

Risk Factors Reference Guide

Risk Factors - Interactive Health Data Application (IHDA): The Risk Factors site only contains information as current as March 2016 as downloaded from the [Interactive Health Data Application \(IHDA\) website](#). Should users have any questions, please contact Interactive Health Data Application Team at IHDT@gov.ab.ca.

Saving Results as a PDF:

To save as a pdf click “Save/Print Results.” If you are using the Chrome web browser choose “Save as PDF” as the printer destination. For other browsers you may need to download a PDF saver ([Bullzip](#), [CutePDF](#), [doPDF](#) are some third party options) and follow their installation instructions. Once a PDF saver is installed, you would select it as the printer destination.

Availability in the IHDA – Direct Estimates:

Estimates for select indicators from the Canadian Community Health Survey (CCHS) are available on the IHDA website at the Provincial, Zone and former Regional Health Authority (RHA) level for all cycles of the CCHS. Estimates not meeting Statistics Canada’s disclosure guidelines have been suppressed.

Availability in the IHDA – Small Area Estimates:

Estimates for select indicators from the Canadian Community Health Survey (CCHS) are available on the IHDA website at the local level for all years since 2003.

Canadian Community Health Survey: Overall Description:

The Canadian Community Health Survey is a national cross-sectional survey carried out by Statistics Canada to provide estimates of health status, health care utilization, and determinants of health at the provincial health region level. Statistics Canada has a master file and also provides a Provincial Share file to each Ministry of Health. This file contains detailed survey responses for those participants agreeing to disclosure of their responses to the provincial ministry. In Alberta, the share file represents between 92 per cent and 95 per cent of participants in each cycle of the master file.

Data Source(s):

- 1) Canadian Community Health Survey Provincial Share Files for cycles 1.1, 2.1, 3.1, 2007, 2008, 2009, 2010, 2011, 2012, 2013 and 2014.
- 2) Alberta Health Care Insurance Plan (AHCIP) Registration Data.

Methodology – Question Changes in 2013:

In 2013, the question (ALC_3) related to the frequency of heavy and binge drinking changed. ALC_3. The question now asks: How often in the past 12 months have you had (four or more – for females)/(five or more – for males) drinks on one occasion?. Previously the question asked both males and females about five or more drinks. This change prospectively affects estimates of heavy drinking and estimates of binge drinking.

Methodology – Direct Estimates:

The indicators provided in the IHDA are intended to be comparable definitions over time and to be at levels of geography of interest in Alberta. Since many of the survey questions have evolved over time, the indicators in the IHDA have been created specifically so that the survey questions, response categories and sampled universes can apply across several survey cycles. For example, the BMI category in the IHDA is for ages 20-64 because cycle 1.1 collected for ages 20-64 and cycles 2.1 onward collected for ages 18-64.

The 2001 (cycle 1.1), 2003 (cycle 2.1), and 2005 (cycle 3.1) data in the IHDA represent “two-year” cycles (approximate sample sizes of 12,000) of CCHS whereas 2007 onward represent annual data (approximate sample sizes of 6,000). This results in annual estimates that appear substantially more variable than their two-year counterparts.

Methodology – Small Area Estimates:

The overall approach is to use a logistic regression model with random effects for the trends in each small area (local area). Predictions from the regression model are then applied to small area population estimates, providing both crude and age-standardized estimates.

Year, age and sex are included as model covariates as these correspond with the dimensions of the small area populations. Age groups, sex and an age-sex interaction is included. Time trends are modeled as penalized splines with two equally spaced knots.

The small area level of geography of interest is the local planning level. Local planning levels aggregate up to aggregate levels, and then to zones in Alberta. A hierarchy of models are evaluated, nesting local, within aggregate, within zone level random effects, for both levels (intercepts) and trends. The reason for a three-level model is to attempt to align estimates most closely with published direct estimates, allowing for the aggregation of model results. The random effects in the temporal splines and intercepts allow each small area to have its own smooth trend. If the data could support a three-level hierarchy, it was chosen; otherwise the two-level hierarchy was chosen if the data could support it. In cases where the data could not support random trends at the local level, the random trends at the zone level and random intercepts at the local level were modelled. In cases where the data could not support random trends at the zone level, random intercept models were chosen. At each step random effects allowing for different age specific trends were also considered and selected when supported.

Survey weights provided with CCHS are re-scaled to match the number of observations in each CCHS cycle/year. All weights are then adjusted by the design effect (bootstrap estimated pooling across all years). These weights are used in the logistic model.

Small area estimates from the initial period of 2003 to 2011 are from a single model. Updates starting with 2012 data, will use all available data in the modelling and then add the additional year's estimate to the initial period estimates.

A note on notation: for consistency, the prediction errors and prediction intervals resulting from the random effects models are referred to standard errors and confidence intervals.

[The preceding discussion is taken from an early draft of a paper documenting the full modelling process and the surveillance principles underlying the process.]

Interpretation Notes:

The measures in this file are based upon the Provincial Share File and may vary slightly from Statistics Canada estimates based on the Master file. These differences are quite small (less than one percentage point for most measures). Caution should be exercised when comparing IHDA measures with previously published Statistics Canada estimates. Many CCHS estimates produced by Statistics Canada prior to 2007 include question non-response in their denominators; these estimates have not been restated on the Statistics Canada website to be consistent with the current methodology of removing question non-response from the denominator.

The measures in this file represent proportions or means of the Alberta population during the survey cycle. They are not age or otherwise standardized. Caution should be exercised in interpreting changes in crude proportions or means over time.

Certain measures are restricted to particular sub-populations or response groupings for comparability of definition across cycles. These may differ from published estimates from Statistics Canada.

Question Years:

Not all questions are asked in all years of the CCHS. Questions and universes (those the question is posed to) change over time as there are improvements to the survey methodology. Certain questions are asked on a cyclic basis (every two or four years) and some questions are chosen for inclusion in a particular year by the provinces. For these reasons, not all questions are available in all years in the IHDA.

Weighting, Standard Errors and Confidence Intervals:

To account for variability due to the complex survey design, Statistics Canada provides 500 bootstrap weights with the provincial share file. These weights have been used in all analyses. The bootstrap method has been used for all directly estimated standard errors and confidence intervals. The design effect from a pooled bootstrapped estimate is used to adjust the weights and hence standard errors and confidence intervals in the small area estimates; the standard errors and confidence intervals also account for the random effects used to describe the small areas.

Standard Score:

Standard Scores are used for color coding maps, and are calculated as follows:

$$\frac{\text{regional prevalence} - \text{provincial prevalence}}{\text{regional standard error}}$$

Disclosure Guidelines:

Statistics Canada provides disclosure guidelines relating to direct estimates for users of CCHS data to ensure that only the highest quality data is provided publicly. The guidelines are based upon the coefficient of variation (CV), the ratio of the standard error of the estimate to the estimate itself. Estimates with CVs of less than 16.6 per cent are fully disclosable; the guidelines recommend estimates with CVs between 16.6 per cent and 33.3 per cent be flagged “E - high sampling variability is associated with the estimate” which display as “Use with Caution” in the IHDA data; disclosure of estimates with CVs greater than 33.3 per cent is not recommended and should be flagged as “F - The user is advised that the data do not meet Statistics Canada’s quality standards for this statistical program,” which display as “Does Not Meet Disclosure Criteria” in the IHDA data. The CV flag is included with the estimates and any estimates not meeting the recommended disclosure criteria have been suppressed.

The CV flag for CCHS indicators in the IHDA are categorized as 1 = Meets Disclosure Criteria (CV < 16.6per cent)

2 = Use With Caution (CV between 16.6 per cent and 33.3 per cent)

The preceding disclosure guidelines are designed to protect privacy while maintaining high quality direct estimates. Direct estimates for small areas would rarely meet the disclosure guidelines and would very often result in biased estimates. The small area estimates based on the modelling process described above use a complex statistical model, ensuring privacy concerns are maintained while still providing quality estimates. While the direct estimate guidelines are not applicable to the small area estimates, we note that virtually all small area estimates would meet the CV disclosure guidelines.

Associated Measures:

Confidence Interval (95 per cent Confidence Interval) Standard Error

Standard Score

CV (direct estimates only)

CV flag (direct estimates only)

Valid Values:

The measures on this file are available for the following levels of year, sex, and geography:

1. Years: 2001 (cycle 1.1), 2003 (cycle 2.1), 2005 (cycle 3.1), 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014
2. Sex: Both, Female, Male
3. Geography:

- Local Areas (132 unique names)

Indicator and Meaning	Source and Sample Universe
<p>Overweight</p> <p>Proportion of the population self-reporting in categories “overweight” and “obese”.</p>	<p>Derived from BMI calculation HWTDISW for cycles 2.1 and later, which is based upon self- reported height and weight, collapsing BMI values into categories: < 18.5 underweight, 18.5-<25.0 normal, 25.0-<30.0 overweight, >=30.0 obese. For cycle 1.1, the self-reported BMI (HWTDBMI) was used to assign these categories. Ages 20-64, not pregnant.</p>
<p>Life Stress</p> <p>Proportion of the population self-reporting life stress as extremely or quite a bit stressful.</p>	<p>From CCHS variable GEN_07, collapsing categories.</p> <p>Ages 18+.</p>
<p>Self-Perceived Health</p> <p>Proportion of the population self-reporting health as excellent or very good.</p>	<p>From CCHS variable GEN_01, collapsing categories.</p> <p>All respondents (Ages 12+).</p>
<p>Self-Perceived Mental Health</p>	<p>From CCHS variable GEN_02B, collapsing categories.</p> <p>All respondents (Ages 12+).</p>

Proportion of the population self-reporting mental health as excellent or very good.	
Enough Fruit & Veggies Proportion of population self-reporting having eaten five or more servings of fruit and vegetables per day.	From CCHS variable FVCGTOT, collapsing categories. All respondents (Ages 12+).
Proper Physical Activity Proportion of the population moderately active or active.	From CCHS variable PACDPAI, collapsing categories. All respondents (Ages 12+).
Occasional or Daily Smoking Proportion of the population who are current daily or occasional smokers.	From CCHS variable SMKDSTY, collapsing categories. All respondents (Ages 12+).
Daily Smoking Proportion of the population who are current daily smokers.	From CCHS variable SMKDSTY, collapsing categories. All respondents (Ages 12+).
Heavy Drinking 2001-2012: Proportion of the population reporting having five or more drinks at least once per month. 2013-: Proportion of the population reporting having (five for males)/(four for females) or more drinks at least once per month.	Groups CCHS variable ALC_3 values of once per month, two to three times per month, once a week, and more than once per week into Heavy Drinkers; remaining values of less than once per month and of not applicable (non- drinkers) as not Heavy Drinkers. All respondents (Ages 12+).
Binge Drinking 2001-2012: Proportion of the population reporting having five or more drinks two or more times per month. 2013-: Proportion of the population reporting having (five for males)/(4 for females) or more drinks two or more times per month.	Groups CCHS variable ALC_3 values of two to three times per month, once a week, and more than once per week into Binge Drinkers; remaining values of less than two or more times per month and of not applicable (non- drinkers) as not Binge Drinkers. All respondents (Ages 12+).
Had Flu Shot Ever Self-reported as having ever had a flu shot.	From CCHS variable FLU_160. All respondents (Ages 12+).
Had Flu Shot Within Last Year Self-reported as having ever had a flu shot within the last year.	From CCHS variable FLU_162, except in 2001 when the denominator explicitly relies upon a response to FLU_160. All respondents (Ages 12+).

Have a Regular Family Doctor	From CCHS variable HCU_1AA (TWD_5 in 2001).
Self-reported as having a regular family doctor.	All respondents (Ages 12+).

Further details on the survey questions can be obtained at www.statcan.gc.ca

Last Updated on February 6, 2017