group as defined by the *Employment Equity Act (EEA)*. The *EEA* defines visible minorities as 'persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour.' The visible minority population consists mainly of the following groups: South Asian, Chinese, Black, Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean and Japanese. (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: 2011 National Household Survey, Statistics Canada

Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 5 - Percent Immigrants



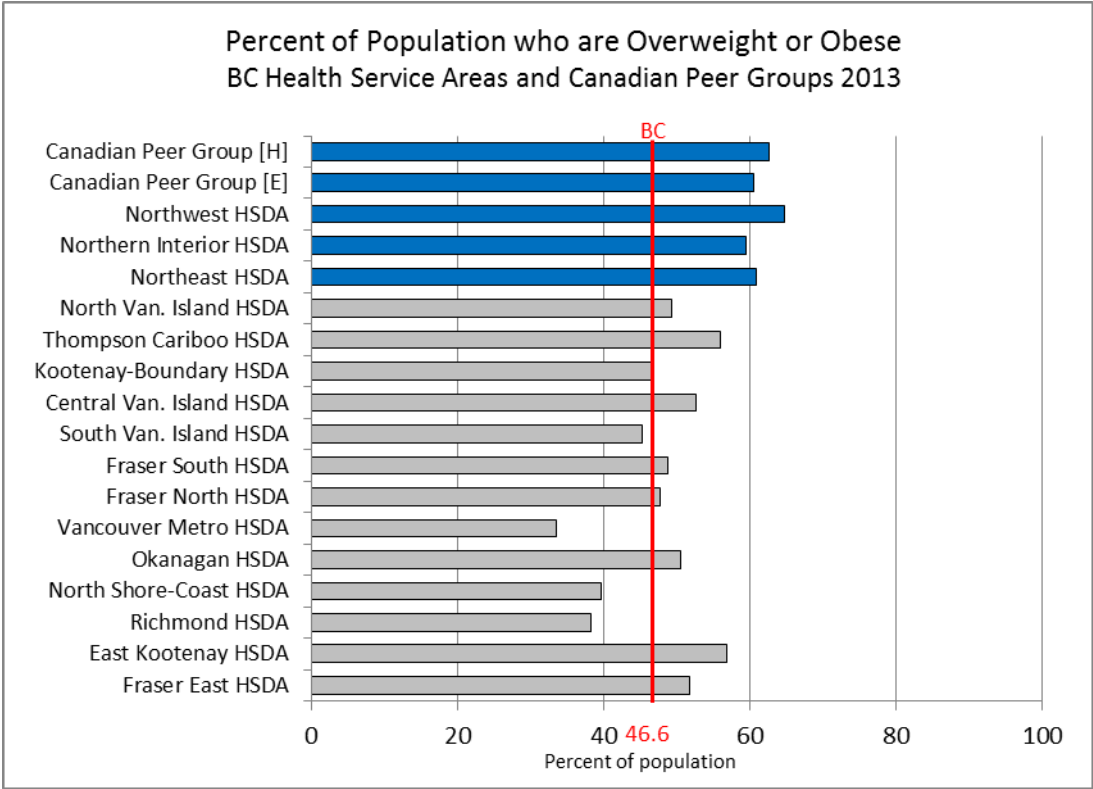
Immigrant refers to a person who is or “has ever been” a landed immigrant/permanent resident. This person has been granted the right to live in Canada permanently by immigration authorities. Many immigrants ultimately seek and obtain Canadian citizenship while others do not. (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: 2011 National Household Survey, Statistics Canada.

Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Health Related Behaviors

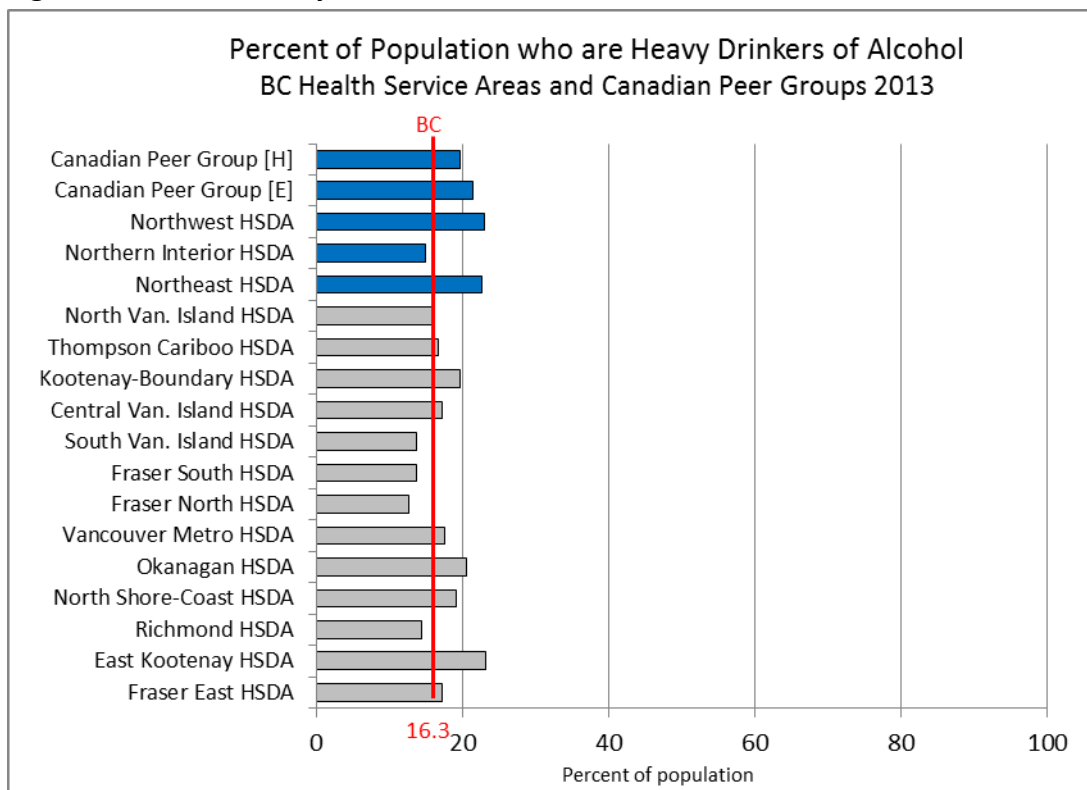
Figure 6 - Percent Overweight or Obese



People who are overweight or obese are at greater risk of developing a wide range of health problems, particularly high blood pressure, diabetes, heart disease, and certain types of cancers. While obesity is not an official cause of death, some experts believe that it is one of the leading contributors to premature death. (Office of the Provincial Health Officer: Annual Report, 1999) (Statistics Canada - Definitions, Sources and Symbols, 2013) (Northern Health: Addressing Risk Factors, 2014)

Primary Data Source: Canadian Community Health Survey, Statistics Canada, 2011/2012.
 CANSIM table no(s): [105-0502](#), [105-0592](#)
 Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 7 - Percent Heavy Drinkers



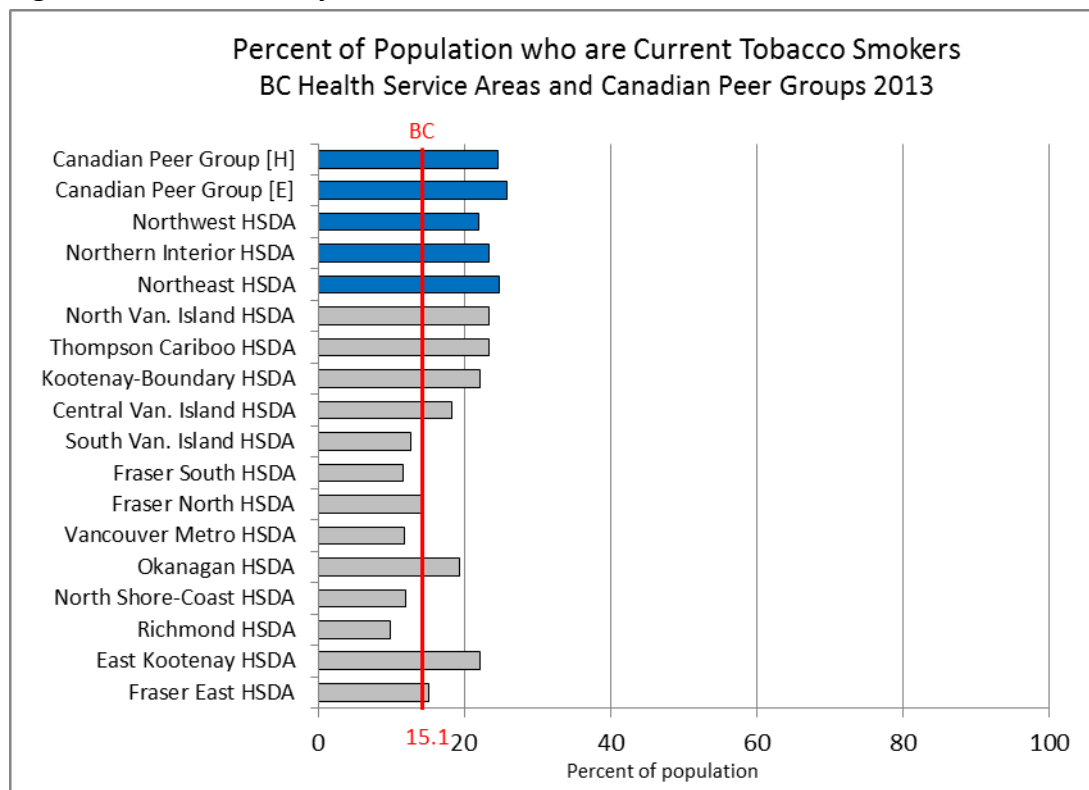
Heavy drinking refers to having consumed five or more drinks, per occasion, at least once a month during the past year. This level of alcohol consumption can have serious health and social consequences, especially when combined with other behaviours such as driving while intoxicated. (Office of the Provincial Health Officer: Annual Report, 1999) (Statistics Canada - Definitions, Sources and Symbols, 2013) (Northern Health - Our Choices, 2014)

Primary Data Source: Canadian Community Health Survey, Statistics Canada, 2011/2012.

CANSIM table no(s): [105-0502](#), [105-0592](#)

Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 8 - Percent Heavy Smokers



Smoking is a risk factor for lung cancer, heart disease, stroke, chronic respiratory disease, and other conditions. According to the World Health Organization, smoking is an important and preventable cause of death. (Office of the Provincial Health Officer: Annual Report, 1999) (Statistics Canada - Definitions, Sources and Symbols, 2013) (Northern Health: Addressing Risk Factors, 2014)

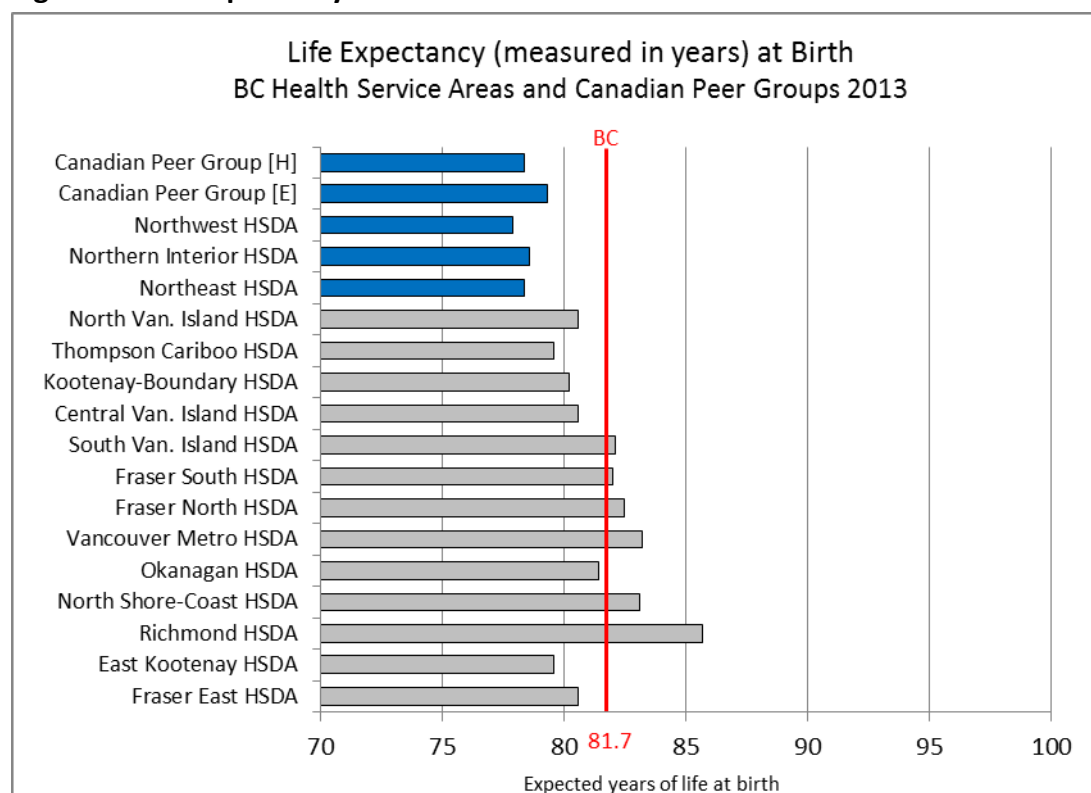
Primary Data Source: Canadian Community Health Survey, Statistics Canada, 2011/2012.

CANSIM table no(s): [105-0502](#), [105-0592](#)

Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Health Status

Figure 9 - Life Expectancy at Birth

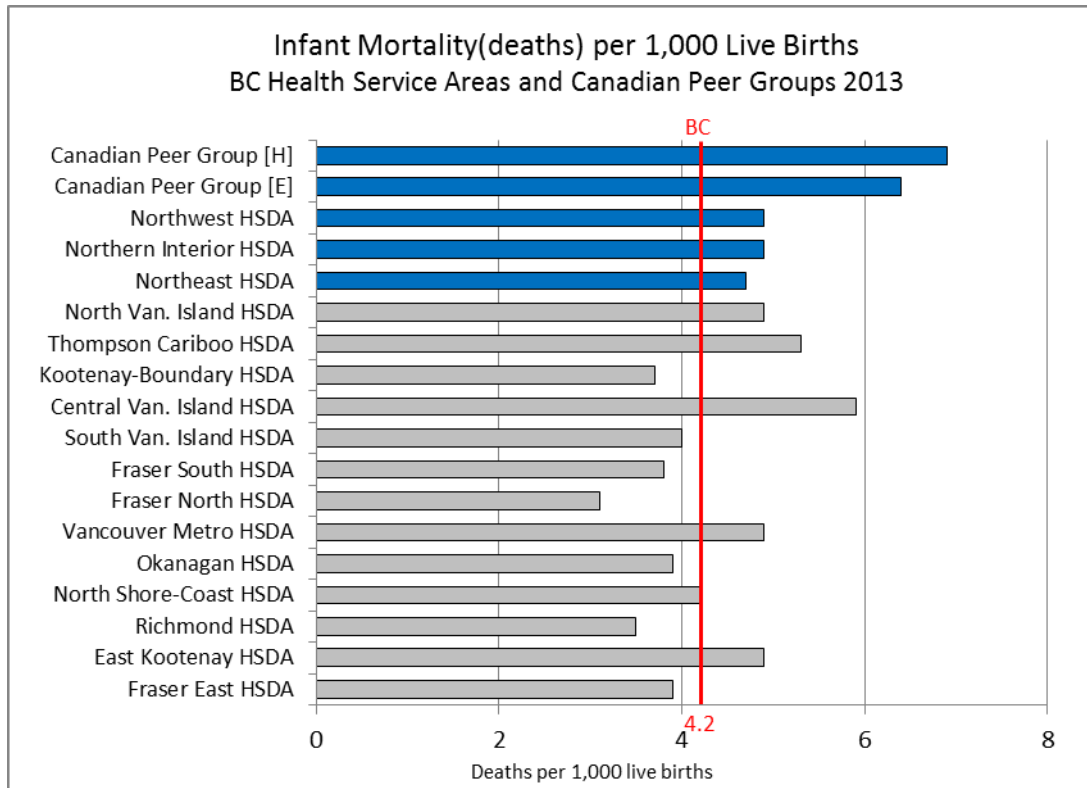


Life expectancy is used around the world as a basic indicator of the extent to which people are able to live a long life, that a population is healthy, has adequate food and access to health care, and is protected from disease and other threats that would shorten their life span.

Although life expectancy measures quantity rather than quality of life, it remains a widely-used summary measure of population health. (Office of the Provincial Health Officer: Annual Report, 1999) (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: Statistics Canada, Canadian Vital Statistics, Death Database and Demography Division (population estimates), 2007/2009. CANSIM table no(s): [102-4307](#)
Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 10 - Infant Mortality per 1,000 Live Births

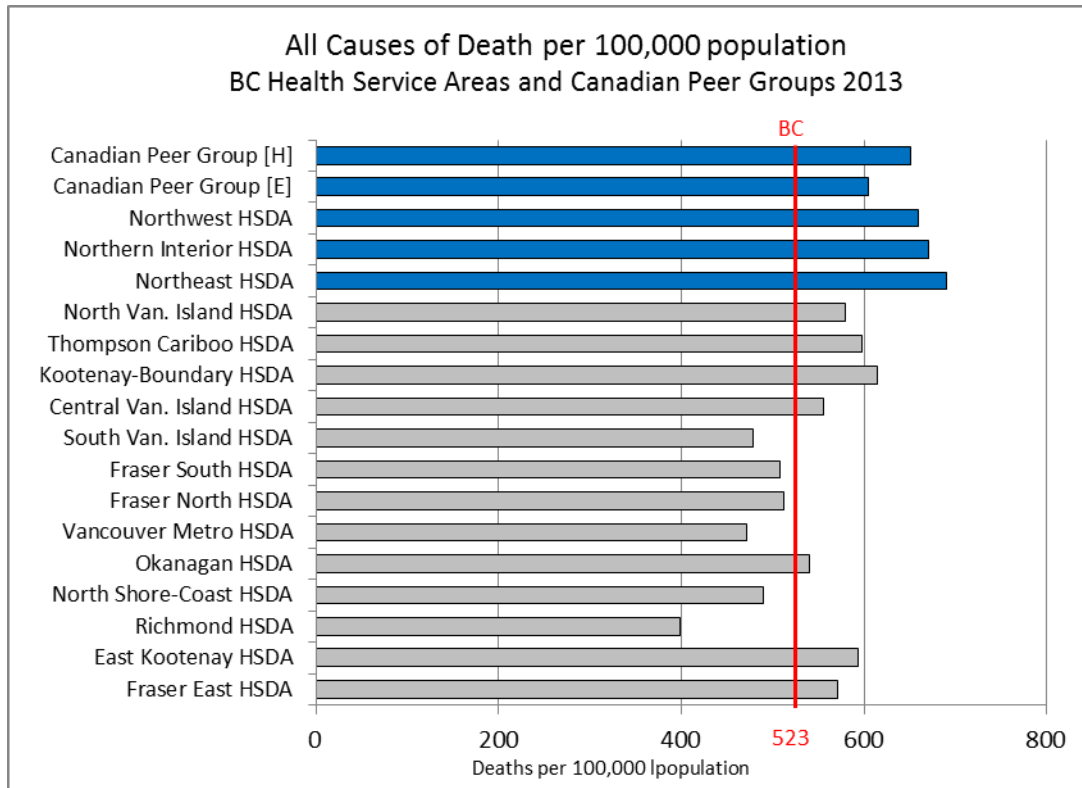


Infant deaths (mortality) are deaths in children under one year of age at the time of death. The infant mortality rate is a well-established indicator not only of child health, but also of the well-being of a society. This indicator also reflects the effectiveness of preventive care and the attention paid to maternal and child health. (Office of the Provincial Health Officer: Annual Report, 1999) (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: Statistics Canada, Vital Statistics, Birth and Death Databases, 2005/2007. CANSIM table no(s): [102-4305](#), [102-4306](#)

Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 11 - All Causes of Death per 100,000 Population

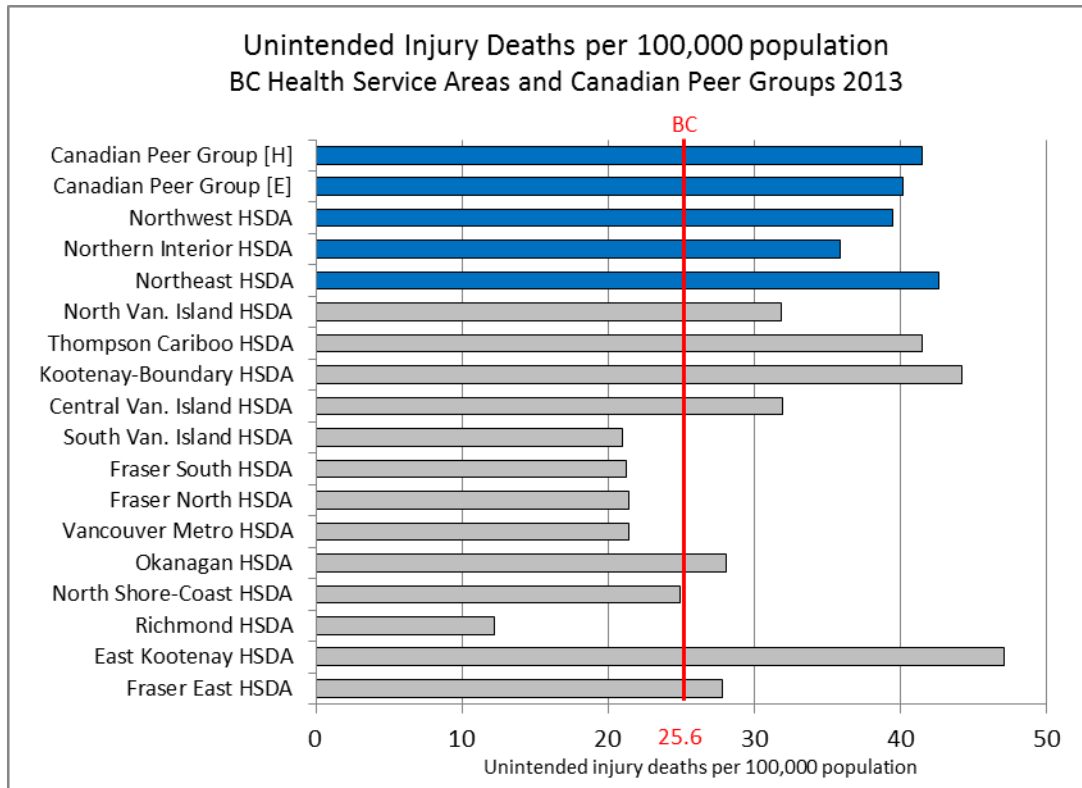


Death is really the final outcome in life. In many ways it is the sum of all things that we have encountered and accumulated on our journey from birth. Knowing that some areas have populations that die at a greater rate than other areas might prompt us to begin asking question about the factors underlying the differences in death rates.

This graph shows the Age-standardized rate of death from all causes per 100,000 population. (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: Statistics Canada, Canadian Vital Statistics, Death Database and Demography Division 2005/2007 CANSIM table no(s): [102-4309](#), [102-4310](#)
 Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 12 - Unintended Injury Deaths per 100,000 Population

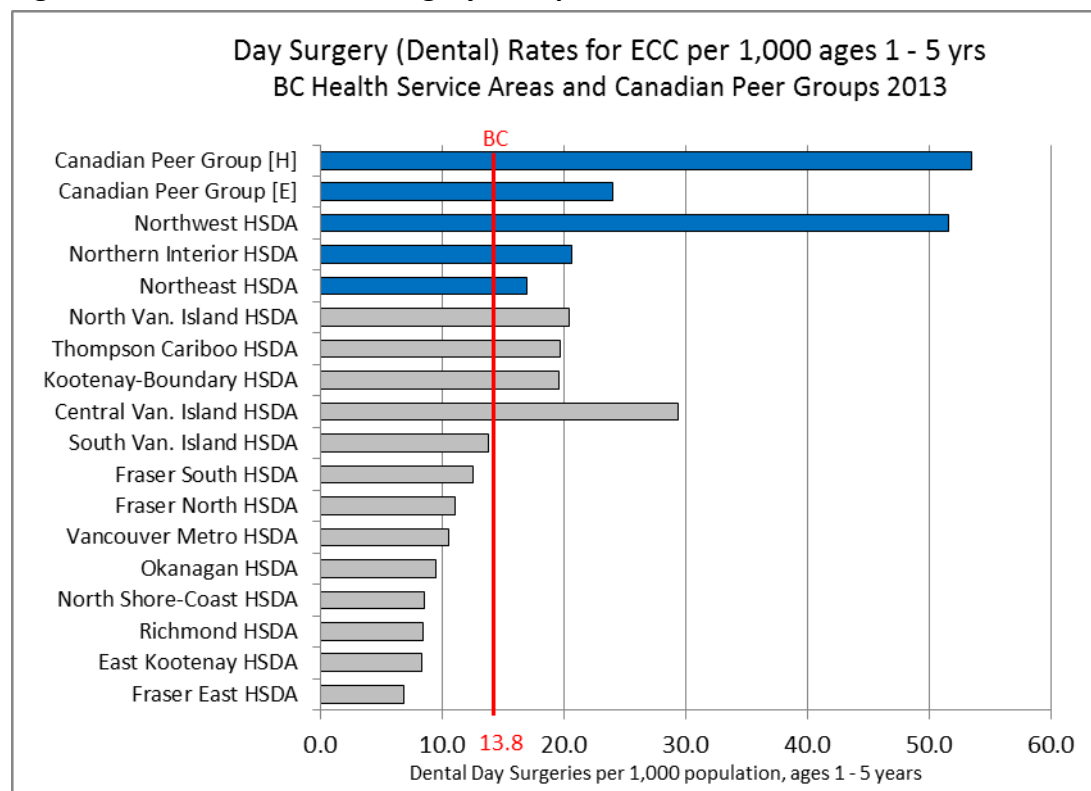


Injury death rates provide information about the safety of the environments in which people live, work and play, the safety of the products they use, and risk-taking behaviour, especially among youth. The rates also reflect the adequacy and effectiveness of injury prevention efforts, including public education, prevention and treatment resources. (Office of the Provincial Health Officer: Annual Report, 1999) (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: Statistics Canada, Canadian Vital Statistics, Death Database and Demography Division 2005/2007. CANSIM table no(s): [102-4309](#), [102-4310](#)
 Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Health System Performance

Figure 13 - Pediatric Dental Surgery Rate per 1,000

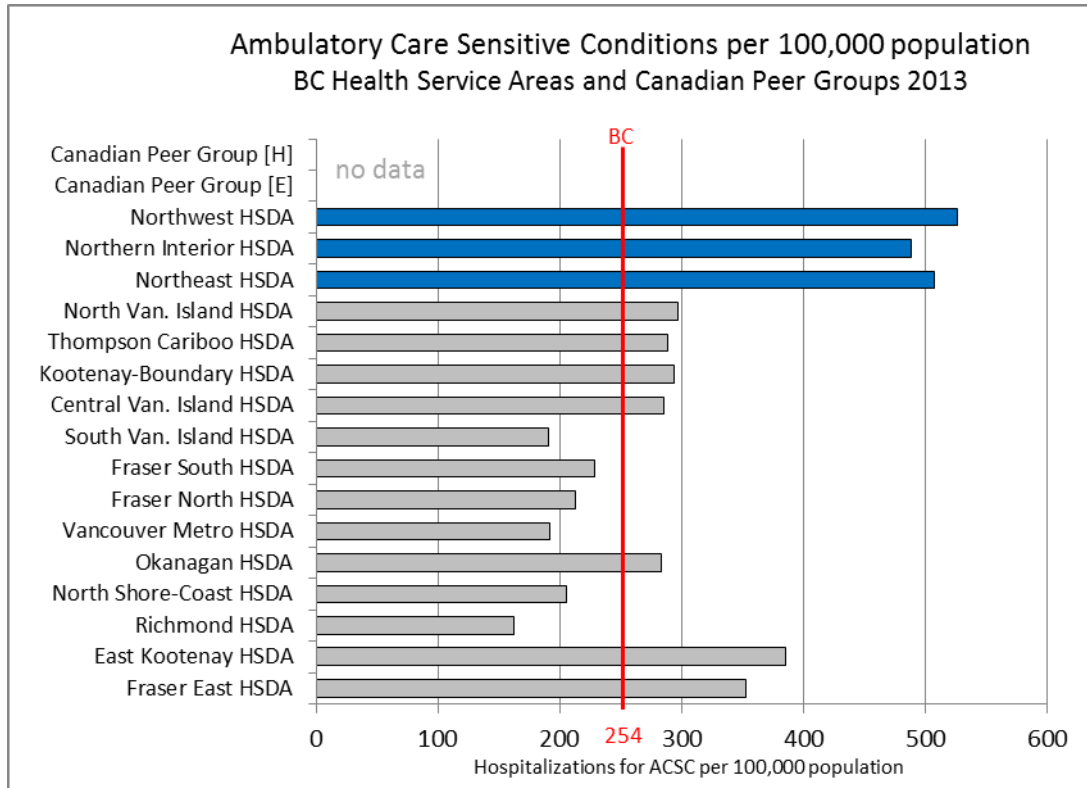


It is believed that nearly 100% of dental surgeries performed on children in hospital under general anesthesia could be avoided through a combination of mechanisms aimed at early prevention, early screening, parenting skill development and improved access to appropriate care providers. (Canadian Institute for Health Information, 2013) (BC Ministry of Health, 2014) (National Collaborating Centre for Aboriginal Health, 2014)

Primary Data Source: Canadian Institute for Health Information (Canadian Institute for Health Information, 2013)

Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 14 - Ambulatory Care Sensitive Conditions per 100,000 Population

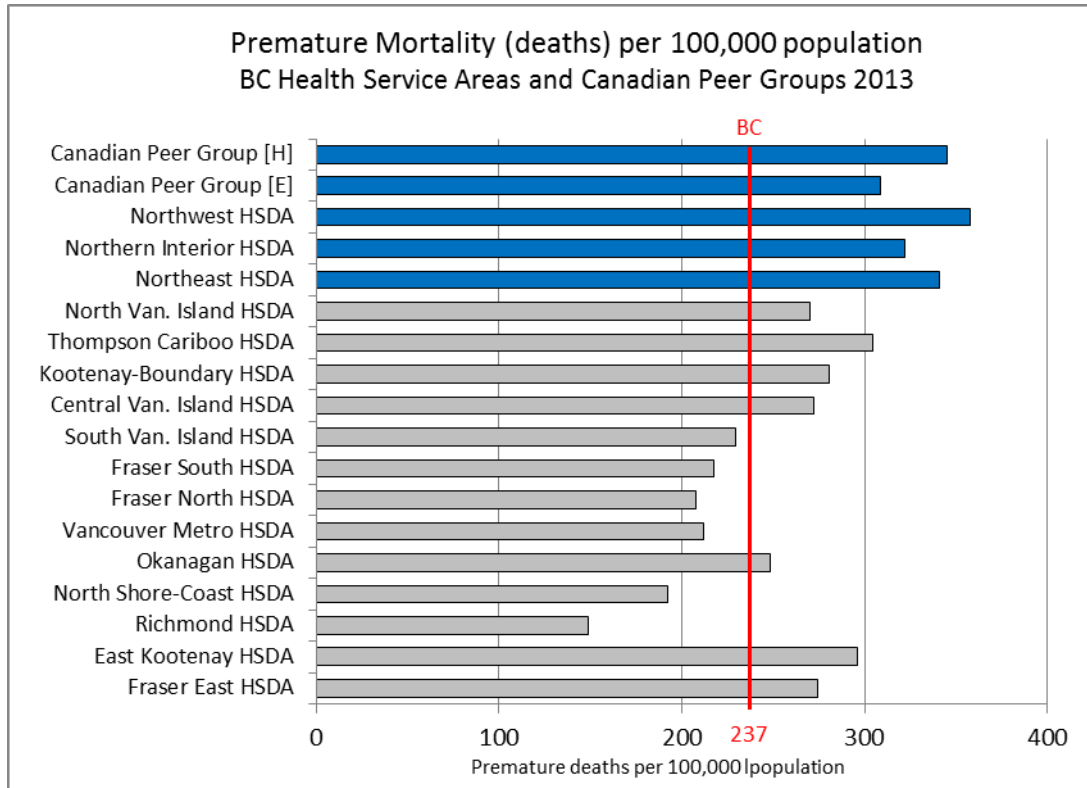


Ambulatory Care Sensitive Conditions (ACSC) are conditions where hospital admission is usually not needed, if patients have timely access to high quality care in the community. Conditions such as diabetes, hypertension, asthma, depression and other long term chronic condition can usually be managed in the community without the need for hospitalization.

A disproportionately high rate of hospitalization for these ACSCs is presumed to reflect problems in obtaining access to primary care. (Office of the Provincial Health Officer: Annual Report, 1999) (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: Canadian Institute for Health Information
 Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 15 - Premature Mortality per 100,000 Population

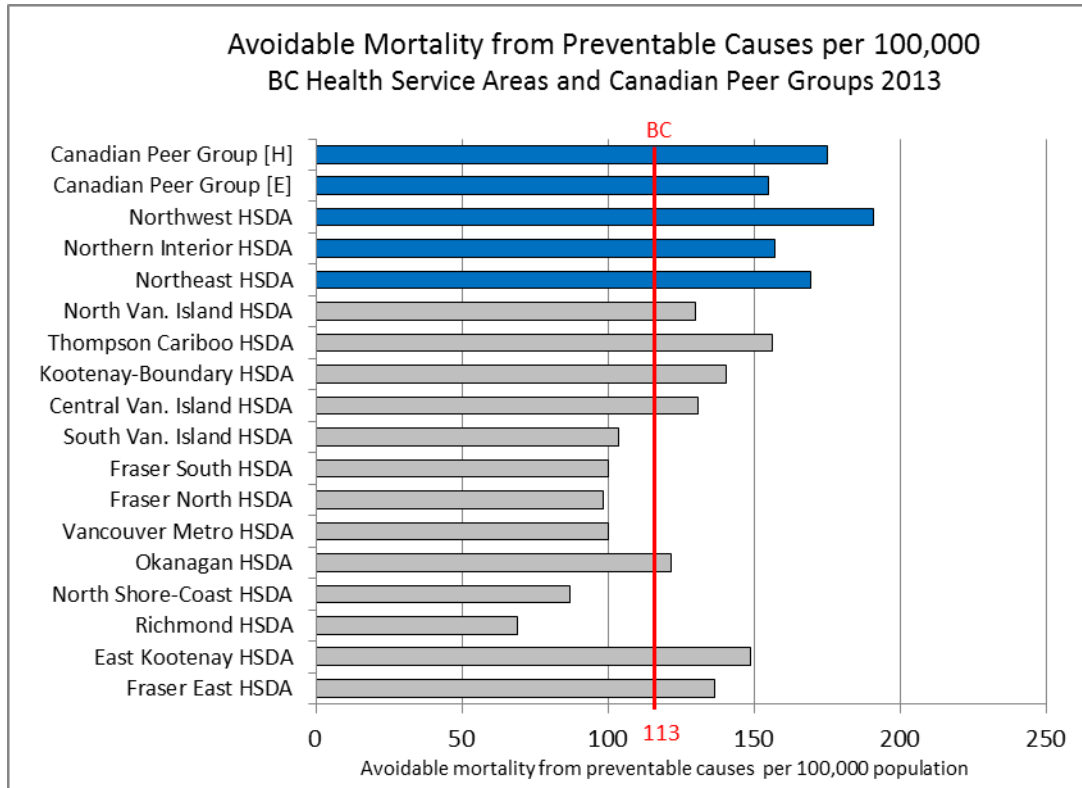


Measures of premature and avoidable mortality are recognized as indicators of unmet health care needs because their focus is on potentially preventable deaths. (Office of the Provincial Health Officer: Annual Report, 1999) (Centre for Health Services & Policy Research, 2004)

In Canada, we are statistically expected to live to at least 75 years of age. Deaths that occur prior to age 75 are considered premature. This graph shows the rates of premature mortality.

Primary Data Source: Statistics Canada, Canadian Vital Statistics, Death Database and Demography Division (population estimates), 2006/2008. CANSIM table no(s): [102-4311](#)
Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 16 - Avoidable Mortality (preventable causes) per 100,000 Population

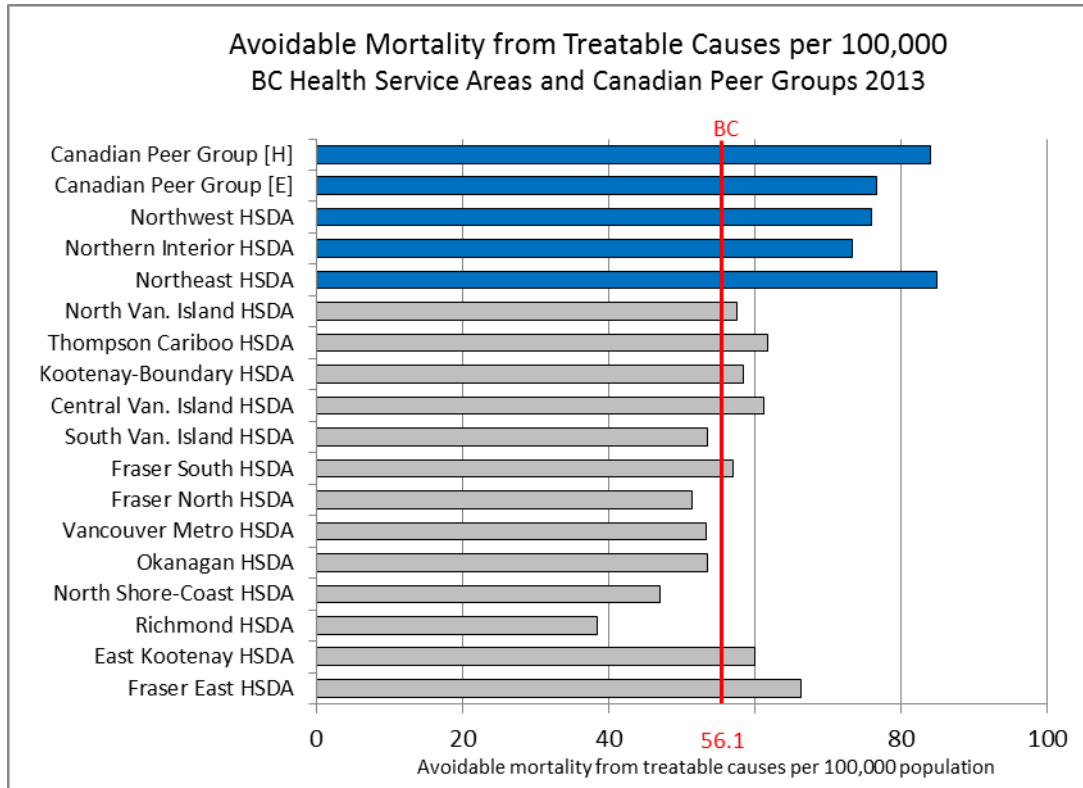


Measures of premature and avoidable mortality are recognized as indicators of unmet health care needs because their focus is on potentially preventable deaths. (Office of the Provincial Health Officer: Annual Report, 1999) (Centre for Health Services & Policy Research, 2004)

This graph shows the Age-standardized rate of premature deaths that could **potentially have been prevented through primary prevention** efforts per 100,000 population. (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: Statistics Canada, Canadian Vital Statistics, Death Database and Demography Division (population estimates), 2006/2008. CANSIM table no(s): [102-4311](#)
 Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 17 - Avoidable Mortality (treatable causes) per 100,000 Population

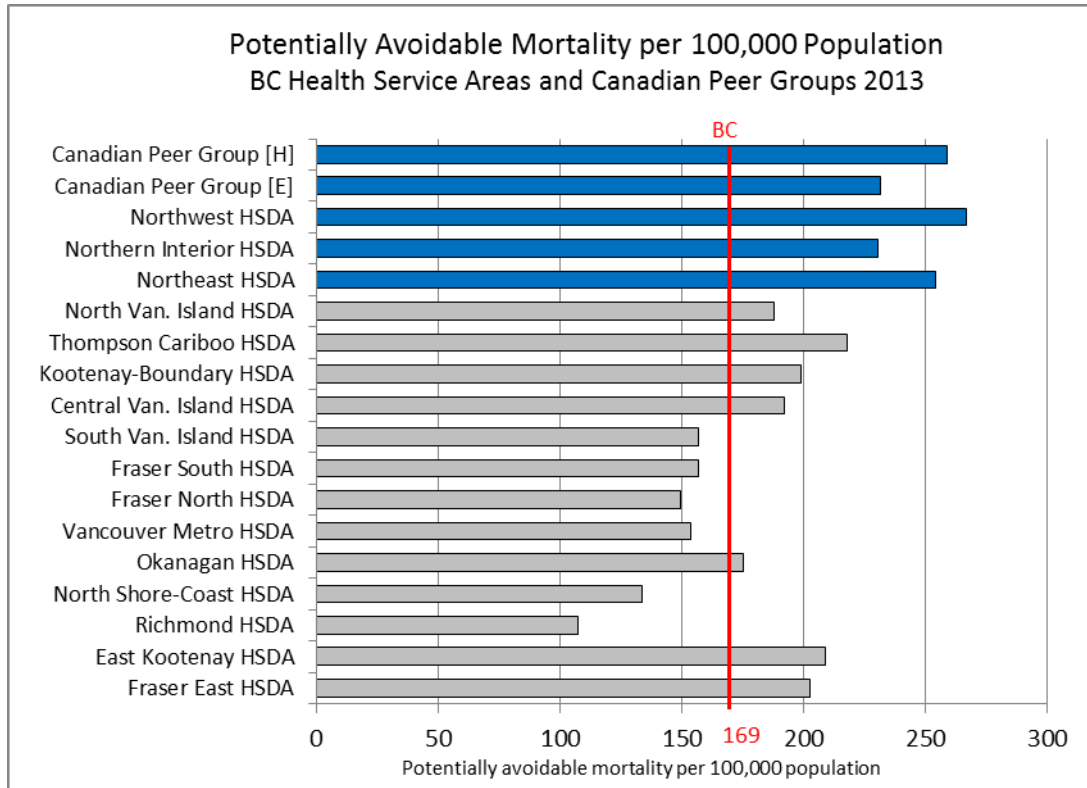


Measures of premature and avoidable mortality are recognized as indicators of unmet health care needs because their focus is on potentially preventable deaths. (Office of the Provincial Health Officer: Annual Report, 1999) (Centre for Health Services & Policy Research, 2004)

This graph shows the Age-standardized rate of premature deaths that could **potentially have been avoided through secondary or tertiary prevention** per 100,000 population. (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: Statistics Canada, Canadian Vital Statistics, Death Database and Demography Division (population estimates), 2006/2008.CANSIM table no(s): [102-4311](#)
 Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 18 - Potentially Avoidable Mortality per 100,000 Population

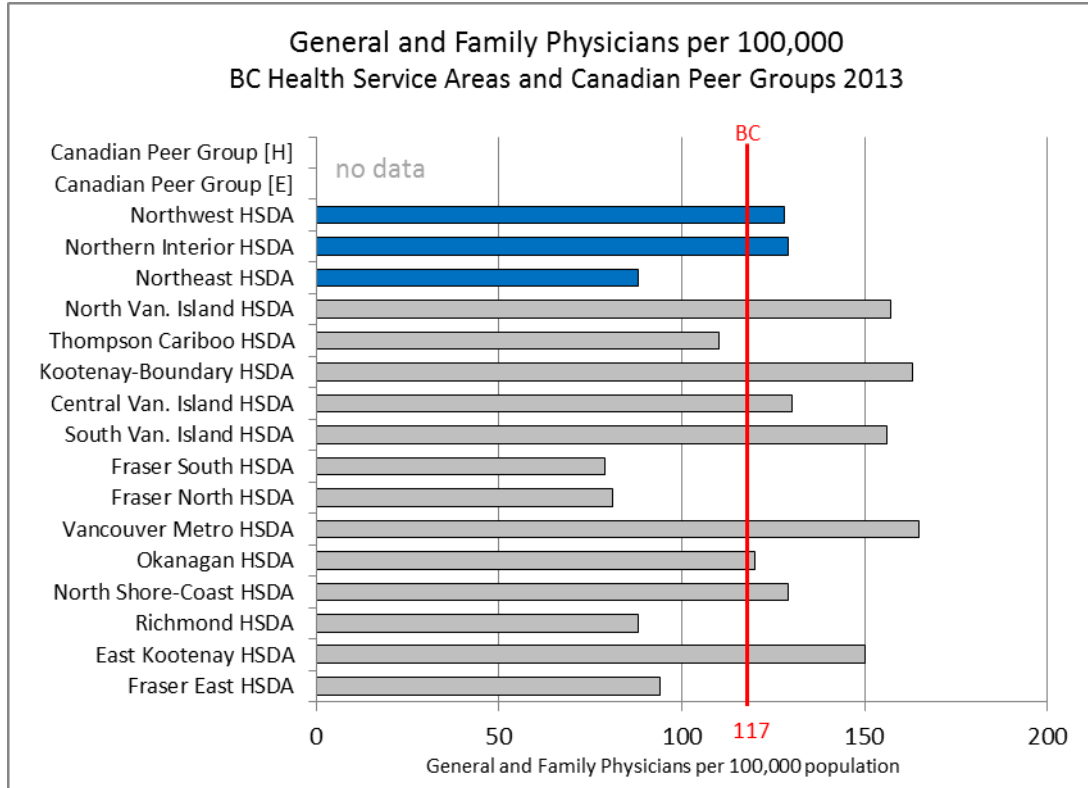


Measures of premature and avoidable mortality are recognized as indicators of unmet health care needs because their focus is on potentially preventable deaths. (Office of the Provincial Health Officer: Annual Report, 1999) (Centre for Health Services & Policy Research, 2004)

This graph shows the Age-standardized rate of premature deaths that could **potentially have been avoided through all levels of prevention (primary, secondary, tertiary)** per 100,000 population. (Statistics Canada - Definitions, Sources and Symbols, 2013)

Primary Data Source: Statistics Canada, Canadian Vital Statistics, Death Database and Demography Division (population estimates), 2006/2008. CANSIM table no(s): [102-4311](#)
 Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Figure 19- GPs and FPs per 100,000 Population

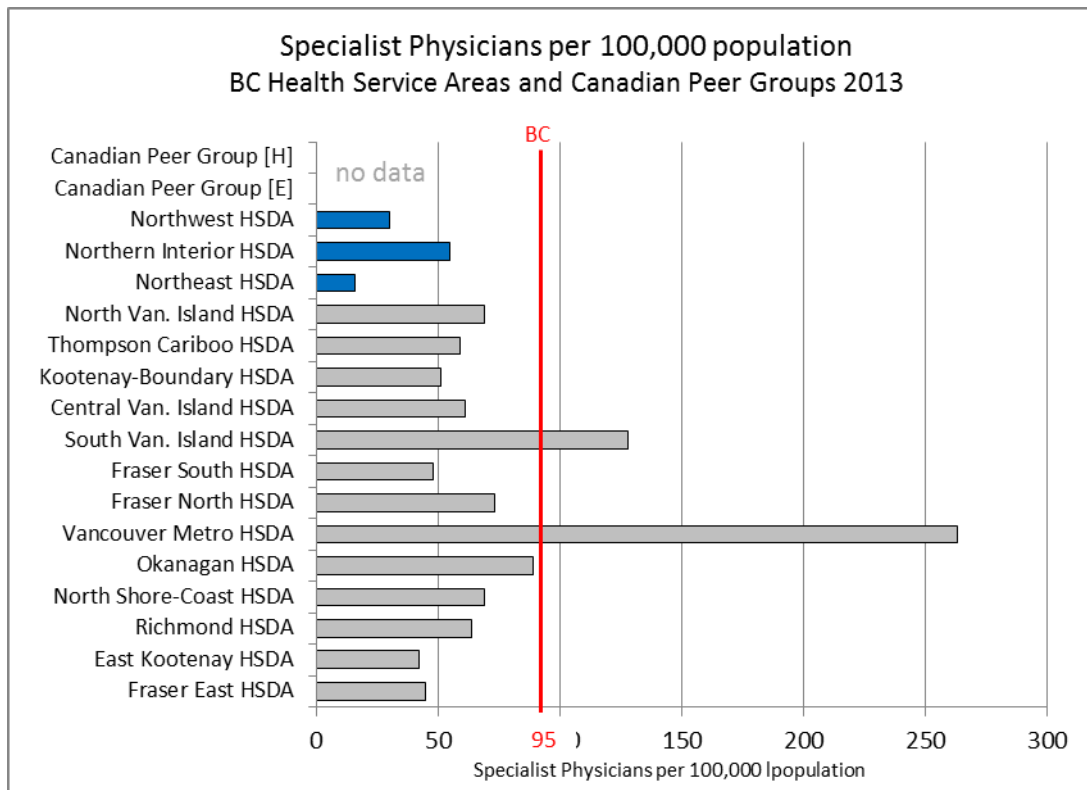


Physician-to-population rates are useful indicators and are published by a variety of agencies to support health human resource planning. (Statistics Canada - Definitions, Sources and Symbols, 2013)

This graph shows General Practitioners and Family Physicians per 100,000 population.

Primary Data Source: Scott's Medical Database, CIHI; January 1st, 2011 to December 31, 2012
 Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013).

Figure 20 - Specialist Physicians per 100,000 Population



Physician-to-population rates are useful indicators and are published by a variety of agencies to support health human resource planning. (Statistics Canada - Definitions, Sources and Symbols, 2013) This graph shows Specialist Physicians per 100,000 population.

Primary Data Source: Scott's Medical Database, CIHI; January 1st, 2011 to December 31, 2012.
 Acquired from: Statistics Canada Health Regions Profiles website: (Statistics Canada, 2013)

Discussion

Demographics and Geography

With respect to our “rurality” and the [proportion of the population that is Aboriginal](#), we are very much like our peer health regions and very much unlike other areas of British Columbia.

Another principal demographic characteristic for our peer groups (E and H) is the proportion of the population considered to be [immigrants to Canada](#). (a terminology that seems very out of step in modern day Canada, but nevertheless it is an official Statistics Canada terminology) In our peer comparison we also included the somewhat related category “[Visible Minority](#)”.

On the above measures we are very much like our peers and *unlike* other BC Health Areas.

Health Related Behaviors

It is true: Figures 6, 7 and 8 show that more of us are [overweight or obese](#), that we [drink more alcohol more frequently](#) and [more of us smoke](#). We are remarkably similar to our peer groups and other rural health areas in BC (North Vancouver Island and the Cariboo).

Health Status Measures

(Figure 9) With respect to [Life-expectancy](#), our expected lifespan is consistently shorter than that of other British Columbians and about the same as our peer groups.

(Figure 10) With respect to [Infant Mortality](#), there is not a large range of values between the best performing areas and the worst. Given that we are a stable nation with well- developed sanitation and water systems we might expect this narrow range of values. Our Infant mortality rates are very similar to other areas in BC but considerably lower than our peers across Canada.

(Figure 11) The [Age-standardized All Causes of Mortality Rate](#) indicates that we, like our peer group members across Canada, are dying at a higher rate than most other British Columbians. Other rural HSDAs in BC have all-cause mortality rates that are similar to us and our peers.

(Figure 12) Our [Unintended Injury Death Rates](#) are about the same as our peers but much higher than most other BC health areas which suggests that there is something unique to our circumstances and that of our rural peers.

Health System Measures

(Figure 13) Our *Day Surgery (Dental) Rates* are very high compared to most other areas of BC. In fact the Northwest HSDA has the highest pediatric dental surgery rates in the province. This has been noted previously. (Office of the Provincial Health Officer: Annual Report, 2001) (Office of the Provincial Health Officer: Annual Report, 2007) (Haggerstone, 2015)

In this case, the dental surgery data was obtained from the CIHI Report. (Canadian Institute for Health Information, 2013). We took this data and applied it to the peer groups defined by Statistics Canada. As a result, we can see that the very high dental surgery rates experienced by the northwest are consistent with the rates within peer group “H” to which the Northwest is a member. Another member of the same peer group H, the northern interior HSDA, has much lower dental surgery rate. This may be due to the addition of fluoride in the community water system but we don’t know for sure. What we do know is that more than half of the northern interior population has been protected by the addition of fluoride to the public drinking water system for many years. This protection ended on January 1, 2015 when the City of Prince George ceased adding fluoride to the community water system. This recent development may provide an interesting public health surveillance and research opportunity.

(Figure 14) With respect to *Ambulatory Care Sensitive Conditions (ACSC)*, we have much higher rates than other BC HSDAs and BC overall. Unfortunately with this indicator we have no comparative data for our Health Region Peer Groups.

Figures (15 -18) *Measures of Premature and Avoidable mortality* are recognized as indicators of unmet health care needs because their focus is on potentially preventable deaths. (Office of the Provincial Health Officer: Annual Report, 1999) (Centre for Health Services & Policy Research, 2004) Northern BC HSDAs fair poorly on these measures relative to other BC health areas but appear to be about the same as their rural health region peers.

(Figures 19 & 20) *General Practice and Physician Specialists per 100,000*, confirms previous studies indicating that the distribution of health professionals across the Canadian landscape is asymmetrical. (Canadian Institute for Health Information, 2013) (Canadian Medical Association, 2016) (Centre For Health Services and Policy Research, 2006)

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