Rapid Review 14:
Appendices

Appendix A: Indicator Definitions and Sources

Table A1. Indicator definitions, measurement and source

Indicator name	Definition	Measure/Unit	Source
Contextual Factors			
Total population	Total population, mean of 2011 and 2016 census	number	Statistics Canada 2011 Census: Table #37-10-0091-01 [formerly CANSIM #109-0400]
Population density	Number of people per unit of land area	per sq.km	Statistics Canada 2016 Census: Table #17-10-0122-01 [formerly CSNIM #109-0500]
Population in large/medium centres	Proportion of population living in population centres with >30,000 residents	% (crude)	Statistics Canada 2011 Census: Table #37-10-0091-01 [formerly CANSIM #109-0400] Statistics Canada 2016 Census: Table #17-10-0122-01 [formerly CSNIM #109-0500]
Aboriginal population	Proportion of population self-identified as Aboriginal	% (crude)	Statistics Canada 2011 NHS: Table #37-10-0092-01 [formerly CANSIM #109-0401]
Immigrant population	Proportion of population who has ever been a landed immigrant	% (crude)	Statistics Canada 2016 Census: Table #17-10-0123-01 [formerly CANSIM #109-0501]
Quadrant 1: Social determinants of health			
Annual income	Mean total annual income among population aged 15+ during past year	$	Statistics Canada 2011 NHS: Table #37-10-0092-01 [formerly CANSIM #109-0401] Statistics Canada 2016 Census: Table #17-10-0123-01 [formerly CANSIM #109-0501]
Employment status	Proportion of population aged 25-54 who was employed during a reference week	% (crude)	Statistics Canada 2011 NHS: Table #37-10-0092-01 [formerly CANSIM #109-0401] Statistics Canada 2016 Census: Table #17-10-0123-01 [formerly CANSIM #109-0501]
Postsecondary education	Proportion of population aged 25-54 with postsecondary certificate, diploma, or degree	% (crude)	S Statistics Canada 2011 NHS: Table #37-10-0092-01 [formerly CANSIM #109-0401] Statistics Canada 2016 Census: Table #17-10-0123-01 [formerly CANSIM #109-0501]

Indicator name	Definition	Measure/Unit	Source
Current smoking	Proportion of population aged 12+ who are current daily smokers	% (crude)	Statistics Canada CCHS: Table #13-10-0452-01 [formerly CANSIM #105-0502] for 2010-14 data Statistics Canada CCHS: Table #13-10-0113-01 [formerly CANSIM #105-0509] for 2015+ data
Heavy drinking	Proportion of population aged 12+ who are heavy drinkers (5+ drinks M, 4+ drinks F) per occasion at least once a month in past year	% (crude)	Statistics Canada CCHS: Table #13-10-0452-01 [formerly CANSIM #105-0502] for 2010-14 data Statistics Canada CCHS: Table #13-10-0113-01 [formerly CANSIM #105-0509] for 2015+ data
Physical activity	Proportion of population who are physically active/moderately active - age 12+, 1.5+ kcal/kg/day in 2010-14 (Different definition from 2015 - age 18+, 150+ hours per week, or causing harder breathing and sweating)	% (crude)	Statistics Canada CCHS: Table #13-10-0452-01 [formerly CANSIM #105-0502] for 2010-14 data (Statistics Canada CCHS: Table #13-10-0113-01 [formerly CANSIM #105-0509] for 2015+ data)
Quadrant 2: Health system inputs and characteristics			
Coronary artery bypass graft	Rate of coronary artery bypass graft among adults aged 18+	per 100,000 (age std)	CIHI Interactive Tool; DAD, HMDB
General/family physicians	Density of general practitioners/family physicians	per 100,000 (crude)	CIHI Interactive Tool; SMDB
Hip replacement	Rate of hip replacement surgery among adults aged 18+	per 100,000 (age std)	CIHI Interactive Tool; DAD, HMDB, NACRS
Hysterectomy	Rate of hysterectomy among women aged 18+	per 100,000 (age std)	CIHI Interactive Tool; DAD, HMDB, NACRS
Hospital beds	Density of beds staffed and in operation	per 100,000 (crude)	CIHI BSIO 2016-17: HMDB (excld QC); QC hospitals from MSSS
Specialist physicians	Density of specialist physicians	per 100,000 (crude)	CIHI Interactive Tool; SMDB

Quadrant 3: Health system outputs			
Ambulatory care sensitive conditions	Rate of hospitalizations among aged <75 for ambulatory care sensitive conditions	per 100,000 (age std)	CIHI Interactive Tool; DAD, HMDB
AMI in-hospital mortality	Proportion of patients aged 20+ who died in hospital within 30 days of discharge from hospital with acute myocardial infarction, risk adjusted	% (risk adj)	CIHI Interactive Tool; DAD, HMDB
Caesarian sections	Proportion of deliveries by Caesarean section	% (crude)	CIHI Interactive Tool; DAD, HMDB
High hospital users	Proportion of hospitalized patients aged 18+ with 3+ admissions and >30 cumulative length of stay	% (risk adj)	CIHI by request; DAD, HMDB, NACRS, OMHRS [FY 2014-15 only]
Hip fracture hospitalizations	Rate of new hip fracture among seniors aged 65+ resulting in hospitalization (not including hip fracture occurring in hospital)	per 100,000 (age std)	CIHI Interactive Tool; DAD, HMDB
Inflow/outflow	Ratio of number of hospitalizations within region to number of hospitalizations generated by residents of region	ratio	CIHI Interactive Tool; DAD, HMDB, NACRS
Influenza immunizations	Proportion of seniors aged 65+ with influenza immunization within past year	% (crude)	Statistics Canada CCHS: Table #13-10-0452-01 [formerly CANSIM #105-0502] for 2010-14 data
Medical readmissions	Proportion of medical patients aged 20+ readmitted within 30 days, risk adjusted	% (risk adj)	CIHI Interactive Tool; DAD, HMDB, NACRS
Mental illness readmission	Proportion of patients with mental health hospitalization readmitted within 30 days	% (risk adj)	CIHI Interactive Tool; DAD, HMDB, NACRS, OMHRS
Multiple mental illness hospitalizations	Proportion of patients aged 15+ with 3+ admissions among those with mental health hospitalization	% (risk adj)	CIHI Interactive Tool; DAD, HMDB, NACRS, OMHRS
Obstetrical readmissions	Proportion (%) of obstetrical patients readmitted within 30 days, risk adjusted	% (risk adj)	CIHI Interactive Tool; DAD, HMDB, NACRS
Pediatric readmissions	Proportion (%) of patients aged ≤ 19 readmitted within 30 days, risk adjusted	% (risk adj)	CIHI Interactive Tool; DAD, HMDB, NACRS
Regular health care provider	Proportion of population aged 12+ who have a regular doctor	% (crude)	Statistics Canada CCHS: Table #13-10-0452-01 [formerly CANSIM #105-0502] for 2010-14 data Statistics Canada CCHS: Table #13-10-0113-01 [formerly CANSIM #105-0509] for 2015+ data
Surgical readmissions	Proportion (%) of surgical patients aged 20+ readmitted within 30 days, risk adjusted	% (risk adj)	CIHI Interactive Tool; DAD, HMDB, NACRS

Quadrant 4: Health system outcomes			
Hospitalized AMI events	Rate (per 100,000) of hospitalization for new acute myocardial infarction among adults aged 18+, age-standardized		CIHI Interactive Tool; DAD, HMDB
Injury hospitalizations	Rate (per 100,000) of hospitalization for injury, age-standardized		CIHI Interactive Tool; DAD, HMDB
Life expectancy at birth	Number of years infants born today can expect to live if they experience current age-specific mortality rates as they age	years	Statistics Canada Vital Statistics: Table #13-10-0063-01 [formerly CANSIM #102-4308]; 3-year rolling average centering on year
Perceived health	Proportion (%) aged 12+ who perceived overall health as excellent/very good		Statistics Canada CCHS: Table #13-10-0452-01 [formerly CANSIM #105-0502] for 2010-14 data
Potentially avoidable mortality	Rate of potentially avoidable mortality in population aged <75	per 100,000 (age std)	Statistics Canada Vital Statistics: Table #13-10-0743-01 [formerly CANSIM #102-4315]; 3-year rolling average centering on year
Self-injury hospitalizations	Rate (per 100,000) aged 15+ hospitalization for self-injury, age-standardized		CIHI Interactive Tool; DAD, HMDB, NACRS, OMHRS
Suicide	Rate of completed suicide	per 100,000 (age std)	Statistics Canada Vital Statistics: Table #13-10-0742-01 [formerly CANSIM #102-4313]; 3-year average

Abbreviations:

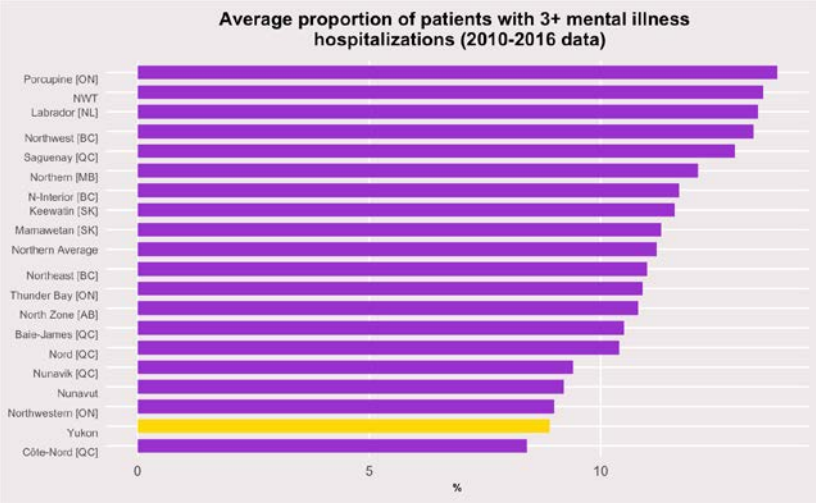
Age std	Age-standardized to the 2011 Canadian population by the direct method
Risk adj	Based on logistic regression modeling, see CIHI General Methodology Notes
CANSIM	Canadian Socioeconomic Database
CCHS	Canadian Community Health Survey [2-year period estimates]
CIHI	Canadian Institute for Health Information
DAD	Discharge Abstract Database
HMDB	Hospital Morbidity Database
MSSS	Ministère de la Santé et Service sociaux
NACRS	National Ambulatory Care Reporting System
NHS	National Household Survey (2011)
OMHRS	Ontario Mental Health Reporting System

Appendix B: Data Visualizations and Interpretations

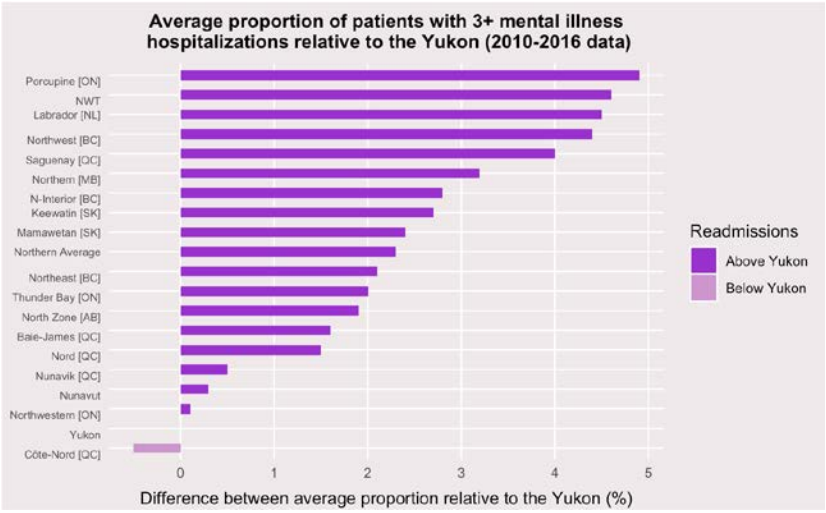
Interpretation

The visualizations included in this report are designed to help in the interpretation of some of the indicators and provide a visual representation of their relative growth and decay. Shown below are three of the visualization types.

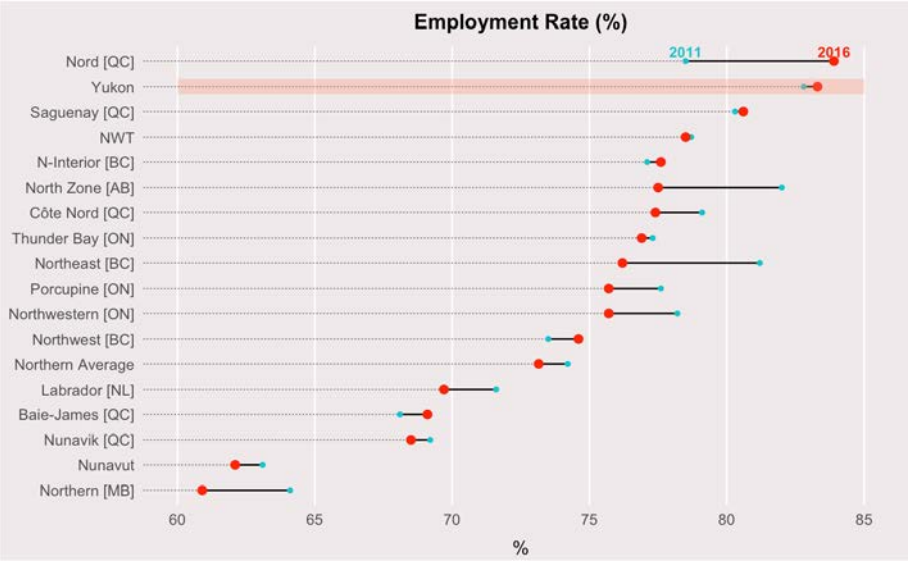
In the first visualization type, appearing in the report text, the regions have been ranked according to which has the highest values for the indicator. Reported on the x-axis is the value that the indicator takes for the individual regions.



In the second visualization type, the indicators for each region have been standardized to show the relative difference between the region and Yukon. For example, the Porcupine Region in both visualizations is at the top, because it has the highest proportion of patients with 3+ mental illness hospitalizations. In this example, we can see that the Porcupine region has almost 5% more such patients than Yukon. In order to generate the data used in this graph, each region had the indicator value for Yukon subtracted from it to show more explicitly how great the difference was between the regions and Yukon.



Finally, the third visualization type presents a dumbbell graph that displays two data points for each region with a black line connecting them. The data points correspond to the oldest and most recent data available for that indicator; for example, the figure below shows the 2011 and 2016 employment rates for all the regions. These graphs show the change in each indicator between these two years. While the first two graphs show the averages over the years, the dumbbell graph shows the change between the most recent and oldest data available. In these graphs, Yukon has been highlighted with a red bar. Some of the regions in these visualizations show very little change over the years (the data points are very close together) while some have changed quite substantially (the data points are very far apart). These graphs are also able to show which regions have experienced an increase in the indicator over the years, and which ones have experienced a decrease. In each graph, the regions have been ordered in a decreasing manner according to their last-year data point.



Visualizations

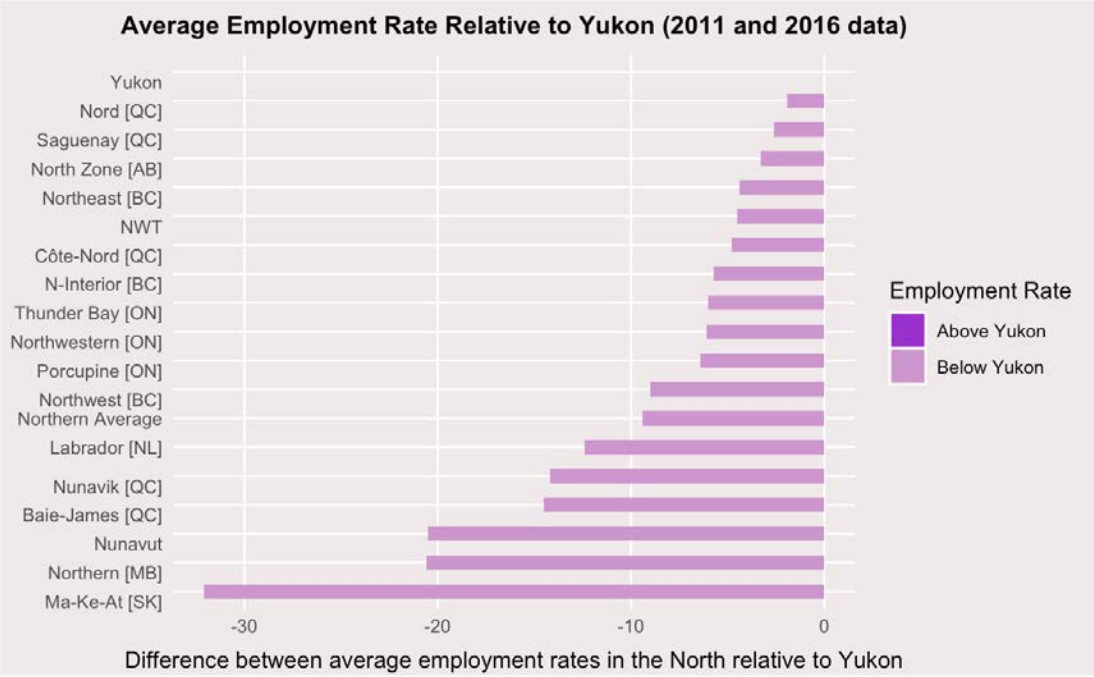


Figure 16. Average employment rate relative to Yukon

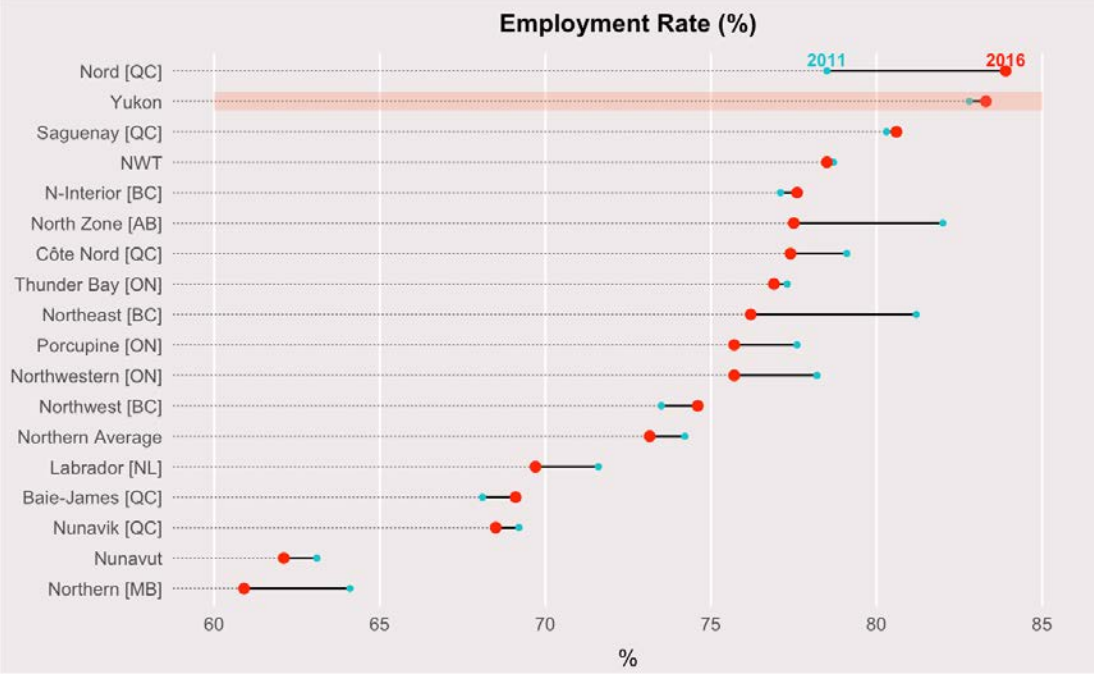


Figure 17. Employment rate

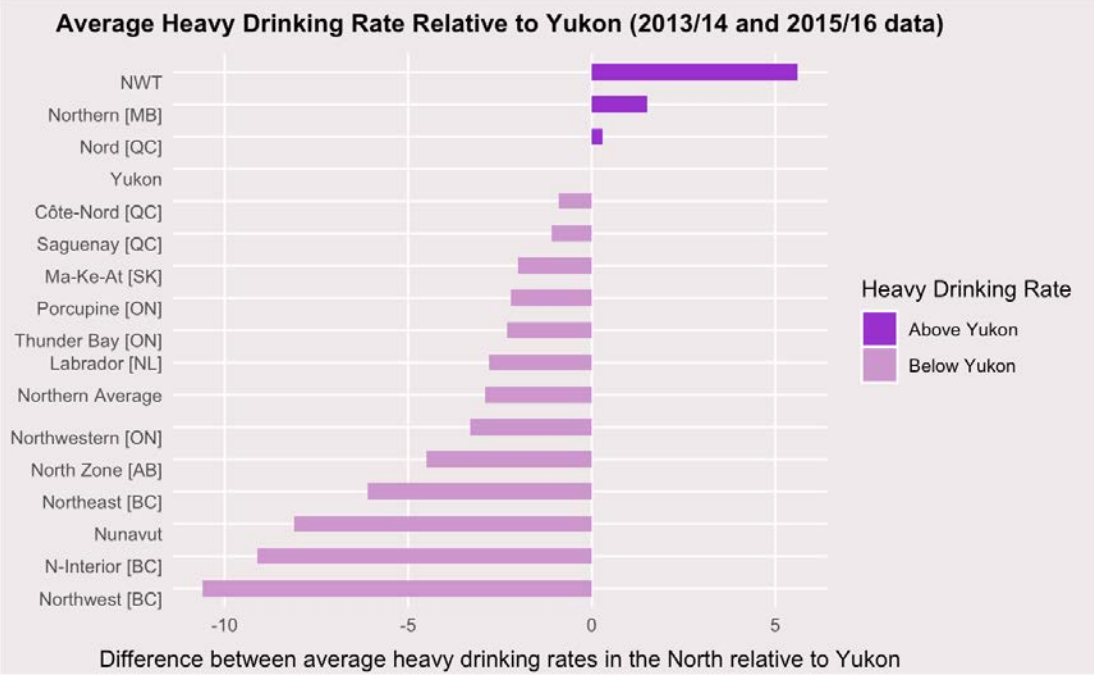


Figure 18. Average heavy drinking rate relative to Yukon

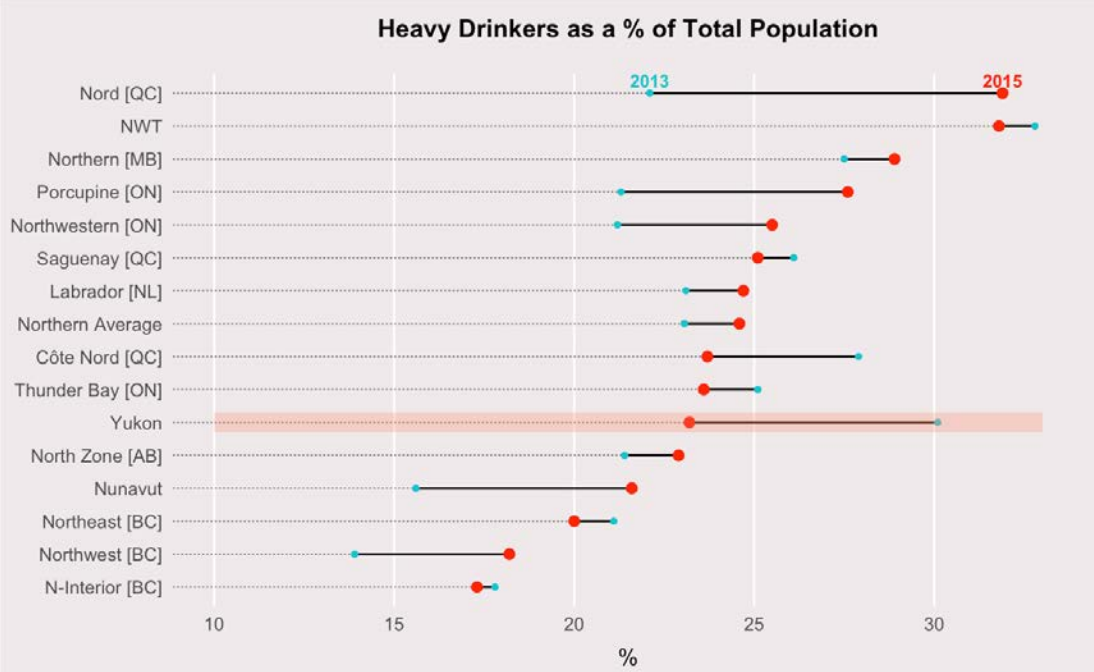


Figure 19. Heavy drinkers as a total percentage of total population

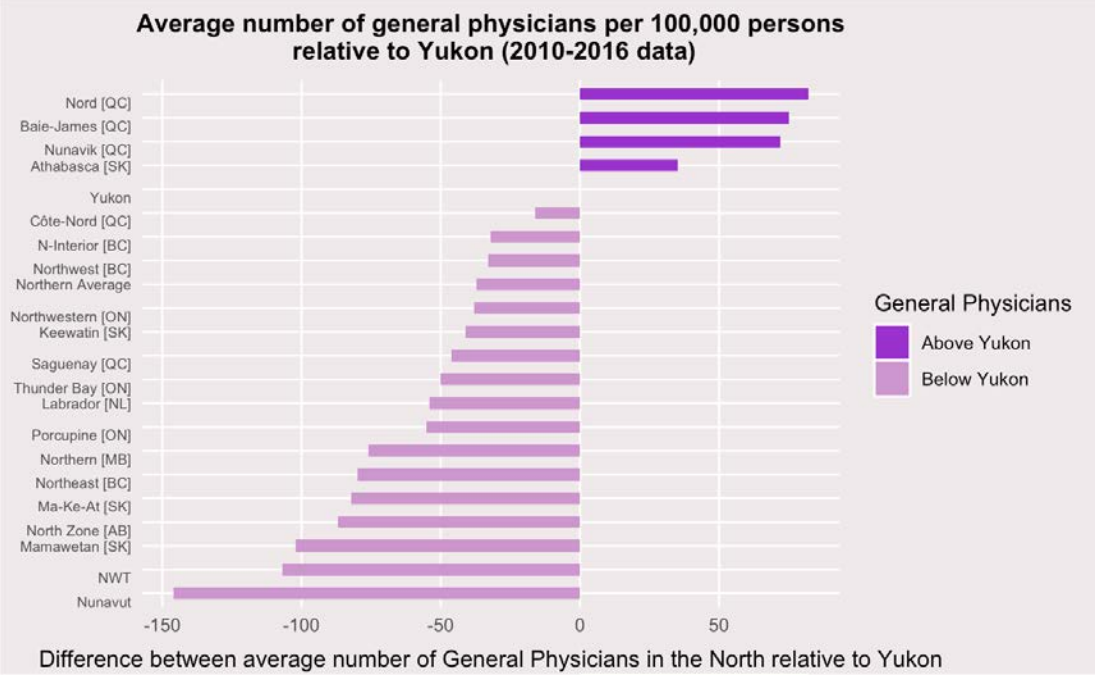


Figure 20. Average number of general physicians per 100,000 persons relative to Yukon

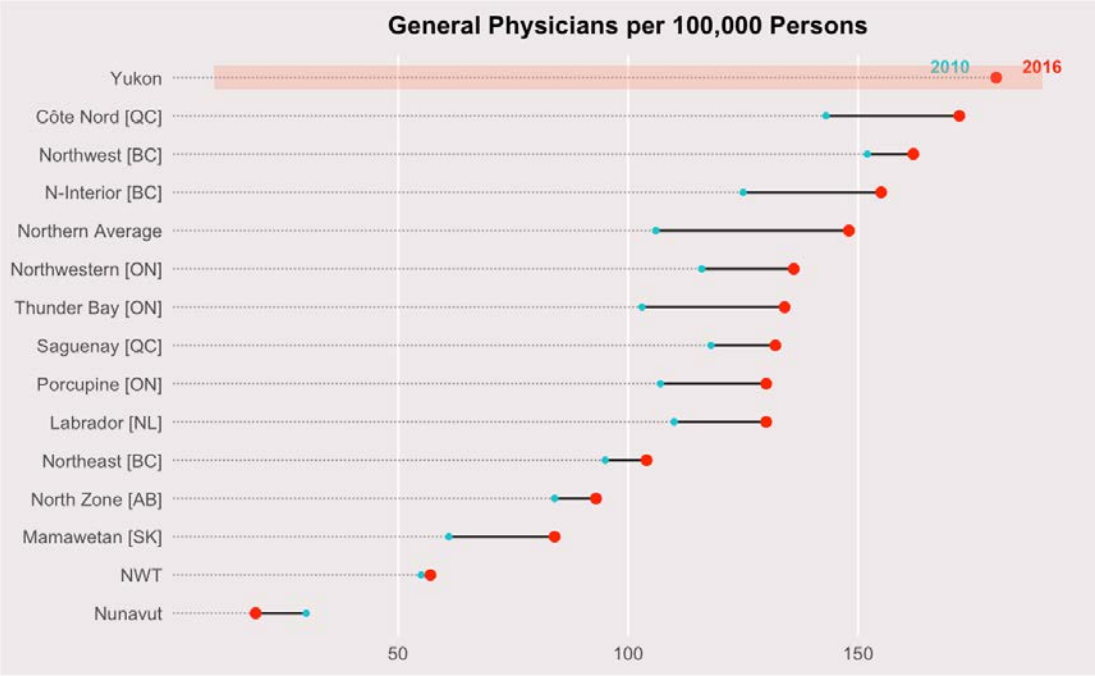


Figure 21. General physicians per 100,000 persons

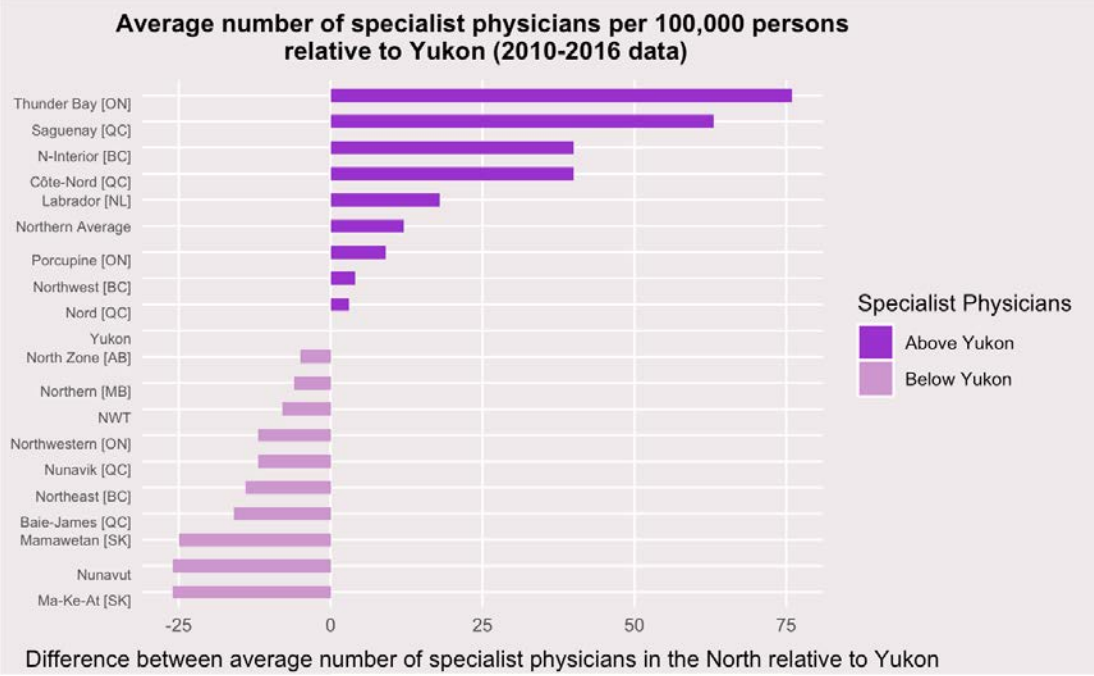


Figure 22. Average number of specialist physicians per 100,000 person relative to Yukon

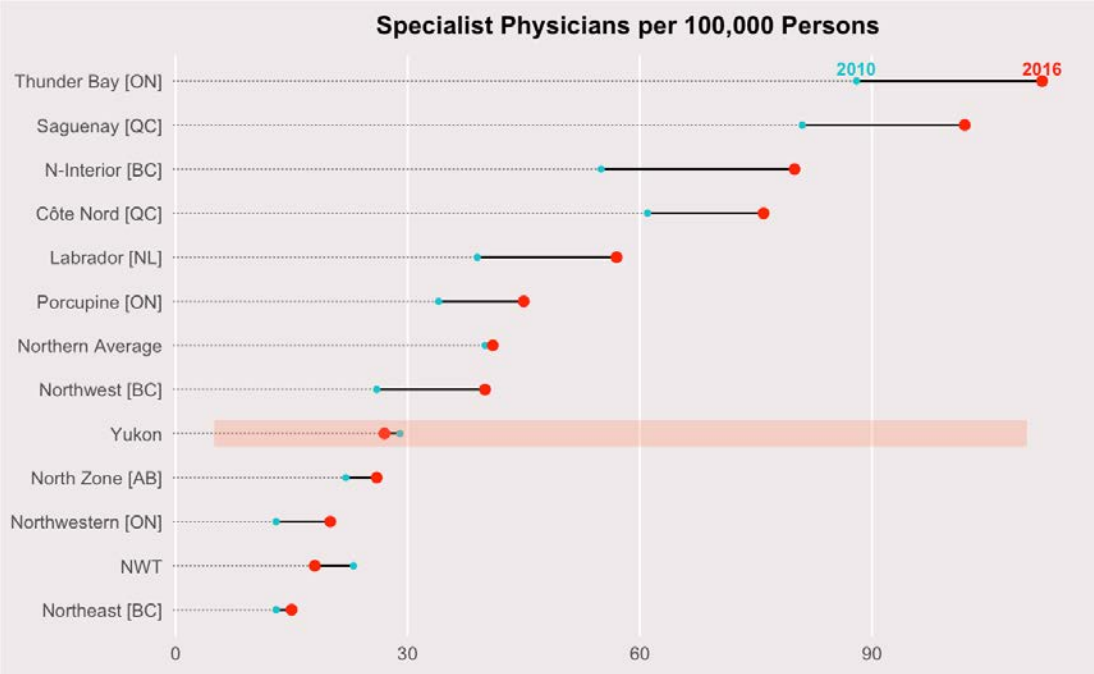


Figure 23. Specialist physicians per 100,000 persons

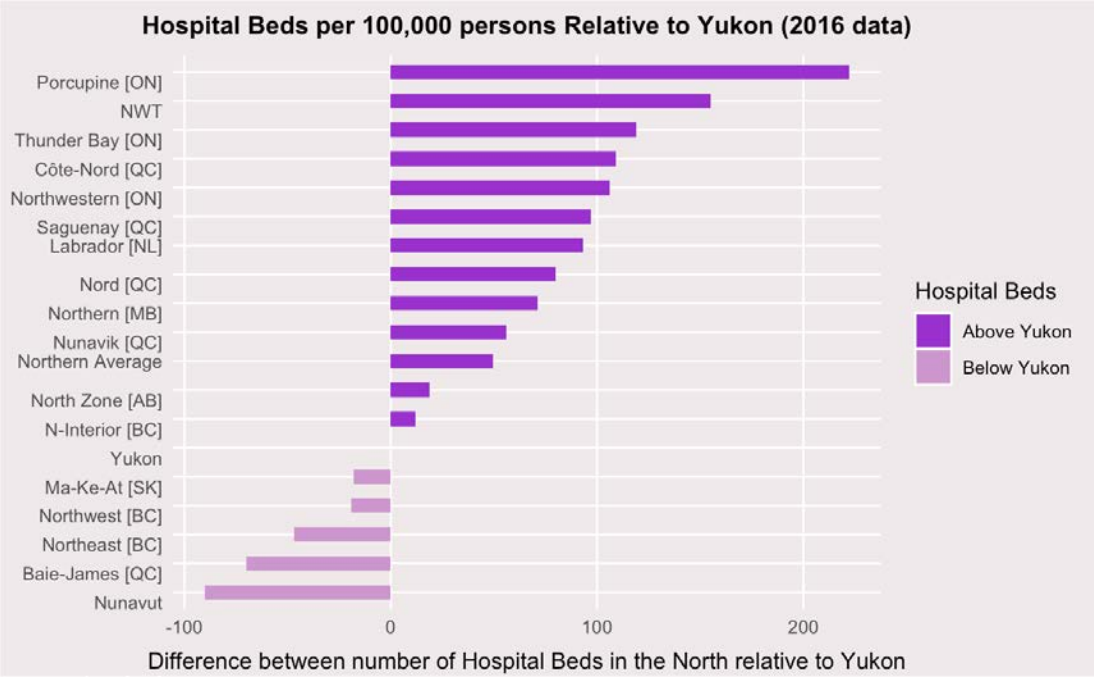


Figure 24. Hospital beds per 100,000 persons relative to Yukon

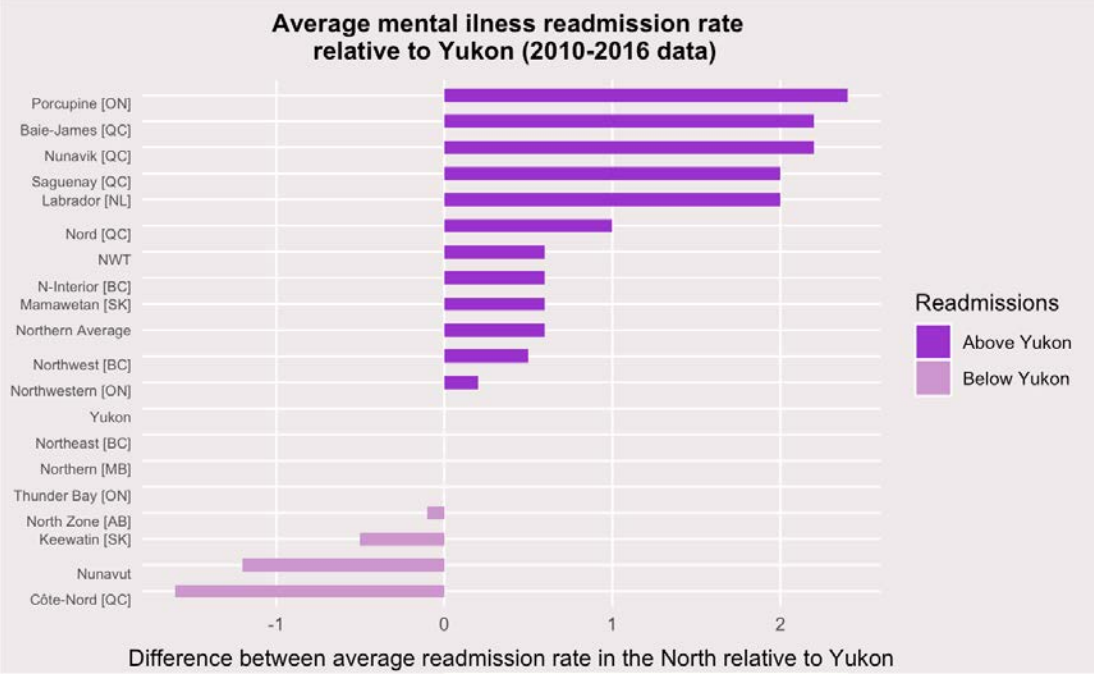


Figure 25. Average mental illness readmission rate relative to Yukon

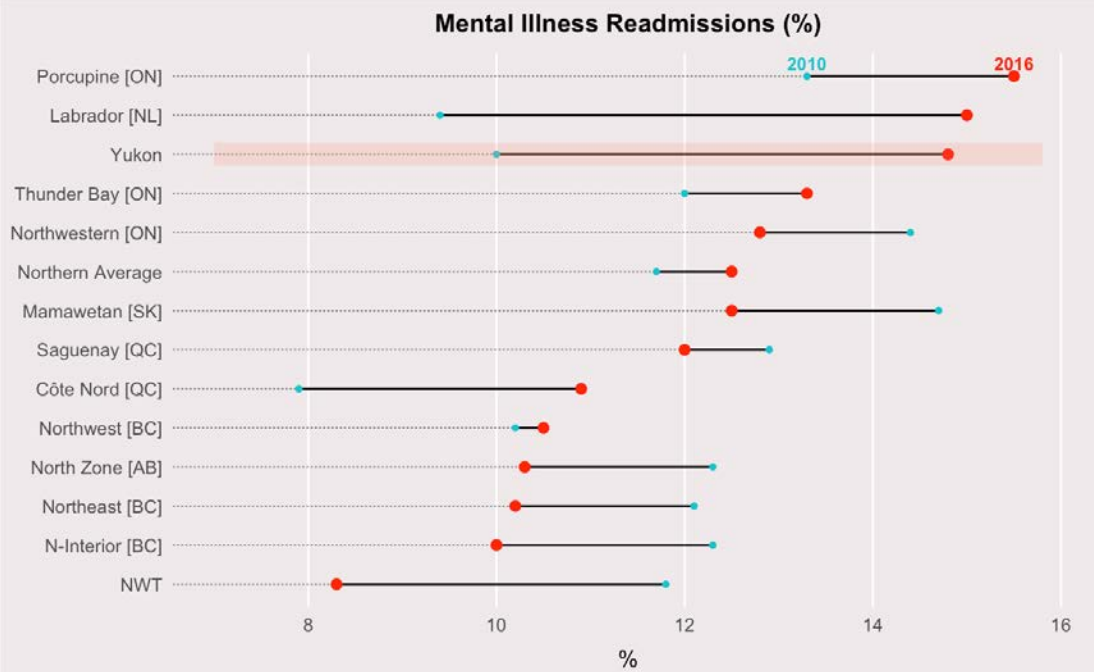


Figure 26. Mental illness readmissions

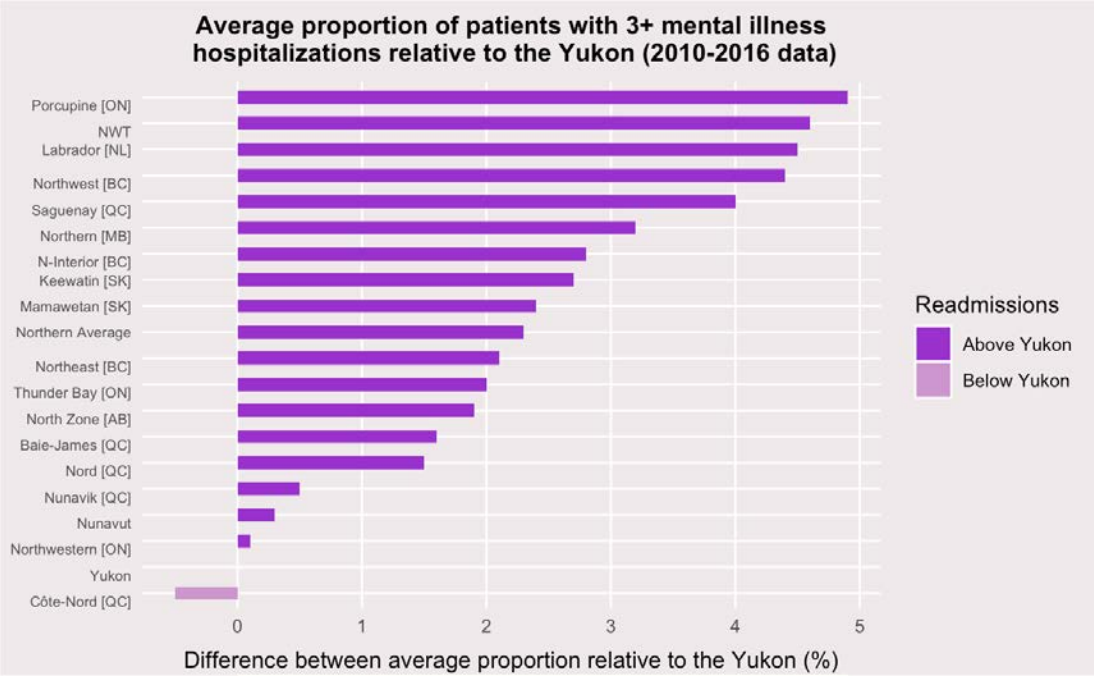


Figure 27. Average proportion of patients with 3+ mental illness hospitalizations relative to Yukon

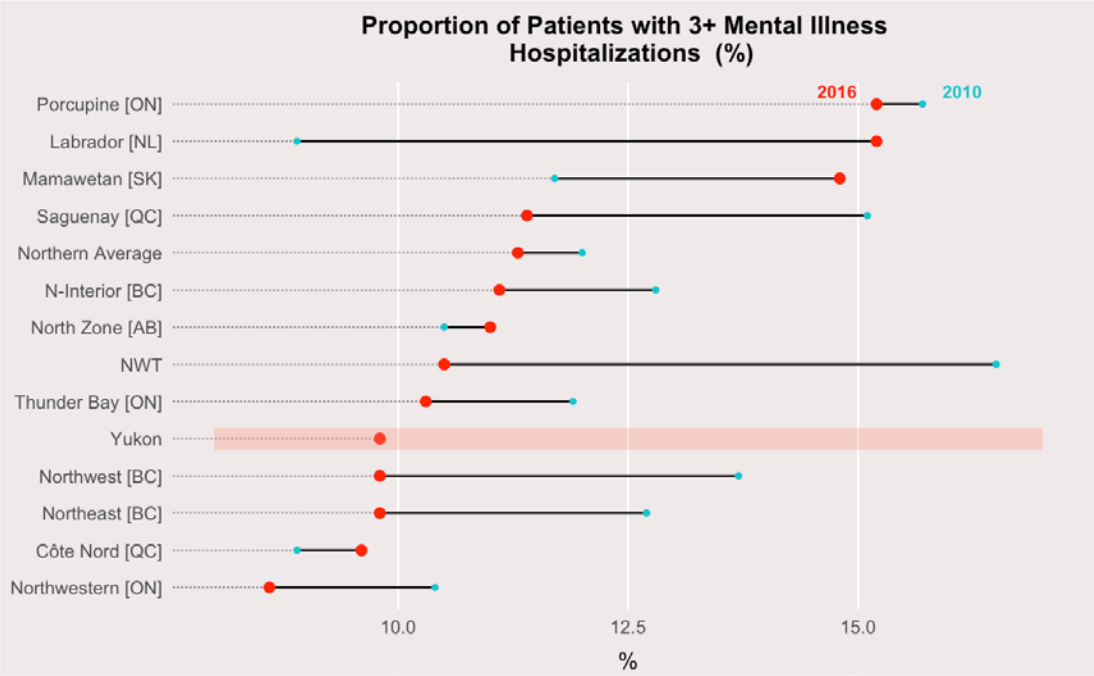


Figure 28. Proportion of patients with 3+ mental illness hospitalizations

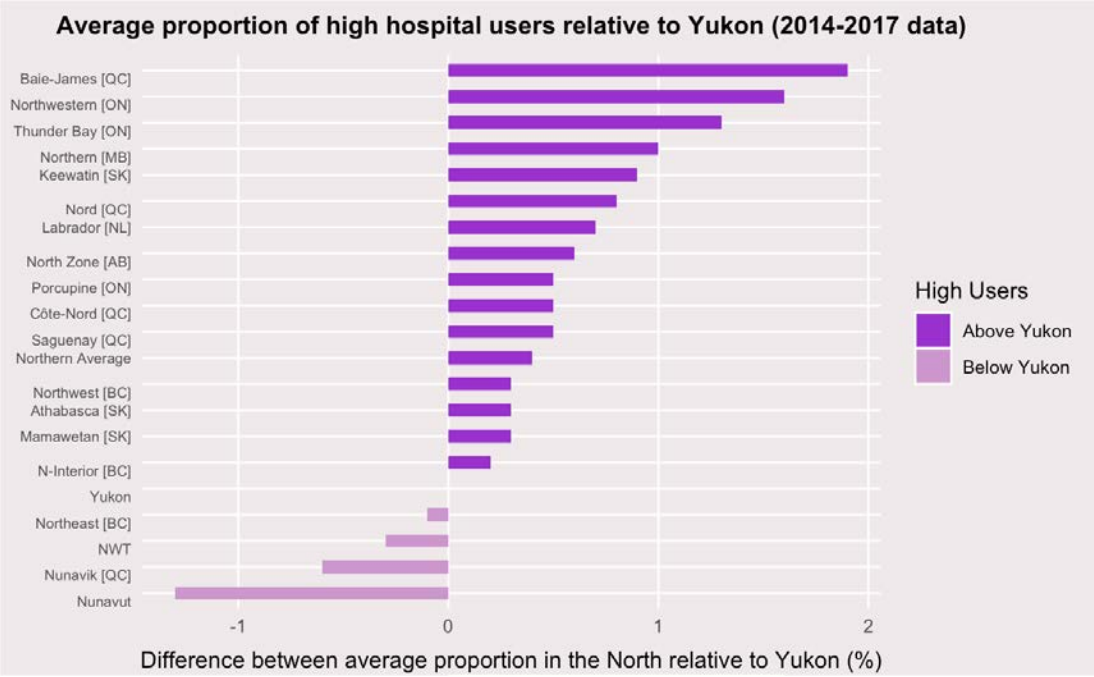


Figure 29. Average proportion of high hospital users relative to Yukon

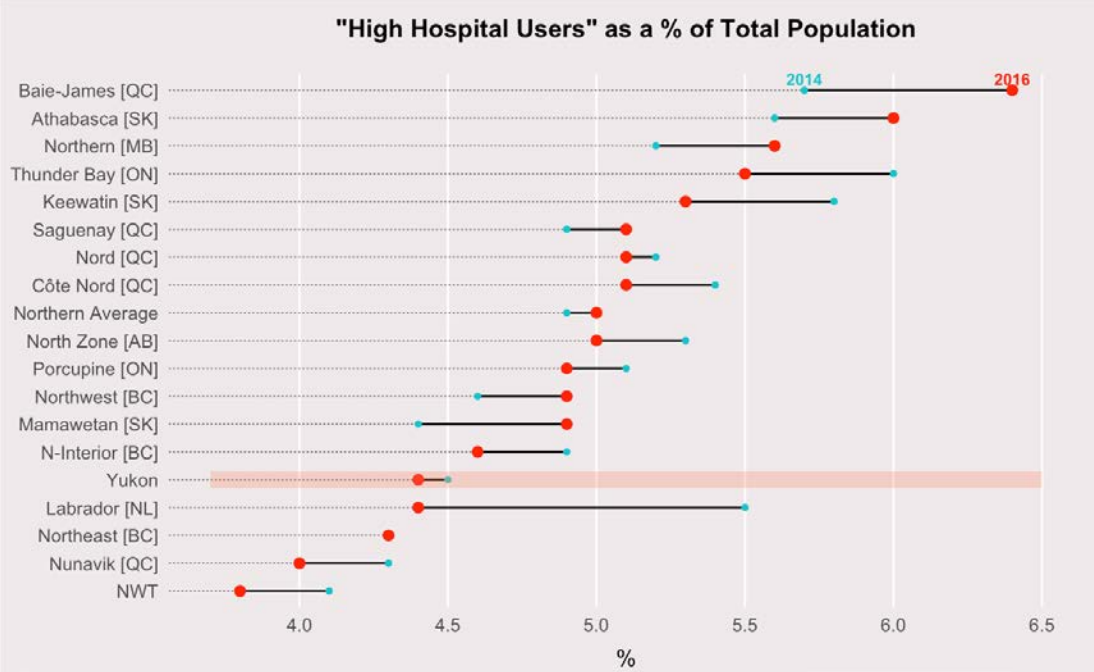


Figure 30. High hospital users as a percentage of total population

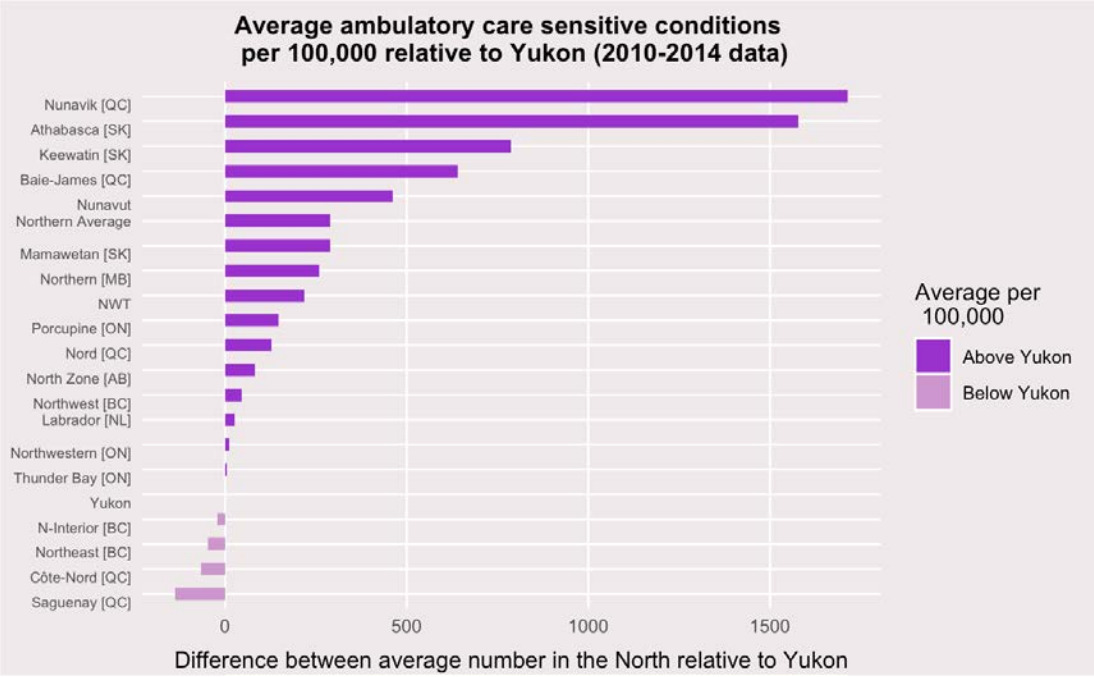


Figure 31. Average ambulatory care sensitive conditions, per 100,000 relative to Yukon

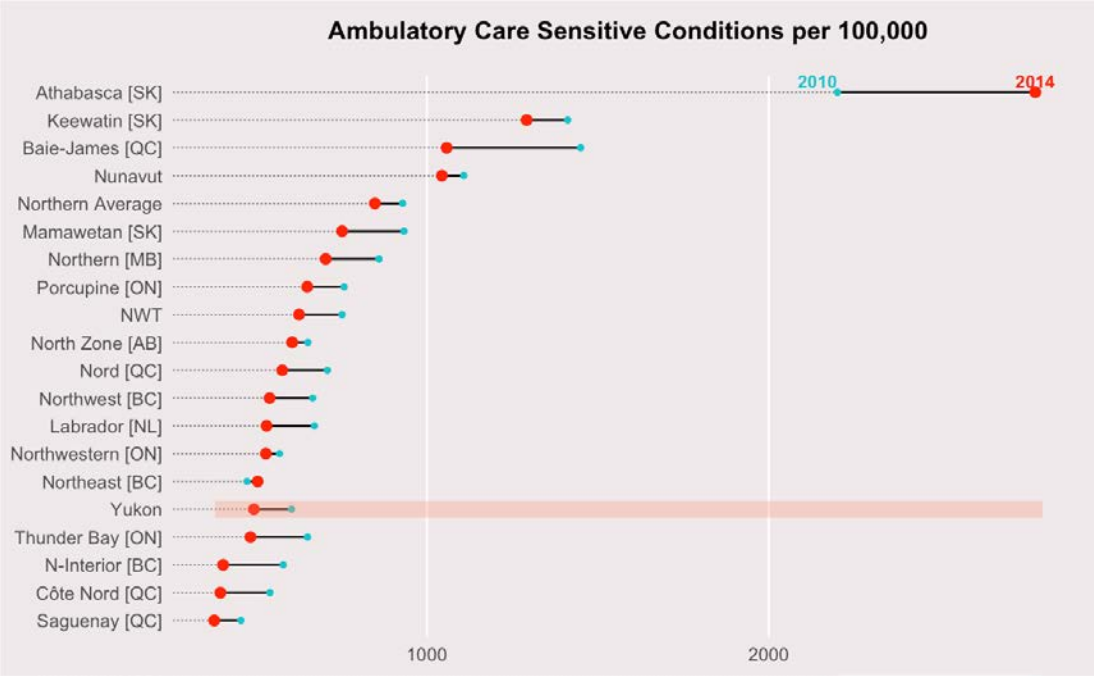


Figure 32. Ambulatory care sensitive conditions per 100,000

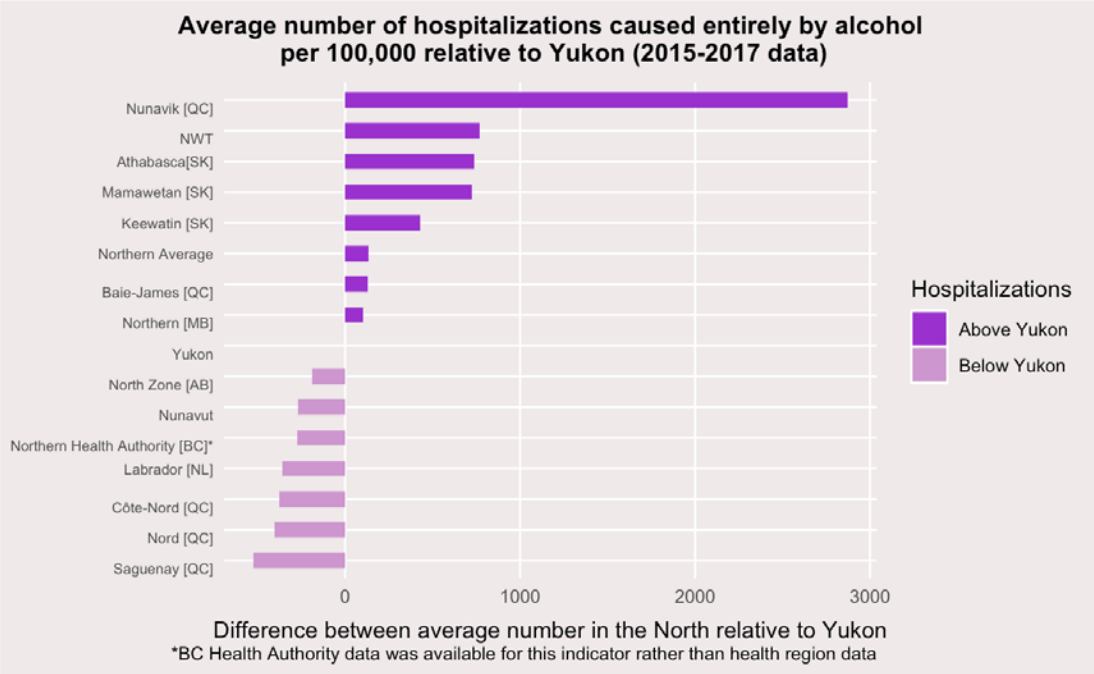


Figure 33. Average number of hospitalizations caused entirely by alcohol, per 100,000 relative to Yukon

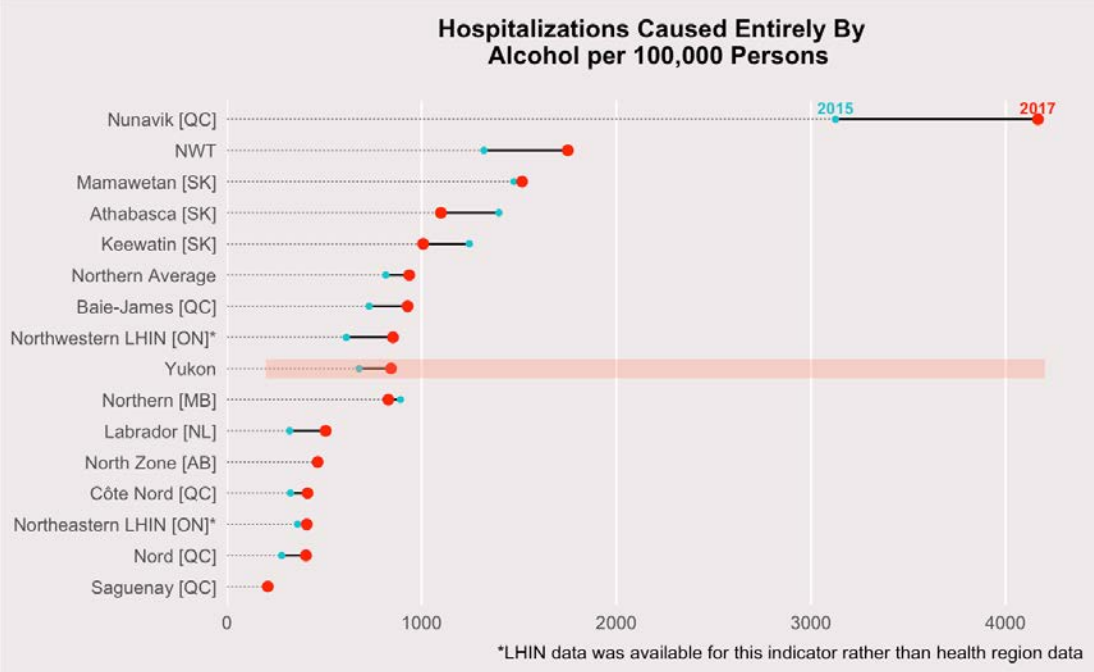


Figure 34. Alcohol-related hospitalizations caused entirely by alcohol per 100,000 persons

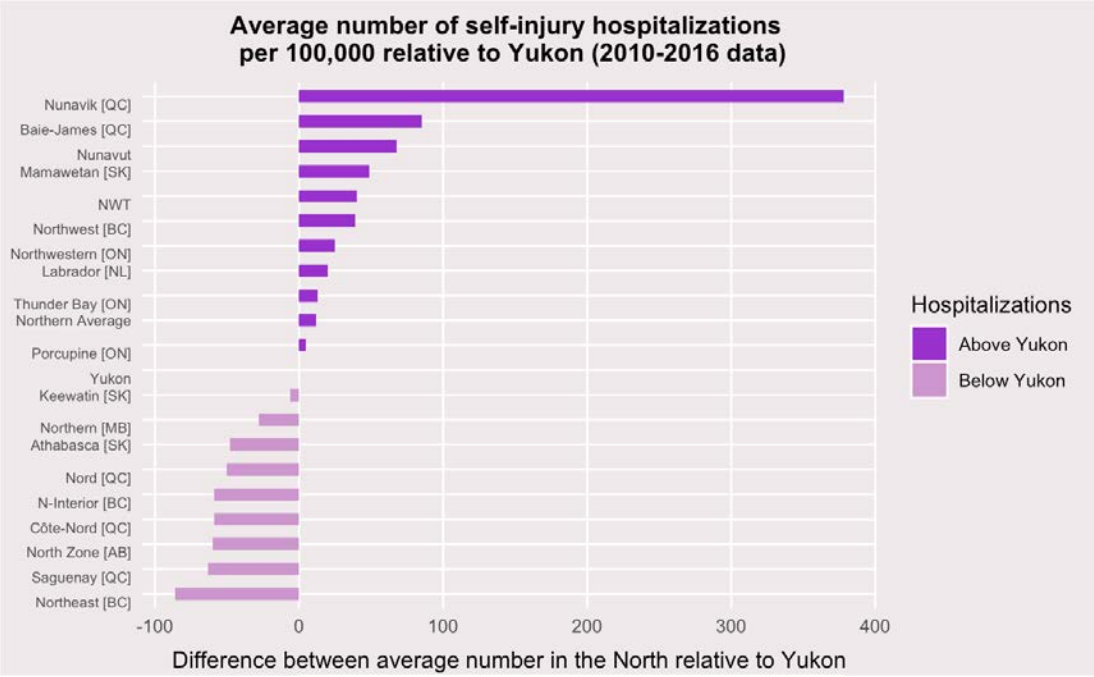


Figure 35. Average number of self-injury hospitalizations, per 100,000 relative to Yukon

Figure 36. Self-injury hospitalizations per 100,000 persons

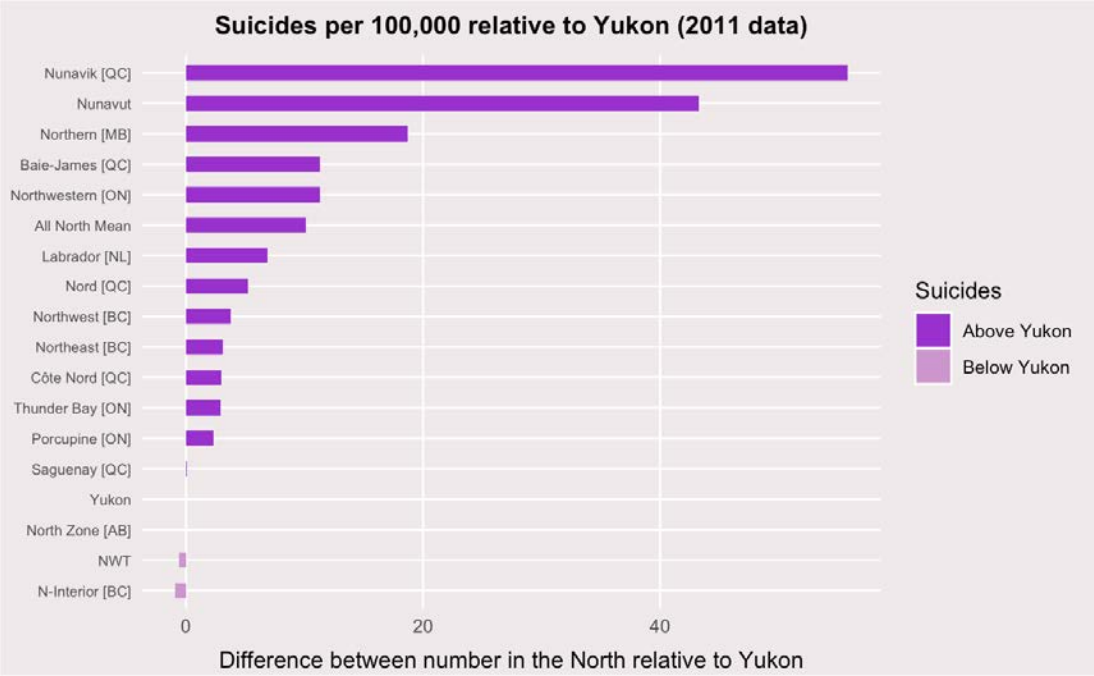


Figure 37. Suicides, per 100,000 relative to Yukon

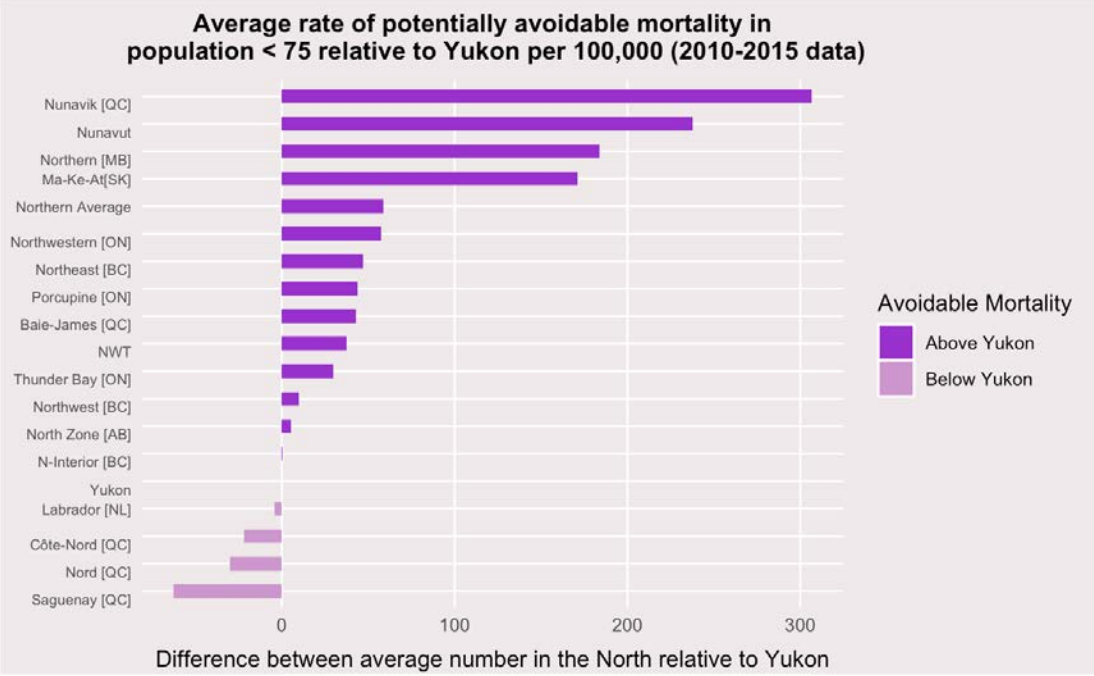


Figure 38. Average rate of potentially avoidable mortality in population <75, per 100,000 relative to Yukon

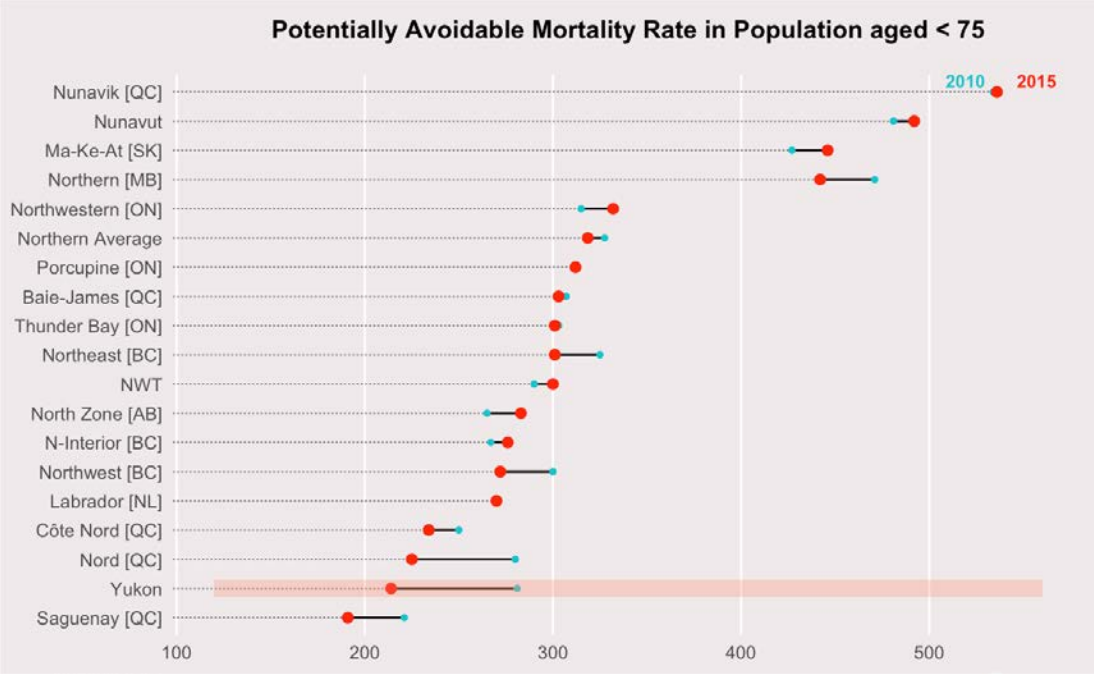


Figure 39. Potentially avoidable mortality in population aged <75

Appendix C: Description of Data Tables

The data tables and visualizations into data maps are available on the NAO Northern Canada webpage.

Presentation of data tables mirrors the methods used by Young, Chatwood et al. (2019a). Statistics Canada presents some composite measures for the regions chosen for reporting purposes; three small northern Saskatchewan regional health authorities have been combined into one Mamawetin-Keewatin Athabasca region (Ma-Ke-At). Indicators were presented at the region level by CIHI, however, for certain indicators we had to create composite measures to reflect the Ma-Ke-At reporting level used by Statistics Canada. We calculated weighted means based on the population distribution among the three regions. There were cases where the data were reported at the region-level, and in these instances, we reported the individual region-level data rather than the average. Rates and proportions were specified as crude, age-standardized, or risk-adjusted. When age-standardized rates were reported, the 2011 Canadian population was the standard population used. To risk adjust some of the rates, CIHI used logistic regression modelling (CIHI 2019). For indicators reported by Statistics Canada, a "year" refers to the calendar year. If the indicator is reported by CIHI, fiscal years are used.

With respect to the "Northern Average" measure, the values reported in these tables represent an arithmetic average of all the northern regions which had indicators in that particular year. These values are the same as those that are displayed in the visualizations in the main body of this report, unless otherwise stated. For indicators where there is data available for the Ma-Ke-At composite measure, but no data available for the individual regions of Mamawetan, Keewatin, and Athabasca, the Northern Average measure includes this composite measure only once. This average measure has not been weighted by population or any other variable in any of these tables.

Appendix D: Health Authority and BC Health Regions Maps

Due to the geographic differences between BC's health regions (Health Service Delivery Areas) and its health authorities, the following maps show the specific boundaries for the two administrative units in the north of the province. The only indicator in this report that relies upon health authority data is "hospitalizations caused entirely by alcohol." The three northern health service delivery areas (Northwest BC, Northeast BC, and N-Interior BC) included in this rapid review comprise BC's Northern Health Authority. The regions are mapped below. Figure 42 shows BC health regions (Health Service Delivery Areas), while Figure 43 shows BC's health authorities. In instances where the only data available are at the health authority level, northern health has been used as a proxy for these three health regions.

Figure 40: BC Health Service Delivery Area (Government of Canada, 2017c)

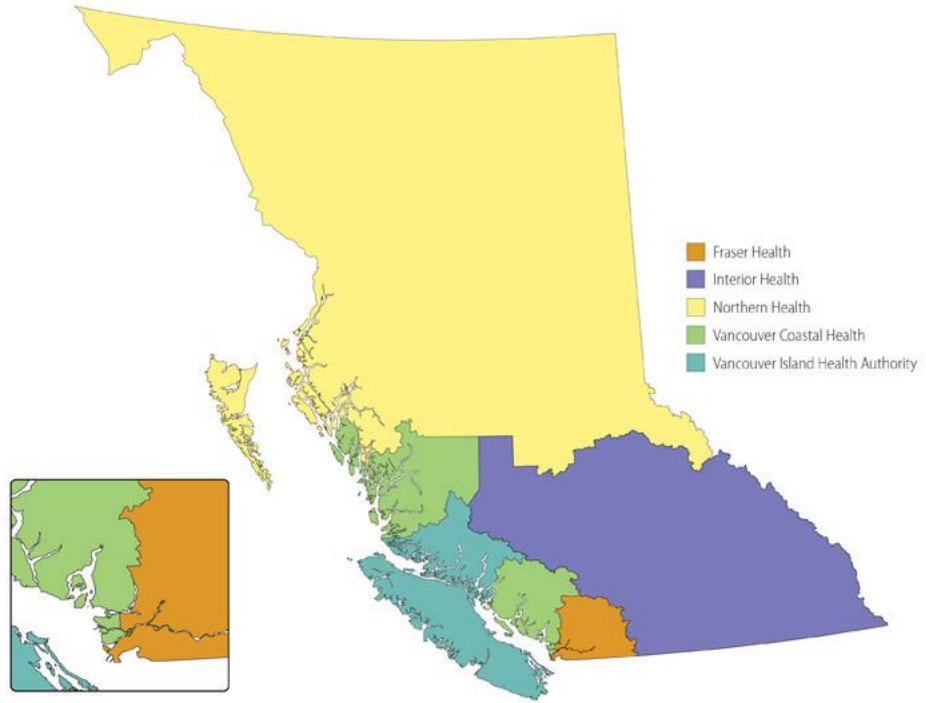


Figure 41: BC's Health Authorities (British Columbia Ministry of Health, n.d)