

Healthy Northern Communities 2011

*District Municipality
of Mackenzie*

Revised
August 6, 2011



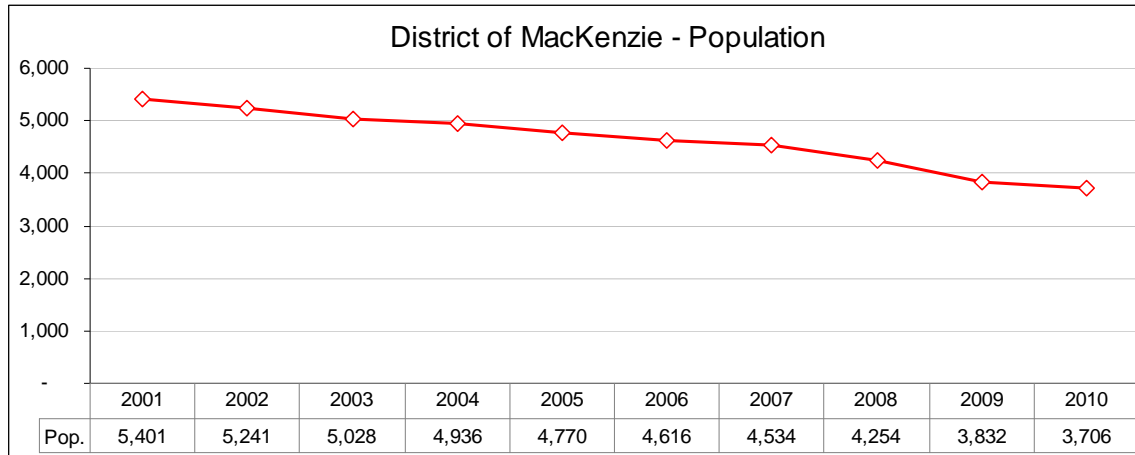
northern health
the northern way of caring

District Municipality of Mackenzie

The District Municipality of Mackenzie was incorporated in 1966. The District of Mackenzie is located 190 km north of Prince George and 180 km west of Chetwynd. ¹

Mackenzie is also situated within the Fraser-Fort George Regional District, within the Prince George Local Health Area (LHA 057) and within the Northern Interior Health Service Delivery Area of Northern Health. Mackenzie is served by School District No. 57.

This area is the traditional territories of the Tse' Khene (Sekani) peoples. Nearby to Mackenzie is the community of the McLeod Lake First Nation. Northwards along Williston Lake are the communities of Tsey Keh Dene and Kwadacha Nation. ^{2, 3, 4}



The estimated 3,706 people within the District of Mackenzie account for approximately 3.8 % of the Prince George LHA population (3,706 / 96,405 persons) and for 3.8 % of the Fraser Fort George Regional District population (3,706 / 96,575 persons). ^{5, 6, 7}

During the 2009 calendar year, there were 41 births, 12 deaths and 16 marriages to the residents of Mackenzie. The average life expectancy for Mackenzie residents was 78.8 years. This was less than the BC average life expectancy of 81.4 years. ⁸

Community Information

District of Mackenzie: <http://www.district.mackenzie.bc.ca/>

McLeod Lake First Nation: <http://www.mlib.ca>

Kwadacha First Nation: <http://www.kwadacha.com/nation>

Tsay Keh Dene Community Profile: Aboriginal Canada Portal
<http://www.aboriginalcanada.gc.ca/acp/community/site.nsf/eng/fn609.html>

Fraser Fort George Regional District: <http://www.rdffg.bc.ca/>

BC Community Facts: <http://www.bcstats.gov.bc.ca/data/dd/facsheet/facsheet.asp>

Northern BC, Community Health Information Portal <http://chip.northernhealth.ca>

What Determines Health?

A good strong start in life, early and enriching experiences, educational opportunities and achievement, a sufficient and equitable distribution of employment and income, housing, food, interactions with the natural and human built environments, our choices towards certain risk factors and lifestyles, as well as access to high quality health services, are just a few of the many determinants of health and wellbeing.^{9, 10}

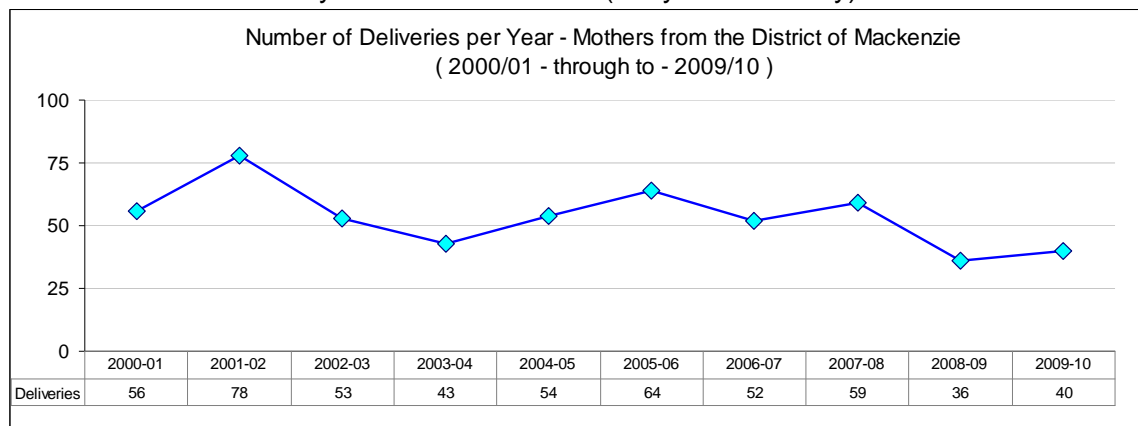
Selected Determinants of Health			
Demographics	Mackenzie ¹¹	LHA ¹²	BC ¹³
Percent of population who are 0 – 19 yrs old	29.5	24.4	23.2
Percent of population who are ages 65+	3.1	11.0	15.0
Percent of population who are Visible Minorities	5.0	3.5	24.5
Percent of population who are Aboriginal Identity	7.0	22.1	4.8
Income			
Percent of families earning < \$20,000 per year	3.6	11.4	8.0
Percent of families earning from \$20,000 - \$80,000 per year	35.5	50.8	53.8
Percent of families earning > \$80,000 per year	60.8	37.7	38.1
* Percent of population receiving Income Assistance > 1 yr.	nca	1.8	1.0
Early Development and Educational Achievement			
Percent of kindergarten children vulnerable:1 or more EDI scales ¹⁴	22.2	32.3	28.6
† Percent of Grade 4 & 7 students below standard on FSA - Reading	nca	25.4	20.7
† Percent of Grade 4 & 7 students below standard on FSA - Writing	nca	23.8	17.9
† Percent of Grade 4 & 7 students below standard on FSA - Math	nca	33.8	23.4
† Grade 10 Provincial-exam non-completion rate - English	nca	19.1	15.9
† Percent of 18 yr olds who did not graduate	nca	33.4	29.0
Percent of persons ages 25 to 54: without high school completion	nca	16.3	11.1
Percent of persons ages 25 to 64: with university degree or above	9.4	14.3	24.1
Housing			
Percent of households that are renting	18.5	20.3	30.4
Percent of tenants paying 30 % or more of income towards housing	15.0	29.7	43.4
Percent of owners paying 30 % or more of income towards housing	7.0	12.1	22.7
Children and Youth at Risk			
* Children (ages <15) receiving Income Assistance > 1 year	nca	3.6	1.7
* Youth (ages 15 - 24) receiving Income Assistance > 1 yr	nca	1.9	0.9
Children in care rate per 1,000 population, ages 0 – 18	nca	15.9	9.2
Teen pregnancies per 1,000 women ages 15 – 19 (2007-2009)	nca	45.9	26.3
Other Indicators			
Alcohol sales per capita in 2010 (Dollars Spent)	nca	800	790
Alcohol sales per capita in 2010 (Litres Consumed)	nca	123	107
nca = means this level of data detail or data aggregation is "not currently available."			
EDI = the Early Development Index is an early child development assessment tool. http://www.earlylearning.ubc.ca			
LHA = Local Health Area. In this table we are referring to the Prince George Local Health Area (LHA - 057).			
* Income Assistance figures may be understated as they do not include Aboriginal people who are living on reserve.			
† education measures shown are an average for the period 2007/08 - 2009 /10. The LHA and BC figures were obtained from BC Stats Socio-economic profiles . Please also see BC Ministry of Education http://www.bced.gov.bc.ca/reporting/			

Promoting Health and Delivering High Quality Services

A good strong start in life is more likely if infants, children and family members are healthy. Towards this, we consider community characteristics (Determinants of Health), the number of mothers delivering infants and where these infants are being delivered.

This type of information informs services such as prenatal education, parenting skills programs, post delivery follow-ups for moms, immunizations, as well as the screening services intended to detect and address vision, hearing and dental health concerns.

Number of deliveries by Mackenzie mothers (ten year summary).¹⁵



Delivery locations for Mackenzie mothers (five year summary).¹⁶

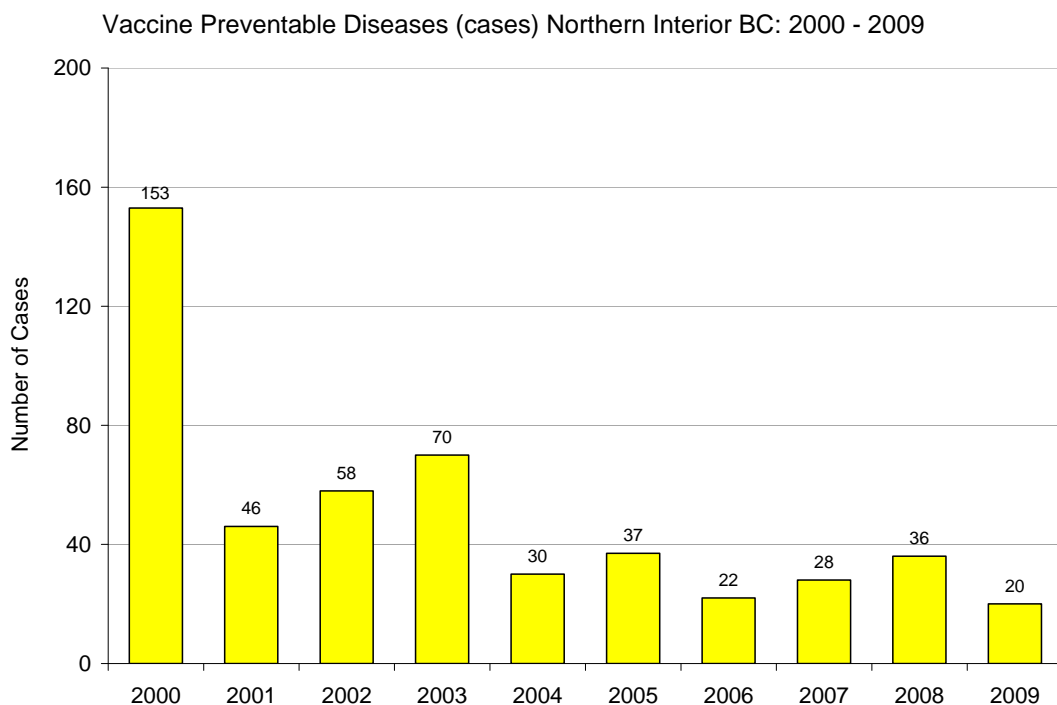
Mother's community or Regional District area	Delivery Location: 2005/06 – 2009/10					
	Prince George	Mackenzie	McBride	Other BC Location	Home Births	Total Deliveries
Fraser Fort George (A)	133	0	0	4	2	139
Fraser Fort George (C)	134	0	0	5	0	139
Fraser Fort George (D)	151	0	0	2	1	154
Fraser Fort George (E)	24	0	0	7	0	31
Fraser Fort George (F)	50	0	0	6	0	56
Fraser Fort George (G)	18	0	0	2	0	20
Fraser Fort George (H)	4	0	0	5	0	9
Kwadacha	38	0	0	0	0	38
Mackenzie (DM)	198	42	0	11	0	251
McBride (VL)	41	0	11	6	0	58
Valemount (VL)	10	0	2	16	1	29
Prince George (City)	4,335	1	0	106	59	4,501
Total Deliveries	5,136	43	13	170	63	5,425

Promoting Health and Delivering High Quality Services

Immunizations are some of the best health investments that we can make. Along with better sanitation and clean drinking water, immunizations have been responsible for the huge increases in life expectancy that we have seen around the world.^{17, 18}

Because they are such a good investment and the protection they provide to individuals and communities as a whole is so important, we actively monitor whether certain target populations are fully immunized. For example, we know that the percent of 2 year old children in the Mackenzie area, who are fully immunized, is 89.1%.¹⁹

Vaccine Preventable Diseases are illnesses that may have been avoided if individuals and communities were sufficiently immunized. These cases are summarized below.



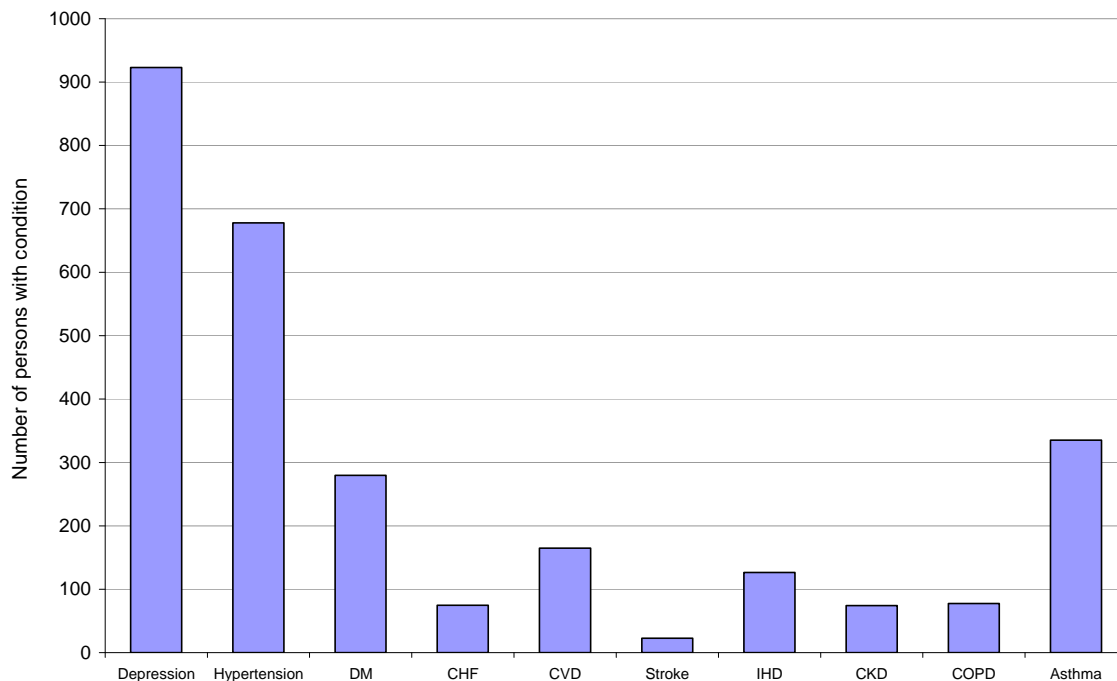
Vaccine Preventable Diseases (cases) in Northern Interior BC: 2000 - 2009 ²⁰											
Community	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Burns Lake	0	1	26	1	0	4	0	0	1	2	35
Ft. St. James	3	2	2	0	0	1	3	2	2	0	15
Fraser Lake	0	0	0	5	0	1	0	0	1	0	7
Mackenzie	1	0	0	1	0	0	1	0	0	1	4
McBride	0	1	0	0	0	0	0	0	0	0	1
Prince George	129	35	26	52	26	22	17	19	31	13	370
Quesnel	18	6	1	5	4	9	1	4	1	4	53
Valemount	0	0	0	4	0	0	0	0	0	0	4
Vanderhoof	2	1	3	2	0	0	0	3	0	0	11
Total	153	46	58	70	30	37	22	28	36	20	500

Promoting Health and Delivering High Quality Services

We know that many factors influence our health. Our choices in lifestyle and towards a handful of well known risk factors: tobacco use; physical inactivity; poor dietary choices; obesity; inappropriate alcohol and drug use; certain sexual activities; and, excessive sun exposure can greatly determine whether we remain healthy and free from certain types of cancers and other chronic illnesses. ^{21, 22, 23, 24}

Chronic Disease Estimates

Estimated prevalence (number of existing cases) of selected chronic conditions
District Municipality of Mackenzie residents: 2009 - 2010



Chronic Disease Estimates for District of Mackenzie residents: 2009 - 10 ²⁵			
Selected Chronic Conditions	Existing cases	New cases / yr	Cost / patient / yr
Depression	923	41	\$2,734
Hypertension	678	47	\$4,236
Diabetes	280	20	\$5,342
Congestive Heart Failure (CHF)	75	10	\$12,944
Cardiovascular Disease (CVD)	165	16	\$8,901
Stroke	23	3	\$10,396
Ischemic Heart Disease (IHD)	127	11	\$7,583
Chronic Kidney Disease (CKD)	74	10	\$12,019
COPD	78	13	\$9,500
Asthma	335	18	\$1,417

These community level estimates are based upon each community's relative share of the total Local Health Area (LHA) population and reflect what "might be expected" at the community level, given the known experience of the larger LHA.

Promoting Health and Delivering High Quality Services

Healthy and independent northerners is what we want to see when we look around northern BC communities. Indeed, that is a large part of what we do see. However, we know that our population is aging very quickly and that with increasing age there often comes an accumulation of chronic health conditions that inhibit independence.

Long-term home support and other services provided by northern health intend to keep people healthy and independent. During 2011, there were 856 residents of the northern interior receiving home-support services. Here is a clinical profile of these residents.²⁶

Male	36 %	Married	28 %	Aged 75+	72 %
Female	64 %	Widowed	44 %	Aboriginal	6 %
Frequently Noted Health Conditions					
Hypertension	56 %	Depression	27 %	Osteoporosis	22%
Arthritis	46 %	Diabetes	24 %	Chronic Arterial	20 %
Clients with Multiple Health Conditions					
≤ 3 Conditions	28 %	3 - 5 Conditions	37 %	≥5 Conditions	34 %
Clients with Cognitive Impairment (Cognitive Performance Score)					
No impairment	39 %	Borderline /mild	49 %	Mod - Very Severe	12 %
Clients with independence difficulty in 1- 3 daily activities (IADL Difficulty Scale)					
No difficulty	28 %	Some difficulty	22 %	Great difficulty	50 %

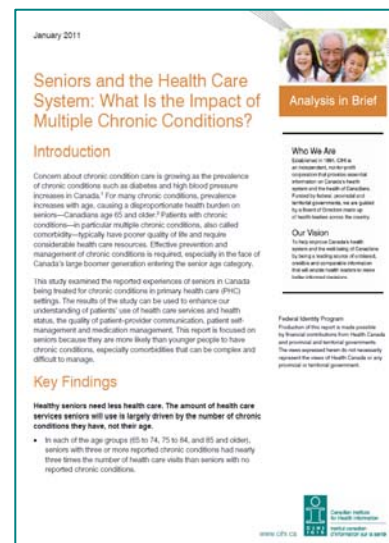
How do we compare to the rest of Canada?

The most frequently reported chronic conditions affecting Canadian seniors overall are:

- Hypertension (47%)
- Arthritis (27%)
- Hypertension and arthritis (14%)
- Hypertension and heart disease (12%)
- Hypertension and diabetes (11%)

The amount of health care that Canadian seniors need as they age is largely driven by the number of chronic conditions that they have, not their age.²⁷

These are just a few of the many findings contained in the report: *Seniors and the Health Care System: What is the Impact of Multiple Chronic Conditions?*



Promoting Health and Delivering High Quality Services

We employ the best available information related to community characteristics and the determinants of health, population trends, disease occurrences, health needs and health services utilization when assessing services and when planning for the future.

These tables provide a glimpse into some of the inpatient and facility activity.

Location: where inpatient hospital services were received.²⁸

For Mackenzie residents during the five year period: 2005/06 - 2009/10.						
Number of Cases and Days	Location of Hospital Care					
	Mackenzie	Prince George	Other NH	Other BC	OOP	Total
Cases	829	1,103	122	219	22	2,295
Days	5,113	5,553	398	1,590	124	12,778

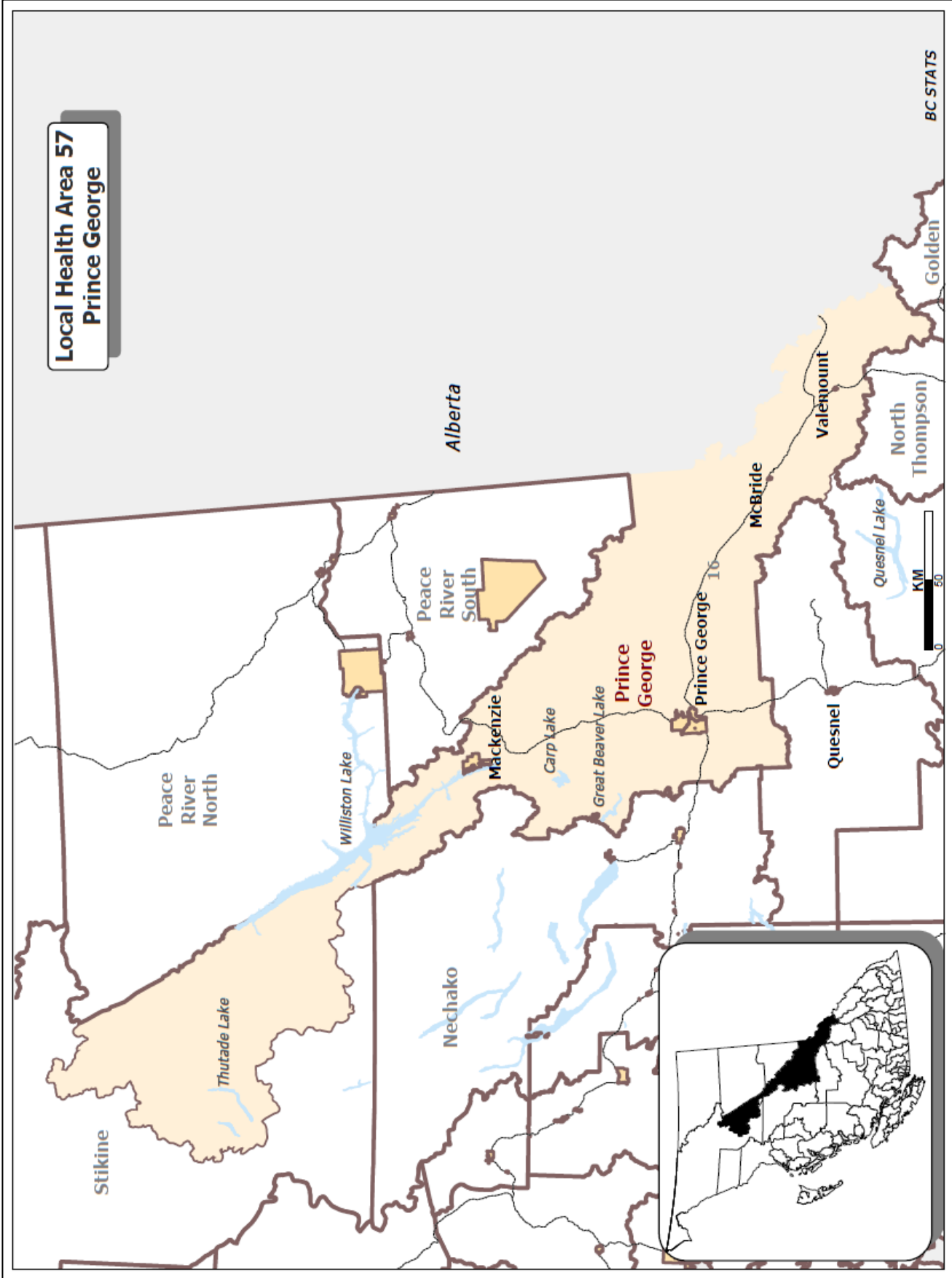
- Cases These are inpatient cases - client was admitted to the facility.
- Days These are inpatient days - does not include days attributable to ALC.
- Other NH Care was received at a Northern Health facility other than those shown.
- Other BC Care was received at a non Northern Health facility in BC.
- OOP Care was received Out of Province – in most cases this means Alberta.
- ALC Alternate Level of Care. Clients who no longer need acute services and who are waiting to be discharged to a setting more appropriate to their needs.²⁹

Facility and Patient Activity (selected measures)³⁰

No. 715 - Mackenzie & District Hospital & Health Centre					
Selected Measures	2006/07	2007/08	2008/09	2009/10	2010/11
Acute discharges/deaths total	233	164	116	144	170
Acute in-patient admissions total	236	159	115	148	168
Acute in-patient days (excl. ALC)	1,456	1,278	608	858	1,114
ALC days total	154	326	837	319	114
Ambulatory visits (excl. E/R).	n/a	n/a	n/a	n/a	n/a
Emergency visits (excl. Ambul)	7,924	5,771	5,044	4,735	5,385
In-patient surgical cases total	n/a	n/a	n/a	n/a	n/a
Surgical day care cases total	n/a	n/a	n/a	n/a	n/a
Psychiatry/addiction admissions	n/a	n/a	n/a	n/a	n/a
Psychiatry/addiction I/P days	n/a	n/a	n/a	n/a	n/a
Medical Imaging Tests	2,522	2,685	2,226	1,298	1,915
Lab Tests (excludes respiratory)	80,184	86,946	85,159	87,150	76,933

**Local Health Area 57
Prince George**

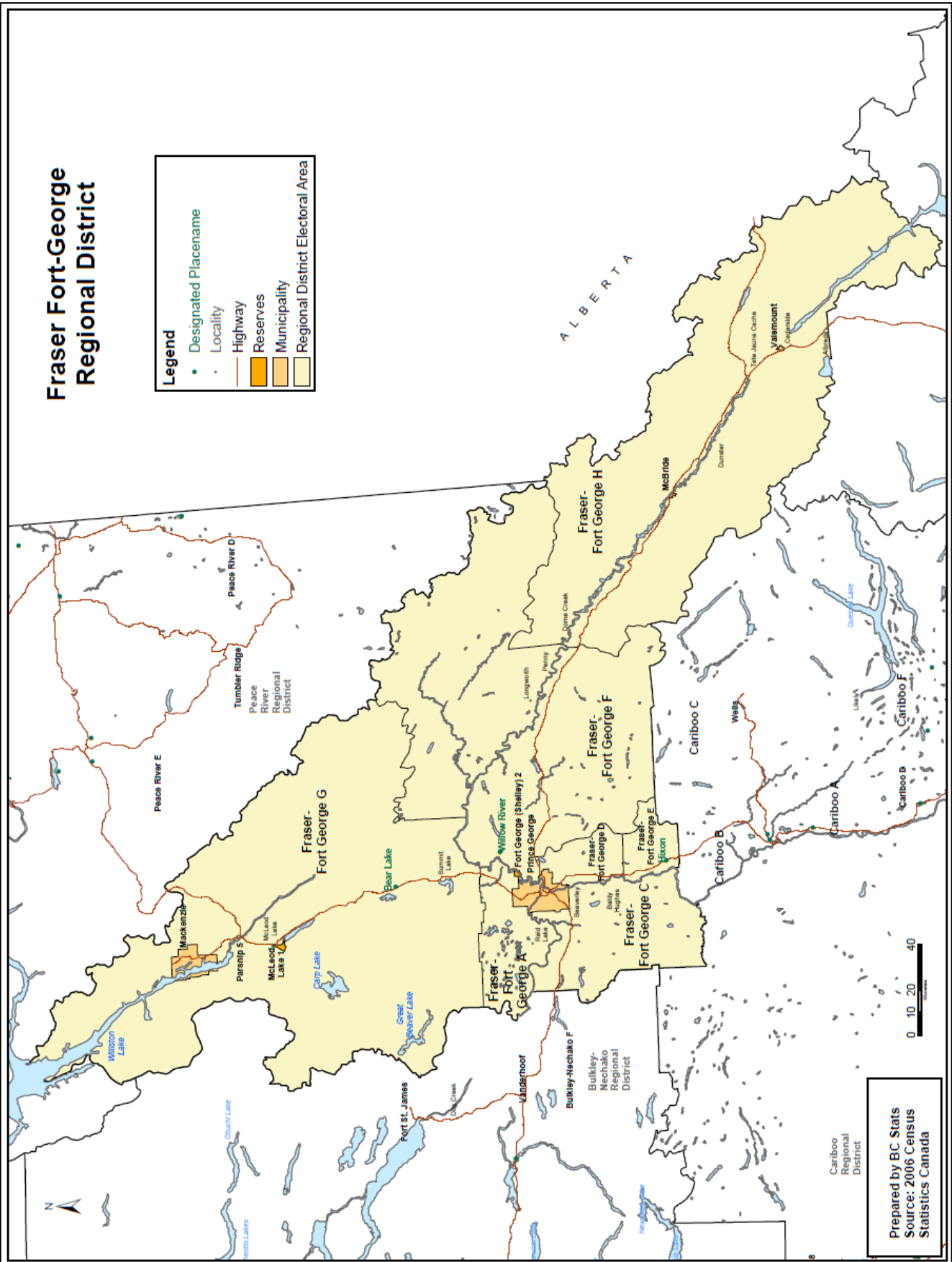
BC STATS



Fraser Fort-George Regional District

Legend

- Designated Placename
- Locality
- Highway
- ▭ Reserves
- ▭ Municipality
- ▭ Regional District Electoral Area



Cariboo Regional District
 Prepared by BC Stats
 Source: 2006 Census
 Statistics Canada

References

- ¹ BC Stats, Community Fact Sheets: <http://www.bcstats.gov.bc.ca/data/dd/facsheet/facsheet.asp>
- ² BC Treaty Commission Statement of Intent Maps: GEO BC. <http://ilmbwww.gov.bc.ca/cis/initiatives/treaty/>
- ³ BC Ministry of Aboriginal Relations & Reconciliation: First Nations by Region. <http://www.gov.bc.ca/arr/treaty/regional.html>
- ⁴ Metis Nation of British Columbia: BC Metis Places. http://www.bcmets.ca/manage_metisplace_display.php
- ⁵ BC Stats: Population Estimates for Local Health Areas: PEOPLE 35. <http://www.bcstats.gov.bc.ca/data/pop/popstart.asp>
- ⁶ Population Estimates for Municipalities: BC Stats; 1996-2006, 2006-2010. <http://www.bcstats.gov.bc.ca/data/pop/pop/estspop.asp#totpop>
- ⁷ BC Stats: Population Estimates for Regional Districts: PEOPLE 35. <http://www.bcstats.gov.bc.ca/data/pop/popstart.asp>
- ⁸ BC Vital Statistics Annual Report: 2009. <http://www.vs.gov.bc.ca/stats/annual/index.html>
This is calendar year data (Jan - Dec). There will be a small mismatch with fiscal year data of Perinatal-Services-BC.
- ⁹ What Determines Health: Public Health Agency of Canada <http://www.phac-aspc.gc.ca/ph-sp/determinants/index-eng.php>
- ¹⁰ Healthy and Productive Canada: Determinants of Health Approach. Senate Committee on Health. <http://www.parl.gc.ca/40/2/parlbus/commbus/senate/Com-e/popu-e/rep-e/rephealthjun09-e.pdf>
- ¹¹ Census 2006 Profiles: BC Stats. http://www.bcstats.gov.bc.ca/data/cen06/profiles/detailed/ch_alpha.asp
- ¹² BC Socio-economic profiles; BC Stats: June 2011. <http://www.bcstats.gov.bc.ca/data/sep/index.asp>
- ¹³ BC figures from BC Stats: [BC Socio-economic profiles](#), [Census 2006 Profiles](#) and / or [PEOPLE 35](#).
- ¹⁴ Human Early Learning Partnership; the Early Development Index: Wave 3. <http://www.earlylearning.ubc.ca/research/initiatives/early-development-instrument/>
- ¹⁵ Northern Health Resident Mothers that Delivered a Baby in British Columbia, by Resident Municipality. Prepared for Northern Health by Perinatal Services BC. Request 211011: June 16, 2011.
- ¹⁶ Northern Health Resident Mothers that Delivered a Baby in British Columbia, by Resident Municipality. Prepared for Northern Health by Perinatal Services BC. Request 211011: June 16, 2011.
- ¹⁷ Immunization: A Report on the Health and Wellbeing of British Columbian. BC Provincial Health Officer, 1998. <http://www.health.gov.bc.ca/pho/pdf/phoannual1998.pdf>
- ¹⁸ Technical Assumptions for Population Forecasting in BC: Page 7. BC Stats, July 2009. <http://www.bcstats.gov.bc.ca/data/pop/pop/popproj.asp>
- ¹⁹ 2008 Cohort (2 year olds) Date of Birth Jan 01, 2008 to Dec 30, 2008. Up-to-date for all vaccines: (new definitions). Data extracted Jan 17, 2011: MMP for JMH: Northern Health-Public and Preventive Health: June 2011.
- ²⁰ Vaccine Preventable Disease: Northern Health-Public Health / Preventive Public Health: May 2010.
- ²¹ Population Patterns of Chronic Health Conditions in Canada: Health Council of Canada. <http://healthcouncilcanada.ca>
- ²² The Cost of Chronic Disease in Canada: GPI Atlantic.2004.<http://gpiatlantic.org/pdf/health/chroniccanada.pdf>
- ²³ Prevention: British Columbia Cancer Agency. 2009. <http://www.bccancer.bc.ca/PPI/Prevention/default.htm>
- ²⁴ Hospitalizations: Counts and Rates Attributable to Alcohol, Tobacco, and Illicit Drugs for BC Health Authorities. BC Centre for Addictions Research: AOD project. March 2010. <http://carbc.ca/AODMonitoring/tabid/541/Default.aspx>
- ²⁵ BC Ministry of Health Services: Chronic Conditions according to LHA. Project 2011_005_PHC
- ²⁶ InterRAI Client Assessment Summary: Northern Health. Summary for March 31, 2011. Data extracted May 28, 2011. Northern Health: Home and Community Care Services.
- ²⁷ Seniors and the Health Care System: What is the Impact of Multiple Chronic Conditions? CIHI, January 2011. http://secure.cihi.ca/cihiweb/products/air-chronic_disease_aib_en.pdf
- ²⁸ Hospitalizations by patient's home community 2003/ 04 to 2009/ 10: Special Analysis by the BC Ministry of Health for Northern Health. Project No. 2010_0289. Revised and Updated: July, 2011.
- ²⁹ Alternate Level of Care in Canada: CIHI. <https://secure.cihi.ca/estore/productSeries.htm?pc=PCC456>
- ³⁰ Northern Facility Activity Summaries from Northern Health Finance: Executive Summary Reports (ESR). Figures are P13 for previous year. Lab and Medical Imaging prepared separately: July 2011.