Canadian Community Health Survey (CCHS)
Annual component
User guide
2014 and 2013-2014 Microdata files

June 2015

Statistics Canada Statistique Canada

Canada

Table of contents

WHAT'S NEW IN THE 2014 CANADIAN COMMUNITY HEALTH SURVEY?

Content

The following modifications were made to Canadian Community Health Survey (CCHS) – Annual component questionnaire in 2014:

Changes

- The modules **Expanded Restriction of Activities – Activities of Daily Living (ADL), Health Utility Index (HUI), Injuries/Workplace Injuries/Repetitive Strain (INJ/INW/REP), Use of Protective Equipment (UPE) and Sexual Behaviours (SXB)** were offered as optional modules in 2012. In 2013 they were reintroduced in the 2 year common content on **Injuries and Functional Health** and **Sexual Behaviours** (see Appendix A for details).
- The maximum value for income in the **Income (INC)** module has been changed from $9,000,000 to $90,000,000. As well, personal income will no longer be asked of any respondent under the age of 18. Note that the change to the age was made partway into the 2013 collection year. Any data that had been collected before the application changed was set to 'not applicable' to ensure a stable universe for the whole year.
- In 2013, the definition of 'heavy drinker' for females in **Alcohol Use (ALC)** and **Alcohol Use During the Past Week (ALW)** was changed from 5 to 4 drinks on one occasion, at least once a month in the past year. This change was not reflected in the 2013 questionnaire (in ALW verification edits) but has been updated in the 2014 questionnaire.
- There is no sub-sample component in 2014
- The condition, **DIS_C01K** has been corrected so that, in the cases where all relevant **DIS** questions are 'None of the time', the case will skip to the end of the module.
- **Chronic Conditions – Fibromyalgia (CC3) and Chronic Conditions – Chronic Fatique Syndrome and Multiple Chemical Sensitivities (MCS) (CC4)** have been included in the CCC module in 2014 as one-year common content for all health regions. They were last asked in 2010.
- As well, the following modules are being asked as one-year common content for 2014: **Contacts with Health Professionals – Part 2 (CP2)**; **Loss of Productivity at Work (LOP)**; and **Unmet Health Care Needs (UCN)**

New modules

- No new modules for 2014

Geography

- **In 2013, the geography derived variables** that were based on the 2006 Census geography have been updated based on the 2011 Census definitions. The derived variables that have been updated are:
    - GEODCD – 2011 Census Division (CD)
    - GEODCMAA – 2011 Census Metropolitan Area (CMA)
    - GEODCSD – 2011 Census Subdivision (CSD)
    - GEODDA11 – 2011 Census Dissemination Area (DA). The GEODDA06 variable is included on the file for concordance
    - GEODFED – 2011 Census Federal Electoral District (FED)
    - GEODHR4 – Health Region
    - GEODDHA – Nova Scotia District Health Authority (DHA)
    - GEODLHN – Ontario Local Health Integration Network
    - GEODSUBZ – Alberta Sub-zone
    - GEODBCHA – British Columbia Health Authority

Collection

In 2014, a new collection management approach was implemented to improve the efficiency of the CATI data collection: Responsive Collection Design (see Chapter 6 for details).

Documentation

- Errata: Errors that are discovered in the CCHS data files and products after dissemination are communicated to users in a cumulative error log called "CCHS Errata". The errata provides details on:
    - the products affected (e.g. master or share files or PUMF);
    - the years affected;
    - suggested corrections (if possible); and
    - steps to carry out to apply the correction

Since the release of the 2013 CCHS, there have been ten additional entries to the errata document. The subjects of these entries are:

- INC_6K and INC_6J - Reversed variable labels
- INC_Q6 and INC_Q1 sources of income inconsistent
- SUI_3, SUI_5, SUI_6A-SUI_6H concepts are inaccurate
- Labeling error in SDCDLHM
- PCU_152 – category labels incorrect
- Insurance, Personal income, and Health number may not be accurate for 12-17 year olds
- Modifications to WST DVs
- Issue with SPSDATT in data dictionary and DV specs
- UPE_Q1A – flow error
- Labelling error in EDUDR04

For your convenience, the errata document now has an index on the first page. It lists modules affected and the years affected. To see if a particular variable is affected, follow the hyperlinks on the associated errata item numbers.

An up to date copy of the CCHS Errata can be obtained by contacting Health Statistics Division at 613-951-1746 or hd-ds@statcan.gc.ca.

1. INTRODUCTION

The Canadian Community Health Survey (CCHS) is a cross-sectional survey that collects information related to health status, health care utilization and health determinants for the Canadian population. It surveys a large sample of respondents and is designed to provide reliable estimates at the health region level. In 2007, major changes were made to the CCHS design. Data is now collected on an ongoing basis with annual releases, rather than every two years as was the case prior to 2007. The survey's objectives were also revised and are as follows:

- support health surveillance programs by providing health data at the national, provincial and intra-provincial levels;
- provide a single data source for health research on small populations and rare characteristics;
- timely release of information easily accessible to a diverse community of users; and
- create a flexible survey instrument that includes a rapid response option to address emerging issues related to the health of the population.

Details of the other redesign changes are provided in section 3.

The CCHS data is always collected from persons aged 12 and over living in private dwellings in the 110 health regions covering all provinces and territories. Excluded from the sampling frame are individuals living on Indian Reserves and on Crown Lands, institutional residents, full-time members of the Canadian Forces, and residents of certain remote regions. The CCHS covers approximately 98% of the Canadian population aged 12 and over.

The purpose of this document is to facilitate the manipulation of the CCHS microdata files and to describe the methodology used. The CCHS produces three types of microdata files: master files, share files and public use microdata files (PUMF). The characteristics of each of these files are presented in this guide. The PUMF is released every two years and contains two years of data. The next PUMF file will be released in the fall of 2015 and will include the data collected for the years 2013and 2014.
Any questions about the data sets or their use should be directed to:

Electronic Products Help Line: 1-800-949-9491

For custom tabulations or general data support:
Client Custom Services, Health Statistics Division: 613-951-1746
E-mail: hd-ds@statcan.gc.ca

For remote access support: 613-951-1746
E-mail: cchs-escc@statcan.gc.ca
Fax: 613-951-0792

2. BACKGROUND

In 1991, the National Task Force on Health Information cited a number of issues and problems with the health information system. The members felt that data was fragmented; incomplete, could not be easily shared, was not being analysed to the fullest extent, and the results of research were not consistently reaching Canadians.[1]

In responding to these issues, the Canadian Institute for Health Information (CIHI), Statistics Canada and Health Canada joined forces to create a Health Information Roadmap. From this mandate, the Canadian Community Health Survey (CCHS) was conceived. The format, content and objectives of the CCHS evolved through extensive consultation with key experts and federal, provincial and community health region stakeholders to determine their data requirements.[2]

To meet many data requirements, the CCHS had a two-year data collection cycle. Until the redesign in 2007, the first year of the survey cycle, designated by ".1", was a general population health survey, designed to provide reliable estimates at the health region level. The second year of the survey cycle, designated by ".2", had a smaller sample and was designed to provide provincial level results on specific health topics.

New designations for Cycles .1 and .2

As of 2007, the regional component of the CCHS program began being collected on an ongoing basis. To avoid confusion with the health focused surveys, the two components stopped using the ".1" and ".2" designations to distinguish them. Henceforth, the x.1 cycles of the CCHS are designated as "the annual component" of the CCHS. The full title is "The Canadian Community Health Survey – Annual component, 2011" and the short title is simply "CCHS –2011". The focused content component of the survey remains unchanged. It will continue to examine in greater detail more specific topics or populations. It will be designated by the name of the survey followed by the topic of the themes covered by each survey (e.g., "Canadian Community Health Survey on Healthy Aging" or "CCHS – Healthy Aging").

[1] 1999. Health Information Roadmap: Responding to Needs, Health Canada, Statistics Canada. p. 3.

[2] 1999. Health Information Roadmap: Beginning the Journey. Canadian Institute for Health Information/Statistics Canada. ISBN 1-895581-70-2. p. 19.

3. CCHS REDESIGN IN 2007

Until 2005, the CCHS data were collected every two years over a one year period and released every two years, about six months after the end of the collection period. There were two main objectives for the 2007 CCHS redesign: to address the needs of partners to increase the survey's content and the frequency of data releases, and to ensure better use of operational resources. For these reasons, the proposed changes to the CCHS design focused on improving the survey's efficiency and flexibility through ongoing data collection.

Extensive consultations were held across Canada with key experts and federal, provincial and health region stakeholders to gather input on the proposed changes and detailed information on the data requirements and products of the various partners.

Below are the main changes arising from the CCHS redesign:

- In the past, the CCHS data were collected from 130,000 respondents over a 12-month period. Now, data collection takes place on an ongoing basis. The sample, which retains the same size, is divided into 12 two-month collection periods. Each collection period is representative of the population living in the ten Canadian provinces during the two months. For operational reasons, the sample in the territories is representative of their population after 12 months.

- The common content component is divided into three: the annual common content (previously referred to as core content), the one year and two-year common content (previously referred to as theme content). The one year common content is asked for one year and re-introduced every two or four years. The two year common content is asked for two years and re-introduced every four years. The two year and one year common content was created to take advantage of the continuous collection approach. The data collection time for this component can be adjusted based on the prevalence of the desired estimates and their geographic level. The annual common content will remain relatively stable over time. At the discretion of the provinces and regions, the optional content can also be adjusted on an annual basis, rather than every two years.

- Content and collection changes inevitably impact the dissemination strategy. Previously, data were released every two years. Since 2008, CCHS data are released annually. Every two years, a file combining the two years' sample (130,000 respondents) is also released. In addition to these regular files, other special files will be made available when additional content has been collected during collection periods that do not correspond to the standard annual periods, which is January to December.

- The annual data collection is divided into six two-month periods. Unlike the previous collection strategy, these periods no longer overlap, which provides more efficient oversight of collection and offers the possibility of changing the collection interface every two months, if necessary.

4. CONTENT STRUCTURE OF THE CCHS

In addition to socio-demographic and administrative data, the content of the CCHS includes three components, each of which addresses a different need: the common content component comprising the annual common content, the two year and one year common content, the optional content component, and the rapid response component. Appendix A lists the modules included in the 2014 questionnaire by component.

The average length of a CCHS interview is estimated at 40 to 45 minutes.

Table 4.1 Length of survey by component

CCHS component	Average interview time
Common content • Annual • One and two-year	**30 minutes** (20 minutes) (10 minutes)
Optional content	**10 minutes**
Rapid response content (As requested on a cost recovery basis)	**2 minutes**

4.1 Common content

The CCHS common content component includes questions asked of respondents in all provinces and territories (unless otherwise specified). It is divided into three components: the annual common content, one-year and two year common content.

The annual common content consists of questions asked of all survey respondents. These questions will remain relatively stable in the questionnaire for a period of about six years up to 2014, unless a major concern is raised about quality.

The one year and two-year common content (previously called theme content) comprises questions related to a specific topic. Combined, the two-year and one year common content take about 10 minutes of the interview time. Modules comprising this content type could be reintroduced in the survey every two, four or six years, if required. This component enables CCHS to better plan its content in the medium term.

Some of the modules in the one year common content may be asked of a sub-sample of respondents if the objective of these questions is to provide reliable data at the national or provincial level, rather than at the health region level. This approach is used to minimize the related response burden and costs.

4.2 Optional content

The optional content component gives health regions the opportunity to select content that addresses their provincial or regional public health priorities. The optional content is selected from a long list of modules available for inclusion in the CCHS. The content modules selected by a region are asked only of residents in the regions that selected these modules. In reality, since 2005 (cycle 3.1), the regions and provinces have opted to coordinate the optional content selected in order to ensure a uniform selection of optional modules provincially. The optional content may vary annually depending on needs and must be reviewed every two years.

It should be noted that, unlike the modules included in the common content, the resulting data from the optional content modules is not easily generalized across Canada[3].

Appendix B presents the selection results of the optional content for the current year and two year combined by province of residence.

4.3 Rapid response content

The rapid response component is offered on a cost-recovery basis to organizations interested in obtaining national estimates on an emerging or specific topic related to the health of the population. The rapid response content takes a maximum of two minutes of interview time. The questions appear in the questionnaire for a single collection period (two months) and are asked of all CCHS respondents during that period, excluding the Territories.

4.4 Content included in data files

The survey produces different data files:

- one year reference period
- combined two years reference periods and
- one year sub-sample data files.

Table 4.2 provides clarification about the data files available for the 2013 and 2014 CCHS.

One year data files

The survey produces data files every year. In June 2015, an annual file based on the 2014 reference period has been released. It includes respondents from the 2014 data collection and variables from the common annual content, common one year content, common two year content as well as optional content.

Two year data files

Every two years, a file combining the most recent two years is released. The next two year file is scheduled to be released in 2015, and will include both the 2013 and 2014 reference years.

[3] Unless all provinces and territories in Canada select an optional module in the same collection period, which has never happened to date.

The two-year data file includes all respondents and the questions that were in the survey over the two year reference period. Unless otherwise specified, it is the question component from the common annual and two-year content and selected optional content over the two year period. The one-year common content and optional content selected for one year only are not available in the two-year data file.

Sub-sample data files

Any modules collected from a sub-sample of the population will continue to be disseminated in separate files. These files include the annual and one year common content collected from a sub-sample of respondents. Sub-sample files have been released as follows:

Year	**Modules**
2000	Waiting times and Access to health care services
2003	Dental visits, Driving and safety, Health utility index, Medication use, Oral health 2
2005	Waiting times, Access to health care services, Patient satisfaction, Health Utility Index, Measured height and weight, Fruit and vegetable consumption, Labour force – long form
2007	Waiting times, Access to health care services and Patient satisfaction
2008	Measured height and weight
2009	Waiting times, Access to health care services
2011	Waiting times, Access to health care services
2013	Waiting times, Access to health care services

Table 4.2 Content components for the 2013 and 2014 data files

Files		Annual common content	2013 one year common content[1]	2014 one year common content	2013-2014 two-year common content	Optional content[2]
2013	**Main**	Yes	No	N/A	Yes	Yes
	Sub-sample (2 modules)	Yes	Yes	N/A	No	No
2014	**Main**	Yes	N/A	Yes	Yes	Yes
2013-2014	**Main**	Yes	No	No	Yes	Yes

1 The 2013 annual common content was comprised of two modules (Access to health care services and Waiting times) which were all asked to a sub-sample of respondents.

2 Optional content will be included in the 2013-2014 data file if it is asked of respondents in a jurisdiction during the two year period. Otherwise, it will only be included in the file of the year in which it was collected. Note that if an annual common content module from one year is selected for the optional content of a jurisdiction during the second year, the module will be included in the two-year data file and will be processed as optional content.

5. SAMPLE DESIGN

5.1 Target population

The CCHS covers the population 12 years of age and over living in the ten provinces and the three territories. Excluded from the survey's coverage are: persons living on reserves and other Aboriginal settlements in the provinces; full-time members of the Canadian Forces; the institutionalized population and persons living in the Quebec health regions of Région du Nunavik and Région des Terres-Cries-de-la-Baie-James. Altogether, these exclusions represent less than 3% of the target population.

5.2 Health regions

For administrative purposes, each province is divided into health regions (HR) and each territory is designated as a single HR. Statistics Canada is sometimes asked to make minor changes to the boundaries of some of the HRs to correspond to the geography of the Census, or to better account for the health data needs determined by the new geographic boundaries. For CCHS 2014, data was collected in 107 HRs in the ten provinces, as well as to one HR per territory, totalling 110 HRs (Appendix C).

The definition of HRs was modified between the time of sampling and the creation of the data files for Prince Edward Island. The 3 HRs defined at the time of sampling (1101, 1102 and 1103) have been aggregated into a single HR (1100). The current chapter on sample design, as well as the figures on sample sizes provided in Appendix D and Appendix F, refer to the HRs as they were defined at the time of sampling.

5.3 Sample size and allocation

To provide reliable estimates for each HR given the budget allocated to the CCHS component, it was determined that the survey should consist of a sample of nearly 130,000 respondents over a period of 2 years. Although producing reliable estimates for each HR was a primary objective, the quality of the estimates for certain key characteristics at the provincial level was also deemed important. Therefore, the sample allocation strategy, consisting of three steps, gave relatively equal importance to the HRs and the provinces. In the first step, a minimum size of 500 respondents per HR was imposed. This is considered the minimum for obtaining a reasonable level of data quality. However, due to response burden, a maximum sampling fraction of 1 out of 20 dwellings was imposed to avoid sampling too many dwellings in smaller regions also targeted by other surveys. Note that very few HRs have a size lower than 500 due to limit of the sampling fraction. In this first step, 60,350 units were allocated in total. The second step involves allocating the rest of the available sample by using an allocation proportional to the population size by province. The total sample size by province is therefore the sum of the sizes established by the two first steps. This sample allocation strategy was used for CCHS 2005 and the sample sizes have remained mainly the same since then. The sample was then divided evenly between the 2 collection years. Table 5.1 gives the targeted sample sizes for 2014 and 2013-2014.

Table 5.1 Number of health regions and targeted sample sizes by province/territory, 2014 and 2013-2014

Province	Number of HRs	Targeted sample size 2014	Targeted sample size 2013-2014
Newfoundland and Labrador	4	2,005	4,010
Prince Edward Island	3	1,001	2,002
Nova Scotia	6	2,521	5,042
New Brunswick	7	2,575	5,150
Quebec	16	12,146	24,317
Ontario[1]	36	22,288	44,576
Manitoba	5	3,750	7,500
Saskatchewan	11	3,860	7,720
Alberta	5	6,097	12,250
British Columbia	16	8,045	16,090
Yukon	1	600	1,200
Northwest Territories	1	600	1,200
Nunavut	1	350	700
Canada	**112**	**65,838**	**131,757**

[1] The sample size for Ontario includes the buy-in extra sample by LHIN. The initial annual sample size for Ontario before the buy-in was 20,880 units (refer to section 5.7 for further details).

In the third step, the provincial sample was allocated among its HRs proportionally to the square root of the estimated population in each HR[4]. This three-step approach gives sufficient sample for each HR with minimal disturbance to the proportionality of the allocation by province.

Note that the three territories were not part of the above allocation strategy as they were dealt with separately. Each year, 600 sample units were allocated to the Yukon, 600 to the Northwest Territories and 350 to Nunavut. These sizes are determined according to the available budget. The sample allocation for the territories is done proportionally to the population sizes of the strata. The strata used were the same as those defined by the Labour Force Survey (LFS), which group together communities (for more details, see section 5.4.1).

The sample was then divided between the area frame and the list frame[5], as described in the next section. It should be mentioned that the number of units taken from each frame was increased in order to account for the anticipated out-of-scope and non-response rates based on the rates obtained in previous CCHS cycles. These adjusted sample sizes are called the *raw sample sizes*, and correspond to the number of units that have to be selected in order to obtain the targeted sample sizes. The sample sizes by HR and frame are provided in Appendix D for 2014 and Appendix F for 2013-2014.

[4] The allocation of the provincial sample among its HRs is based on the geographical boundaries and population counts of the HRs at the time of the 2007 redesign.

[5] Except for two regions which use a random digit dialing frame (RDD) only (section 5.4.3) and the three territories which use only area frame and random digit dialing frame (RDD) (sections 5.4.1 and 5.4.3).

5.4 Frames, household sampling strategies

The CCHS used three sampling frames to select the sample of households: 40.5% of the sample of households came from an area frame, 58.5% came from a list frame of telephone numbers and the remaining 1% came from a Random Digit Dialling (RDD) sampling frame.

5.4.1 Sampling of households from the area frame

The CCHS used the area frame designed for the Canadian Labour Force Survey (LFS) as a sampling frame. The sampling plan of the LFS is a multistage stratified cluster design in which the dwelling is the final sampling unit[6]. In the first stage, homogeneous strata are formed and independent samples of clusters are drawn from each stratum. In the second stage, dwelling lists are prepared for each cluster and dwellings, or households, are selected from these lists.

For the purpose of the LFS plan, each province is divided into three types of regions: major urban centres, cities, and rural regions. Geographic or socio-economic strata are created within each major urban centre. Within the strata, between 150 and 250 dwellings are grouped together to create clusters. Some urban centres have separate strata for apartments or for census Dissemination Areas (DA) to pinpoint households with high income, immigrants and aboriginals. In each stratum, six clusters or residential buildings (sometimes 12 or 18 apartments) are chosen by a random sampling method with a probability proportional to size (PPS), the size of which corresponds to the number of households. The number six is used throughout the sample design to allow for one sixth of the LFS sample to be rotated each month.

The other cities and rural regions of each province are stratified first on a geographical basis, then according to socio-economic characteristics. In the majority of strata, six clusters (usually census DAs) are selected using the PPS method. Some geographically isolated urban centres are covered by a three-stage sampling design. This type of sampling plan is used for Quebec, Ontario, Alberta and British Columbia.

Once the new clusters are listed, the sample is obtained using a systematic sampling of dwellings. The sample size for each systematic sample is called the "yield". Table 5.2 gives an overview of the types of PSUs used in the LFS sample and the yield predicted by systematic sample. As the sampling rates are determined in advance, there is frequently a difference between the expected sample size and the numbers that are obtained. The yield of the sample, for example, is sometimes excessive. This can particularly happen in sectors where there is an increase in the number of dwellings due to new construction. To reduce the cost of collection, an excessive output is corrected by eliminating, from the beginning, a part of the units selected and by modifying the weight of the sample design. This change is dealt with during weighting.

6 Statistics Canada (2008). *Methodology of the Canadian Labour Force Survey.* Statistics Canada. Cat. No. 71-526-XIE.

Table 5.2 Major first-stage units, sizes and yields

Area	Primary Sampling Unit (PSU)	Size (households per PSU)	Yield (sampled households)
Toronto, Montreal, Vancouver	Cluster	150-250	6
Other cities	Cluster	150-250	8
Most rural areas / small urban centres	Cluster	100-250	10

Due to the specific of the CCHS, some modifications had to be incorporated in this sampling strategy. To obtain an annual sample of about 26,000 respondents for a given year of CCHS, about 40,000 dwellings had to be selected from the area frame to account for vacant dwellings and non-responding households. Each month, the LFS design provides approximately 60,000 dwellings distributed across the various economic regions in the ten provinces, whereas the CCHS required 40,000 dwellings distributed across the HRs, which have different geographic boundaries from those of the LFS economic regions. Overall, the CCHS required a lower number of dwellings than those generated by the LFS selection mechanism, which corresponds to an average *adjustment factor* of 0.66 (40,000/60,000). . However, since the adjustment factors varied at the HR level, certain adjustments were required.

The changes made to the selection mechanism in the regions varied depending on the size of the adjustment factors. For HRs that had a factor smaller than or equal to 1, the number of PSUs selected was reduced if necessary. For example, if the factor was 0.5 then only 3 PSUs were selected in each stratum instead of the usual number of 6 PSUs. For those HRs with a factor greater than 1 but smaller than or equal to 2, the sampling process of dwellings within a PSU was repeated for a subset of the selected PSUs that were part of the same HR. For example, if the factor was 1.6 then the selection of dwellings within a PSU was repeated for 4 of the 6 PSUs in all strata of that HR. When it was necessary to have a repeated selection of dwellings within a PSU and there were no more dwellings available in that PSU, then another PSU was selected. When the factor was greater than 2, the sampling process of dwellings was repeated among other PSUs that were part of the same HR[7].

Finally, when the number of dwellings available in the selected PSUs was greater than the requested number of dwellings for a given HR, a sub-sample of dwellings was selected. This process is called *stabilization*.

Sampling of households from the area frame in the three territories

For operational reasons, the LFS area frame sample design for the three territories was different. For each territory, the larger communities each have their own stratum while smaller communities are grouped into strata based on various characteristics (population, geographical information, proportion of Inuit and/or Aboriginal persons, and median household income). The LFS defined six

[7] To reduce listing costs, the sampling process of dwellings was repeated up to 3 times within PSUs already selected in urban areas only. These cases were exceptions, however.

design strata in the Yukon, ten in the Northwest Territories and ten in Nunavut. For strata consisting of a group of communities, the first stage of selection consisted of randomly selecting one community with a probability proportional to population size within each design stratum. Then, within the selected community, the second stage consisted of selecting households using the same sampling strategy as the one described above. The CCHS selected its sample from the same communities sampled by the LFS, while ensuring that different dwellings were selected. If too many or too few dwellings were available for a community within a stratum, another community was selected for the CCHS. For larger communities with their own stratum, only one stage design was necessary where households were selected directly using the same sampling strategy described above.

It is worth mentioning that the frame for the CCHS covered 92% of the targeted population in the Yukon, 96% in the Northwest Territories and 92% in Nunavut[8].

5.4.2 Sampling of households from the list frame of telephone numbers

With the exception of 5 HRs (the two RDD-only HRs and the three territories), the list frame of telephone numbers was used in all HRs to complement the area frame. The list frame consists of the Canada Phone directory which is an external administrative database of names, addresses and telephone numbers from telephone directories in Canada updated every six months. It was linked to administrative postal code conversion files to map each telephone number to a stratum. Within each stratum, the required number of telephone numbers was selected using a simple random sampling process from the list. As for the RDD frame, additional telephone numbers were selected to account for the numbers not in service or out-of-scope.

It is important to mention that the undercoverage of the list frame is higher than the one for the RDD as unlisted numbers do not have a chance of being selected. Nevertheless, as the list frame is always used as a complement to the area frame, the impact of the undercoverage of the list frame is minimal and is dealt with during weighting.

5.4.3 Sampling of households from the Random Digit Dialing frame of telephone numbers

In four HRs, a Random Digit Dialling (RDD) sampling frame of telephone numbers was used to select a sample of households. The sampling of households from the RDD frame used the Elimination of Non-Working Banks (ENWB) method, a procedure adopted by the General Social Survey[9]. A bank of one hundred telephone numbers (the first eight digits of a ten-digit telephone number) is considered to be non-working if it does not contain any residential telephone numbers. At first, the frame consists of a list of all possible banks and, as non-working banks are identified, they are eliminated from the frame. It should be noted that these banks are eliminated only when there is evidence from various sources that they are non-working. When there is no information about a bank it is left on the frame. The Canada Phone Directory and telephone companies' billing

[8] In Nunavut, starting in 2013, the coverage was expanded to represent 92% of the targeted population. Before 2013, the coverage was 71% since the survey covered only the 10 largest communities.

[9] Norris, D.A. and Paton, D.G. (1991). Canada's General Social Survey: Five Years of Experience, *Survey Methodology*, 17, 227-240.

address files were used in conjunction with various internal administrative files to eliminate non-working banks.

Using available geographic information (postal codes), the banks on the frame were regrouped to create RDD strata to encompass, as closely as possible, the HR areas. Within each RDD stratum, a bank was randomly chosen and a number between 00 and 99 was generated at random to create a complete, ten-digit telephone number. This procedure was repeated until the required number of telephone numbers within the RDD stratum was reached. Frequently, the number generated is not in service or is out-of-scope, and therefore, many additional numbers must be generated to reach the targeted sample size. This success rate varies from region to region. Within the CCHS, the success rates ranged from 25% to 50% among the four HRs which required the use of the RDD frame.

5.5 Sample allocation over the collection periods

In order to balance interviewer workload and to minimize possible seasonal effects on estimates, the initial sample size for each frame is allocated equally over the six 2-month collection periods.

In the area frame, each PSU selected within each HR was randomly assigned to a collection period accounting for a number of constraints related to field operations or weighting, while maintaining a uniform size for each period. For example, a sample that is representative of the Canadian population is ensured every six months by ensuring that the dwelling sample covers all LFS strata during this period.

For the lists of telephone numbers, independent samples were selected in each collection period. This strategy ensures that each sample is representative of the in scope Canadian population for each two-month period.

5.6 Sampling of interviewees

As was done for the previous cycles, the selection of individual respondents was designed to ensure over-representation of youths (12 to 19). The selection strategy that was adopted accounted for user needs, cost, design efficiency, response burden and operational constraints. One person is selected per household using varying probabilities taking into account the age and the household composition. The selection probabilities resulted from simulations using various parameters in order to determine the optimal approach without causing extreme sampling weights.

Table 5.3 gives the selection weight multiplicative factors used to determine the probabilities of selection of individuals in sampled households by age group. For example, for a three-person household formed of two adults of age 45 to 64 and one 15-year-old, the teenager would have a 7/9 chance of being selected (i.e., 70/(70+10+10)) while each of the adults would have a 1/9 chance of being selected. To avoid extreme sampling weights, there is one exception to this rule: if the size of the household is greater than or equal to 5 or if the number of 12-19 year olds is greater than or equal to 3 then the selection weight multiplicative factor equals 1 for each individual in the household. Consequently, all people in that household have the same probability of being selected.

Table 5.3 Selection weight multiplicative factors for the person-level sampling strategy by age

Selection Weight Multiplicative Factors					
Age	**12-19**	**20-29**	**30-44**	**45-64**	**65+**
Factors	70	50	20	10	10

5.7 Supplementary buy-in sample in Ontario

The province of Ontario requested a sample increase in order to produce estimates at the Local Health Integrated Network (LHIN) geography level. Ontario contains 14 LHIN. The CCHS sample was increased in order to obtain a minimum size of 2,000 respondents per LHIN over a period of 2 years. As the HR and LHIN boundaries intersect each other, the stratification level used was the HR-LHIN overlap. The preliminary sample sizes allotted by HR are therefore preserved. In cases where the HR allocation prevented the sample from reaching sizes of 2,000 respondents per LHIN, the sample was then increased, and was allocated proportionally to the size of the population within the HR-LHIN overlap. Table 5.4 provides the targeted sample sizes by LHIN for 2014 and 2013-2014.

Table 5.4 Targeted sample sizes by Local Health Integrated Network (LHIN), CCHS 2014 and 2013-2014

LHIN	**Targeted sample size 2014**	**Targeted sample size 2013-2014**
01-Erie St. Clair	1,550	3,100
02-South West	2,604	5,208
03-Waterloo Wellington	1,206	2,412
04-Hamilton Niagara Haldimand Brant	2,597	5,194
05-Central West	1,088	2,176
06-Mississauga Halton	1,115	2,230
07-Toronto Central	1,134	2,268
08-Central	1,411	2,822
09-Central East	2,108	4,216
10-South East	1,313	2,626
11-Champlain	2,057	4,114
12-North Simcoe Muskoka	1,047	2,094
13-North East	1,990	3,980
14-North West	1,068	2,136
Ontario	**22,288**	**44,576**

The total sample size of the HR-LHIN overlapping areas was then allocated between the two frames, with 59% going to the list frame and the 41% to area frame. The usual sample selection procedures within each frame were then applied to the total sample. The additional sample was included as part of the full CCHS sample. Sample sizes by Local Health Integrated Network and frame are given in Appendix D for 2014 and Appendix F for 2013-2014.

6. DATA COLLECTION

6.1 Computer-assisted interviewing

Between January and December 2014, over 60,000 valid interviews were conducted using computer assisted interviewing (CAI). Approximately 40% of the interviews were conducted in person using computer assisted personal interviewing (CAPI) and the other 60% were conducted over the phone using computer assisted telephone interviewing (CATI).

CAI offers two main advantages over other collection methods. First, CAI offers a case management system and data transmission functionality. This case management system automatically records important management information for each attempt on a case and provides reports for the management of the collection process. CAI also provides an automated call scheduler, i.e. a central system to optimise the timing of call-backs and the scheduling of appointments used to support CATI collection.

The case management system routes the questionnaire applications and sample files from Statistics Canada's main office to regional collection offices (in the case of CATI) and from the regional offices to the interviewers laptops (for CAPI). Data returning to the main office takes the reverse route. To ensure confidentiality, the data is encrypted before transmission. The data are then unencrypted when they are on a separate secure computer with no remote access.

Second, CAI allows for custom interviews for every respondent based on their individual characteristics and survey responses. This includes:

- questions that are not applicable to the respondent are skipped automatically
- edits to check for inconsistent answers or out-of-range responses are applied automatically and on-screen prompts are shown when an invalid entry is recorded. Immediate feedback is given to the respondent and the interviewer is able to correct any inconsistencies.
- question text, including reference periods and pronouns, is customised automatically based on factors such as the age and sex of the respondent, the date of the interview and answers to previous questions.

6.2 CCHS application development

The CCHS uses two separate CAI applications to collect data, one for telephone interviews (CATI) and one for personal interviews (CAPI). This was done in order to customise each application's functionality to the type of interview being conducted. Each application consisted of entry, health content, and exit components.

Entry and exit components contain standard sets of questions designed to guide the interviewer through contact initiation, collection of important sample information, respondent selection and determination of cases status. The health content consists of the health modules themselves and made up the bulk of the applications. This includes common modules asked of all respondents and

optional modules which differed by provinces and territories. Each application underwent three stages of testing: block, integrated and end to end.

Block level testing consists of independently testing each content module or "block" to ensure skip patterns, logic flows and text, in both official languages, are specified correctly. Skip patterns or logic flows across modules are not tested at this stage as each module is treated as a standalone questionnaire. Once all blocks are verified by several testers they are added together along with entry and exit components into integrated applications. These newly integrated applications are then ready for the next stage of testing.

Integrated testing occurs when all of the tested modules are added together, along with the entry and exit components, into an integrated application. This second stage of testing ensures that key information such as age and gender are passed from the entry to the health content and exit components of the applications. It also ensures that variables affecting skip patterns and logic flows are correctly passed between modules within the health content. Since, at this stage the applications essentially function as they will in the field, all possible scenarios faced by interviewers are simulated to ensure proper functionality. These scenarios test various aspects of the entry and exit components including, establishing contact, collecting contact information, determining whether a case is in scope, rostering households, creating appointments and selecting respondents. The applications are also tested to ensure that during an interview, correct modules are triggered reflecting health region optional content selections.

End to end testing occurs when the fully integrated applications are placed in simulated collection environment. The applications are loaded onto computers that are connected to a test server. Data is then collected, transmitted and extracted in real time, exactly as it would be done in the field. This last stage of testing allows for the testing of all technical aspects of data input, transmission and extraction for each of the CCHS applications. It also provided a final chance of finding errors within the entry, health content and exit components.

6.3 Interviewer training

Project managers, senior interviewers and interviewers from regional collection offices were sent self study training packages before the start of collection. These packages were prepared by the CCHS project team and were used by existing experienced CCHS interviewers to reinforce their previous training. Project managers and senior interviewers also conducted customised training sessions for new CCHS interviewing staff as needed. There were also specific training sessions to deal with various topics related to CCHS collection on a monthly basis. The focus of the training sessions were to get interviewers comfortable using the CCHS 2014 applications, and familiarise interviewers with survey content and to introduce interviewers to interviewing procedures specific to the CCHS. The training focused on:

- goals and objectives of the survey including a focus on the survey redesign
- survey methodology
- application functionality

- review of the questionnaire content and exercises with an emphasis on significant content changes
- interviewer techniques for maintaining response - complete exercises to minimise non-response
- use of mock interviews to simulate difficult situations and practise potential non-response situations
- survey management
- transmission procedures

One of the key aspects of the training was a focus on minimizing non-response. Exercises to minimise non-response were prepared for interviewers. The purpose of these exercises was to have the interviewers practice convincing reluctant respondents to participate in the survey. There was also a series of refusal avoidance workshops given to the senior interviewers responsible for refusal conversion in each regional collection office.

6.4 The interview

Sample units selected from the telephone list and RDD (Random Digit Dialling) frames were interviewed from centralised call centres using CATI. Starting in May 2014, 20% of cases selected from the area frame were interviewed using CATI for collection cost constraint. The CATI interviewers were supervised by a senior interviewer located in the same call centre. Units selected from the area frame were interviewed by decentralised field interviewers using CAPI. While in some situations field interviewers were permitted to complete some or part of an interview by telephone, roughly three quarters of these interviews were conducted exclusively in person. CAPI interviewers worked independently from their homes using laptop computers and were supervised from a distance by senior interviewers. The variable CASETYPE on the microdata files indicates whether a case was selected from the area frame and completed using CAPI (CAPI - CASETYPE=1), from area frame and completed using CATI (CATI Dwelling - CASETYPE=2), or from the telephone or RDD frame (CATI - CASETYPE=1).

In all selected dwellings, a knowledgeable household member was asked to supply basic demographic information on all residents of the dwelling. One member of the household was then selected for a more in-depth interview, which is referred to as the health content Interview.

CAPI interviewers were trained to make an initial personal contact with each sampled dwelling. In cases where this initial visit resulted in non-response, telephone follow-ups were permitted. The variable ADM_N09 on the microdata files indicates whether the CAPI interview (CASETYPE=0) was completed face-to-face, by telephone or using a combination of the two techniques.

To ensure the quality of the data collected, interviewers were instructed to make every effort to conduct the interview with the selected respondent in privacy. In situations where this was unavoidable, the respondent was interviewed with another person present. Flags on the microdata files indicate whether somebody other than the respondent was present during the interview (ADM_N10) and whether the interviewer felt that the respondent’s answers were influenced by the presence of the other person (ADM_N11).

To ensure the best possible response rate attainable, many practices were used to minimise non-response, including:

a) Introductory letters

Before the start of each collection period, introductory letters and brochures explaining the purpose of the survey were sent to the sampled households. These explained the importance of the survey and provided examples of how CCHS data would be used.

b) Initiating contact

Interviewers were instructed to make all reasonable attempts to obtain interviews. When the timing of the interviewer's call (or visit) was inconvenient, an appointment was made to call back at a more convenient time. If requests for appointments were unsuccessful over the telephone, interviewers were instructed to follow-up with a personal visit. If no one was home on first visit, a brochure with information about the survey and intention to make contact was left at the door. Numerous call-backs were made at different times on different days.

c) Refusal conversion

For individuals who at first refused to participate in the survey, a letter was sent from the nearest Statistics Canada Regional Office to the respondent, stressing the importance of the survey and the household's collaboration. This was followed by a second call (or visit) from a senior interviewer, a project supervisor or another interviewer to try to convince respondent of the importance of participating in the survey.

d) Language barriers

To remove language as a barrier to conducting interviews, each of the Statistics Canada Regional Offices recruited interviewers with a wide range of language competencies. When necessary, cases were transferred to an interviewer with the language competency needed to complete an interview.

e) Youth interviews

In 2014, interviewers needed to obtain verbal permission from parents/guardians to interview youths between the ages of 12 to 15 who were selected for interviews. This information was collected in the Parental/Guardian Consent (PGC) block. Several procedures were followed by interviewers to alleviate potential parental concerns and to ensure a completed interview. Interviewers carried with them a card entitled “Note to parents / guardians about interviewing youths for the Canadian Community Health Survey”. This card explained the purpose of collecting information from youth, lists the subjects to be covered in the survey, asks for permission to share and link the obtained information and explains the need to respect a child's right to privacy and confidentiality.

If a parent/guardian asked to see the actual questions; interviewers were instructed to either show the survey questions, or if the interviewer was being conducted by phone, to immediately have the regional office send a copy of the questionnaire.

If privacy could not be obtained to interview the selected youth either in person or over the phone (another person listening in) the interview was coded a refusal. However, for CAPI interviews, if privacy could not be obtained to interview the selected youth, the interviewer was able to propose to the parent/guardian that the interviewer read the questions out loud and the youth enter their answers directly on the computer.

The Person Most Knowledgeable (PMK) block collected household level information found at the end of the survey (Home Safety, Insurance coverage, Food Security, Income and Administration) from the most knowledgeable person in the household. In 2014, this block is initiated when the selected respondent is between the ages of 12 to 17. The block formalizes the process of identifying a person in the household who is likely better able to answer these household level questions than the young selected respondent. If a PMK is found, then the interview moves from the younger selected respondent between the ages of 12 and 17, to a household member who finishes the rest of the interview after the PMK block.

f) Proxy interviews

In cases where the selected respondent was, for reasons of physical or mental health, incapable of completing an interview, another knowledgeable member of the household supplied information about the selected respondent. This is known as a proxy interview. While proxy interviewees were able to provide accurate answers to most of the survey questions, the more sensitive or personal questions were beyond the scope of knowledge of a proxy respondent. This resulted in some questions from the proxy interview being unanswered. Every effort was taken to keep proxy interviews to a minimum.

In 2010, the Proxy interview (GR) block was modified to prompt the interviewer to specifically identify whether the proxy interview is being conducted due to a physical or mental condition. Interviewers are then asked to record the specific condition for either case. The variable ADM_PRX indicates whether a case was completed by proxy.

6.5 Field operations

The majority of the 2014 sample was divided on a yearly basis into six non-overlapping two-month collection periods. Regional collection offices were instructed to use the first 4 weeks of each collection period to resolve the majority of the sample, with next 4 weeks being used finalise the remaining sample and to follow up on outstanding non-response cases. All cases were to have been attempted by the second week of each collection period. Sample files were sent approximately two weeks before the start of each collection period to centralised collection offices. A series of dummy cases were included with each CAPI sample. These cases were completed by senior interviewers for the purposes of ensuring that all data transmission procedures were working through the collection cycle. Once, the samples were received, project supervisors were responsible for planning CAPI

interviewer assignments. Wherever possible, assignments were generally no larger than 15 cases per interviewer.

Transmission of cases from each of the CATI offices to head office was the responsibility of the regional office project supervisor, senior interviewer and the technical support team. These transmissions were performed nightly and sent all completed cases to Statistics Canada's head office. Completed CAPI interviews were transmitted daily from the interviewer's home directly to Statistics Canada's head office using a secure telephone transmission.

For final response rates, refer to Appendix E.

6.6 Quality control and collection management

During the collection year, several methods are used to ensure data quality and to optimize collection. These included using internal measures to verify interviewer performance and the use of a series of ongoing reports to monitor various collection targets and data quality.

A system of validation was used for CAPI cases whereby interviewers had their work validated on a regular basis by the Regional Office. Each collection period, randomly selected cases were flagged in the sample. Regional office managers and supervisors created lists of cases to be validated. These cases were handed to the validation team who then contacted households to verify that a legitimate interview took place. Validation procedures generally occurred during the first few weeks of a collection period to ensure that any issues were detected promptly. Interviewers were provided feedback by their supervisors on a regular basis.

In 2011, an additional quality control system was introduced for CAPI interviews. Upon obtaining consent from the respondents, specific sections of the CAPI interviews were recorded. These recordings were transmitted back to the regional offices, and then randomly chosen for analysis. CATI interviewers were also randomly chosen for validation. Validation in the CATI collection offices consisted of senior interviewers monitoring interviews to ensure proper techniques and procedures (reading the questions as worded in the applications, not prompting respondents for answers, etc.) were followed by the interviewer.

A series of reports were produced to effectively track and manage collection targets and to assist in identifying other collection issues.

Cumulative reports were generated at the end of each collection period, showing response, link, share and proxy rates for both the CATI and CAPI samples by individual health region. The reports were useful in identifying health regions that were below collection target levels, allowing the regional offices to focus efforts in these regions.

Using information obtained from the CAI applications, further analysis was done in head office in order to identify interviews that were completed below acceptable time frames. These short interviews were flagged, removed from the microdata and treated as non-response.

In 2014, a new collection management approach was implemented to improve the efficiency of the CATI data collection: Responsive Collection Design. Responsive Collection Design (RCD) is a new collection strategy that allows the Regional Offices (ROs) to adjust data collection approaches throughout the collection period. In basic terms, it allows the Regional Offices to group cases according to a number of factors, and then target the groups that we are interested in. In an ordinary CATI survey, the interviewer groups remain constant throughout collection. However, during Responsive Collection Design, these groups change during each phase of collection in order to maximize response rates, productivity and the representativeness of the collected sample.

7. DATA PROCESSING

7.1 Editing

Most editing of the data was performed at the time of the interview by the computer-assisted interviewing (CAI) application. It was not possible for interviewers to enter out-of-range values and flow errors were controlled through programmed skip patterns. For example, CAI ensured that questions that did not apply to the respondent were not asked.

In response to some types of inconsistent or unusual reporting, warning messages were invoked but no corrective action was taken at the time of the interview. Where appropriate, edits were instead developed to be performed after data collection at Head Office. Inconsistencies were usually corrected by setting one or both of the variables in question to "not stated".

7.2 Coding

Pre-coded answer categories were supplied for all suitable variables. Interviewers were trained to assign the respondent's answers to the appropriate category.

In the event that a respondent's answer could not be easily assigned to an existing category, several questions also allowed the interviewer to enter a long-answer text in the "Other-specify" category. All such questions were closely examined in head office processing. For some of these questions, write-in responses were coded into one of the existing listed categories if the write-in information duplicated a listed category. For all questions, the 'Other-specify' responses are taken into account when refining the answer categories for future cycles.

When write-in responses ("Other-specify") are coded into an existing category during head office processing, it is possible that other questions in the questionnaire would become in scope to the respondent. Since those questions were never asked during the interview, the missing answers were set to 'Not Stated' in processing. For example, in the Injuries (INJ) module, a question asks what the respondent was doing at the time of their injury (INJ_Q09). If the interviewer collected an answer in the other specify that indicated the respondent was working, then the variable INJ_09 would be coded to the category 'Working at a job or business'. Had the interviewer used this category in the interview, the respondent would then get the Injury at work (INW) sub-block questions. Since this never occurred, but those questions are now valid for this case, all of the questions in INW will have been set to 'Not Stated'.

7.3 Creation of derived variables

To facilitate data analysis and to minimize the risk of error, a number of variables on the file have been derived using items found on the CCHS questionnaire. Derived variables generally have a "D", "G" or "F" in the fourth character of the variable name. In some cases, the derived variables are straightforward, involving collapsing of response categories. In other cases, several variables have been combined to create a new variable. The *Derived Variables Documentation (DV)* provides details on how these more complex variables were derived. For more information on the naming convention, please go to Section 12.6.

7.4 Weighting

The principle behind estimation in a probability sample such as CCHS is that each person in the sample "represents", besides himself or herself, several other persons not in the sample. For example, in a simple random 2% sample of the population, each person in the sample represents 50 persons in the population. In the terminology used here, it can be said that each person has a weight of 50.

The weighting phase is a step that calculates, for each person, his or her associated sampling weight. This weight appears on the PUMF, and must be used to derive meaningful estimates from the survey. For example, if the number of individuals who smoke daily is to be estimated, it is done by selecting the records referring to those individuals in the sample having that characteristic and summing the weights entered on those records.

7.5 Income imputation

Beginning with the 2011 reference year, the household income variable will be imputed. Missing values due to either respondent refusal or respondent's lack of knowledge of household income will be completed using statistical techniques. The main variable of interest is INC_3: 'Total household income - best estimate' but all variables that are derived based on income will also be affected. The income variables along with an imputation flag (INCFIMP in 2011; INCFIMP4 starting in 2012, including 2011-2012) indicating which values were imputed will be provided on the data file. For more information on the imputation process, please refer to the document 'Income Imputation for the Canadian Community Health Survey' available under the 'Documentation' section of the Definitions, data sources and methods page on the Statistics Canada website or contact Client Services (613-951-1746; fax: 613-951-0792; hd-ds@statcan.gc.ca).

8. WEIGHTING

In order for estimates produced from survey data to be representative of the covered population, and not just the sample itself, users must incorporate the survey weights in their calculations. A survey weight is given to each respondent included in the final sample. This weight corresponds to the number of persons in the entire population that are represented by the respondent.

As described in Section 5, the CCHS uses three sampling frames for its sample selection: an area frame acting as the primary frame and two frames made up of telephone numbers used to complement the area frame. Since only minor aspects differentiate the two telephone frames in terms of weighting, they are treated jointly and are collectively referred to as the telephone frame.

Depending on the need, one or two frames are used for the selection of the sample within a given Health Region (HR). When two frames are used, the weighting strategy treats both the area and telephone frames independently to come up with separate household-level weights for each of the frames used. These household-level weights are then combined into a single set of household weights through a step called "*integration*". After applying person-level selection weights and some further adjustments, this integrated weight becomes the final person-level weight.

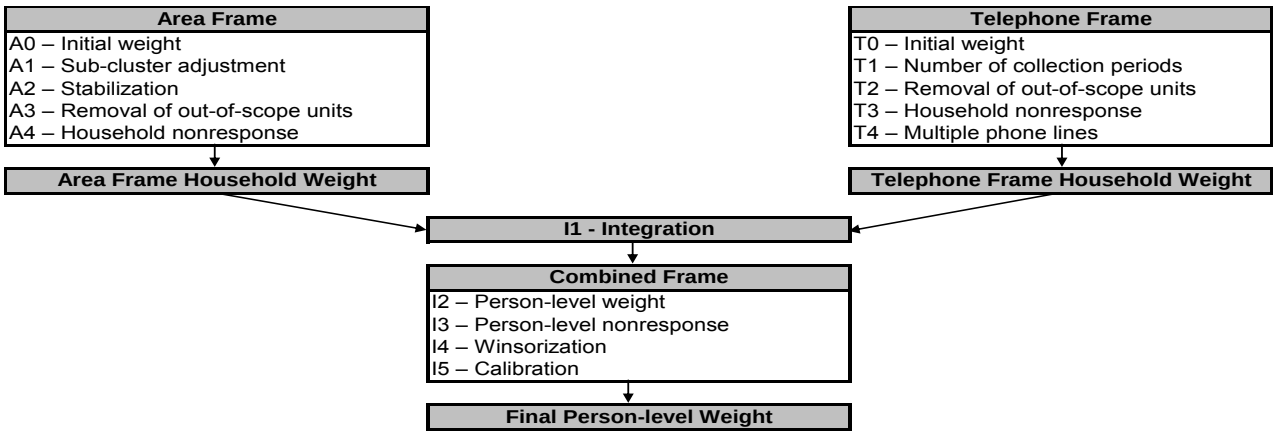
8.1 Overview

As mentioned earlier, units from both the area and telephone frames are treated separately up to the integration step. The following sections describe the weighting process for the provinces. Sub-section 8.2 provides details on the weighting strategy for the area frame, while sub-section 8.3 deals with the strategy for the telephone frame. The integration of the two frames is discussed in 8.4. This is followed by the last weighting steps including calibration, where the weights are adjusted to control for seasonality and to match known population totals. These steps are explained in sub-section 8.5.

Although the two frames are used to cover the three territories, the sampling methods used are slightly different from those used in the provinces. These modifications affect the weighting of these three regions substantially, and they are reported in sub-section 8.6.

Diagram A presents an overview of the different adjustments that are part of the weighting strategy. A numbering system is used to identify each adjustment and will be used throughout the section. Letters *A* and *T* are used as prefixes to refer to adjustments applied to the units on the *A*rea and *T*elephone frames respectively, while prefix *I* identifies adjustments applied from the *I*ntegration step onwards.

Diagram A Weighting strategy overview



8.2 Weighting of the area frame sample

A0 – Initial weight

The weighting on the area frame sample begins with a weight provided by the Labour Force Survey (LFS). This weight is based on the LFS design since the CCHS area frame sample design is based on the LFS. The LFS design consists of a sample of dwellings within clusters selected from LFS strata. In the initial adjustment A0, the LFS weight is adjusted to take into consideration the fact that the CCHS selects a sample to be representative of the Health Region. To do so, the CCHS selects a different number of clusters than the LFS and can repeat the sampling of dwellings within the selected clusters. The resulting weight is called weight A0. For more details about the selection mechanism, as well as a more complete definition of LFS strata and clusters, refer to Statistics Canada (2008)[10].

A1 – Sub-cluster adjustment

In clusters that experience significant growth, a sub-sampling methodology is used to ensure that the workload of the interviewers is kept at a reasonable level. This can consist of sub-sampling from the selected dwellings, dividing the cluster into sub-clusters, or reclassifying the cluster as a stratum and creating new clusters within the stratum. In all these cases, a sub-sample adjustment is calculated and applied to the CCHS weight. This adjustment is applied to weight A0 to produce weight A1. Again, more information can be found in the LFS documentation (Statistics Canada (2008)).

A2 – Stabilization

In some HRs, the increase of the sample size, as described in section 5, results in a larger sample than necessary. Stabilization is used to bring the sample size back down to the desired level. The

[10] Statistics Canada. 2008. *Methodology of the Canadian Labour Force Survey.* Statistics Canada. Cat. No. 71-526-X.

stabilization process consists of randomly sub-sampling dwellings at the HR level from the dwellings originally selected within each cluster. An adjustment factor representing the effect of this stabilization is calculated in order to adjust the probability of selection appropriately. This factor, multiplied by weight A1, produces weight A2.

A3 – Removal of out-of-scope units

Among all dwellings sampled, a certain proportion is identified during collection as being out-of-scope. Dwellings that are demolished or under construction, vacant, seasonal or secondary, and institutions are examples of out-of-scope cases for the CCHS. These dwellings and their associated weights are simply removed from the sample, as it is assumed that the weighted out-of-scope dwellings in the sample are representative of out-of-scope dwellings in the population. This leaves a sample that consists of, and is representative of, in-scope dwellings or households. These remaining in-scope dwellings maintain the same weight as in the previous step, which is now called weight A3.

A4 – Household nonresponse

During collection, a certain proportion of sampled households inevitably result in nonresponse. This usually occurs when a household refuses to participate in the survey, provides unusable data, or cannot be reached for an interview. Weights of the nonresponding households are redistributed to responding households within response homogeneity groups (RHGs). In order to create the response homogeneity groups, a scoring method based on logistic regression models is used to determine the propensity to respond and these response probabilities are used to divide the sample into groups with similar response properties. The information available for nonrespondents is limited so the regression model uses characteristics such as the collection period and geographic information, as well as paradata or process data, which includes the number of contact attempts, the time/day of attempt, and whether the household was called on a weekend or weekday. Starting in 2008, RHGs were formed within province to better control for provincial totals. An adjustment factor is calculated within each response group as follows:

$$\frac{\textit{Sum of weight A3 for all households}}{\textit{Sum of weight A3 for all responding households}}$$

Weight A3 is multiplied by this adjustment factor to produce weight A4 for the responding households. Non-responding households are dropped from the process at this point.

8.3 Weighting of the telephone frame sample

As mentioned earlier, the telephone frame is composed of two frames: a Random Digit Dialling (RDD) frame and a list frame. Only one of the frames can be used within an HR. When the list frame is used, it is always used as a complement to the area frame within the HR. When the RDD frame is used, it is always used as the only frame within the HR. For the purposes of weighting, units coming from the two telephone frames are treated together and therefore are subject to the same adjustments.

The geographical boundaries used to select the sample from the telephone frame do not always conform to the HR geography. Consequently, some units may have been sampled from one HR but the information collected at the time of the interview places them in a neighbouring HR. This is handled in the weighting by applying the first 3 telephone adjustments (T0, T1 and T2) relative to the HR assigned at the time of sample selection. The remaining 2 adjustments (T3 and T4) are applied to the HR based on information collected from the respondent to ensure that all units belong to their correct HR.

T0 –Initial weight

The initial design weight is defined as the inverse of the probability of selection and is computed separately for the RDD and list frame samples since the method of selection differs between these two frames. For the RDD frame, the selection of telephone numbers is done within each RDD stratum. An RDD stratum is an aggregation of area code prefixes (ACP: the first six digits of a 10-digit telephone number), with each ACP containing valid banks of one hundred numbers (see Norris and Paton[11] for more details). Therefore, the probability of selection is the ratio between the number of sampled units and one hundred times the number of banks within the RDD stratum.

For the list frame, telephone numbers are randomly selected among those assigned to the specific HR. The probability of selection corresponds to the ratio of the number of sampled units to the number of telephone numbers on the list within the HR. The ratio is based on the frame available and the number of units selected for the particular two-month collection period. The probability of selection can therefore change depending on sample allocation and frame updates. The inverse of these probabilities represents the initial weight T0.

T1 – Number of collection periods

On the area frame, the entire sample is selected at the beginning of the year. This is in contrast to the telephone frame, where samples are drawn every two months. Each of these samples comes with an initial weight that allows each sample to be representative of the population at the HR level. To ensure that the total sample represents the population only once, an adjustment factor is applied to reduce the weights of each two-month sample. The adjustment factor applied to each two-month sample is equal to the inverse of the number of samples being combined (i.e. the number of collection periods). Following this adjustment, the entire list frame sample corresponds to the average population over the entire combined collection period. The initial weights (T0) are multiplied by this adjustment factor to produce weight T1.

T2 - Removal of out-of-scope numbers

Telephone numbers associated with businesses, institutions or other out-of-scope dwellings, as well as numbers not in service or any other non-working numbers are all examples of out-of-scope cases for the telephone frame. Similar to the methods used on the area frame, these cases are simply

[11] Norris, D.A. and Paton, D.G. 1991. Canada's General Social Survey: Five Years of Experience. *Survey Methodology*. 17, 227-240.

removed from the process, leaving only in-scope dwellings in the sample. These in-scope dwellings keep the same weight as in the previous step, now called weight T2.

T3 – Household nonresponse

The adjustment applied here to compensate for the effect of household nonresponse is identical to the one applied for the area frame (adjustment A4) although the paradata used does differ because of the differences in collection applications for personal and telephone interviews. The adjustment factor calculated within each response homogeneity group is obtained as follows:

$$\frac{Sum\ of\ \ weights\ T2\ \ for\ all\ households}{Sum\ of\ \ weights\ T2\ \ for\ all\ responding\ households}$$

The weight T2 of responding households is multiplied by this adjustment factor to produce the weight T3. Nonresponding households are removed from the process at this point.

T4 - Multiple phone lines

Some households have more than one telephone number appearing on the frame. This has an impact on the weighting because these households have a higher probability of being selected. The weights for these households need to be adjusted for the number of residential telephone lines within the household. The adjustment factor represents the inverse of the number of lines in the household. The weight T4 is obtained by multiplying this factor by the weight T3.

8.4 Integration of the telephone and area frames (I1)

This step consists of integrating the weights for households common to the area and telephone frames into a single weight by applying a method of integration[12]. Those units on the area frame that are not on the telephone frame do not have their weights adjusted. For all others units, an adjustment factor α between 0 and 1 is applied to the weights. The weight of the area frame units is multiplied by this factor α, while the weight of the telephone frame units is multiplied by 1- α. Note that in the case where an HR is covered by only one frame, the adjustment factor is equal to 1. Starting in 2008, a fixed α of 0.4 has been used for those units on both frames to ensure greater comparability of estimates across years. The product between the factor derived here and the final household weight calculated earlier (A4 or T4, depending on which frame the unit belongs to), gives the integrated household weight I1.

8.5 Post-integration weighting steps

[12] Skinner, C.J. and Rao, J.N.K. 1996. Estimation in Dual Frame Surveys with Complex Designs. *Journal of the American Statistical Association*. 91, 433, 349-356.

I2 – Creation of person level weight

Since persons are the desired sampling units, the household-level weights computed to this point need to be converted to the person level. This weight is obtained by multiplying the weight I1 by the inverse of the probability of selection of the person selected in the household. This gives the weight I2. As mentioned earlier, the probability of selection for an individual changes depending on the number of people in the household and the ages of those individuals (see Section 5.6 for more details).

I3 – Person nonresponse

A CCHS interview can be seen as a two-part process. First, the interviewer gets the complete roster of the people within the household. Second, the selected person is interviewed. In some cases, interviewers can only get through the first part, either because they cannot get in touch with the selected person, or because that selected person refuses to be interviewed. Such individuals are defined as person nonrespondents and an adjustment factor must be applied to the weights of person respondents to account for this nonresponse. Using the same methodology that is used in the treatment of household nonresponse, the adjustment is applied within response homogeneity groups. In this process, the scoring method is used to define a response probability based on characteristics available for both respondents and non-respondents. All characteristics collected when creating the roster of household members are available for the estimation of the response probabilities as well as geographic information and some paradata. The probabilities are grouped into response homogeneity groups and the following adjustment factor is calculated within each group:

$$\frac{\textit{Sum of weight I2 for all selected persons}}{\textit{Sum of weight I2 for all responding selected persons}}$$

Weight I2 for responding persons is multiplied by the above adjustment factor to produce weight I3. Nonresponding persons are dropped from the weighting process from this point onward.

I4 – Winsorization

Following the series of adjustments applied to the respondents, some units may come out with extreme weights compared to other units of the same domain of interest. These units could have a large impact on the variance. In order to prevent this, the weight of these outlier units is adjusted downward using a "winsorization" trimming approach.

I5 – Calibration

The last step necessary to obtain the final CCHS weight is calibration (I5). Calibration is done using CALMAR[13] to ensure that the sum of the final weights corresponds to the population estimates defined at the HR level, for all 10 age-sex groups of interest. The five age groups are 12-19, 20-29, 30-44, 45-64, 65+, for both males and females. Starting in 2009, additional controls at more detailed

[13] Sautory O. CALMAR 2: A New Version of the CALMAR Calibration Adjustment Program. *Proceedings of Statistics Canada Symposium* (Statistics Canada, Catalogue no. 11-522-XCB), 2003.

geographic levels were introduced for HRs where additional information is available. A minimum size of 20 respondents is required to calibrate at the HR by age by sex level. When getting less than 20 respondents, some collapsing is done within province and / or within gender. At the same time, weights are adjusted to ensure that each collection period (two-month period) is equally represented within the sample. Note that the calibration is done using the most up to date geography and may not match the geography used in sampling.

The population estimates are based on the 2011 Census counts and counts of birth, death, immigration and emigration since that time. The average of these monthly estimates for each of the HR-age-sex post-strata by collection period is used to calibrate. The weight I4 is adjusted using CALMAR to obtain the final weight I5. Weight I5 corresponds to the ***final CCHS person-level weight*** and can be found on the data file with the variable name WTS_M for master or PUMF users.

8.6 Particular aspects of the weighting in the three territories

As described in Section 5, the sampling frame used in the three territories is somewhat different from the one used in the provinces. Therefore, the weighting strategy is adapted to comply with these differences. This subsection summarises the changes applied to the steps described in sub-sections 8.1 to 8.5.

For the area frame, as mentioned in sub-section 5.4.1, an additional stage of selection is added in the territories where each territory is stratified into groupings of communities and one community is selected within each group. The capital of each territory forms a stratum on its own and is selected automatically at the first stage. This has an effect in the computation of the probability of selection, and therefore in the value of the initial weight (A0). Once the initial weight is calculated, the same series of adjustments (A1 to A4) is applied to the area frame units. Household-level and person-level nonresponse adjustment classes are built in the same way as for the provinces, using the same set of variables.

For the weighting of the telephone frame units, it should be noted that only the RDD frame is used and its use is exclusive to the capitals of the Yukon and the Northwest Territories. All of the telephone frame adjustments are applied to derive a final weight for the telephone units.

The two sets of weights (area and telephone) are subsequently integrated and calibration is applied in a similar way to what is done for the provinces, with two exceptions. First, the integration is applied only to units located in the Yukon and the Northwest Territories capitals since the other communities are covered only by the area frame. Second, starting with the 2008 and 2007-2008 reference year products, controls have been put in place to ensure that the proportion of aboriginals and the proportion of individuals in the capital regions are controlled in the Northwest Territories and the Yukon. A similar control based on Inuit status was introduced for Nunavut. Starting in 2009, the proportion of individuals in the capital regions is controlled in Nunavut. These controls ensure that the proportion of the estimates represented by these different groups is consistent with proportions indicated by the 2011Census.

Prior to 2013, CCHS only covered the 10 largest communities in Nunavut. The population counts used in calibration were adjusted to take this undercoverage into consideration. Starting in 2013, CCHS increased its coverage to match the Labour Force Survey where 92% of the population is covered. Therefore, the population counts used for calibration are based on the total population and no longer adjusted for this undercoverage.

8.7 Creation of a share weight

Along with the master file and PUMF which contain all CCHS respondents, a share file is created which contains only a portion (>90%) of the original CCHS respondents. The individuals on this share file have agreed to share their data with certain partners. To compensate for the loss of some respondents from the file, the weights of these "sharers" must be adjusted by the factor:

$$\frac{\text{Sum of weight I3 for all respondents}}{\text{Sum of weight I3 for all respondents agreeing to share their data}}$$

Similar to the nonresponse adjustments, this factor is calculated within homogeneity groups, where in this case, individuals with similar estimated propensity to share will be grouped together. Weight I3 for sharers is multiplied by the above adjustment factor to produce a share weight. Winsorization and calibration, similar to adjustments I4 and I5, are applied to the share units. The final weight after these adjustments is called WTS_S.

8.8 Weighting for a two-year file

When two years of data are combined to create a two-year file, new weights are calculated by halving the annual weights. This ensures that the sum of the final weights is equal to the average population size over the two years. For more information on combining multiple years, please refer to the article “Combining cycles of the Canadian Community Health Survey” published in the Statistics Canada Health Reports publication (82-003) at the following link: http://www.statcan.gc.ca/pub/82-003-x/2009001/article/10795-eng.pdf

9. DATA QUALITY

9.1 Response rates for 2014

In total, 97,467 of the selected units in the CCHS 2014 were in-scope for the survey[14]. Out of these, 73,190 households accepted to participate in the survey resulting in an overall household-level response rate of 75.1%. One individual was selected from each of these 73,190 responding households, out of which a response was obtained for 63,964 individuals, resulting in an overall person-level response rate of 87.4%. At the Canada level, this yields a combined response rate of 65.6% for the CCHS 2014. Table 9.1 provides combined response rates as well as relevant information for their calculation by health region or group of health regions. Table 9.2 provides the same data by Local Health Integrated Network (LHIN).

Table 9.1 : 2014 response rates by health region and frame

(see Appendix E)

Table 9.2 : 2014 response rates by Local Health Integrated Network (LHIN) and frame in Ontario

(see Appendix E)

9.2 Response rates for 2013-2014

In total, 193,813 of the selected units in the CCHS 2013-2014 were in-scope for the survey. Out of these, 147,009 households accepted to participate in the survey resulting in an overall household-level response rate of 75.9%. One individual was selected from each of these 147,009 responding households, out of which a response was obtained for 128,310 individuals, resulting in an overall person-level response rate of 87.3%. At the Canada level, this yields a combined response rate of 66.2% for the CCHS 2013-2014. Table 9.3 provides combined response rates as well as relevant information for their calculation by health region or group of health regions. Table 9.4 provides the same data by Local Health Integrated Network (LHIN).

Table 9.3 : 2013-2014 response rates by health region and frame

(see Appendix G)

[14] Among the units selected, some are not in-scope for the survey. They are, for examples, vacant, demolished or non-residential dwellings or invalid phone numbers such as phone numbers without service or non-residential lines. These units are identified during the data collection, otherwise they would have been excluded before the sample selection. These units are not considered in the calculation of response rates.

Table 9.4 : 2013-2014 response rates by Local Health Integrated Network (LHIN) and frame in Ontario

(see Appendix G)

Next, we describe how the various components of the equation should be handled to correctly compute combined response rates.

Household-level response rate

HHRR =	*Number of responding households in both frames* / *All in-scope households in both frames*

Person-level response rate

PPRR =	*Number of responding persons in both frames* / *All selected persons in both frames*

Combined response rate = HHRR x PPRR

Below is an example on how to calculate the combined response rate for Canada using the information found in Table 9.1. The same method applies to rates computed for smaller regions such as province or health region.

HHRR =	$\frac{29{,}718 + 43{,}472}{37{,}985 + 59{,}482}$	=	$\frac{73{,}190}{97{,}467}$	= 0.751
PPRR =	$\frac{26{,}635 + 37{,}329}{29{,}718 + 43{,}472}$	=	$\frac{63{,}964}{73{,}190}$	= 0.874

Combined response rate = 0.751 x 0.874

= 0.656

= 65.6**%**

9.3 Survey Errors

The estimates derived from this survey are based on a sample of individuals. Somewhat different figures might have been obtained if a complete census had been taken using the same questionnaire, interviewers, supervisors, processing methods, etc. than those actually used. The difference between the estimates obtained from the sample and the results from a complete count under similar conditions is called the *sampling error* of the estimate.

Errors which are not related to sampling may occur at almost every phase of a survey operation. Interviewers may misunderstand instructions, respondents may make errors in answering questions, the answers may be incorrectly entered on the computer and errors may be introduced in the processing and tabulation of the data. These are all examples of *non-sampling errors*.

9.3.1 Non-sampling Errors

Over a large number of observations, randomly occurring errors will have little effect on estimates derived from the survey. However, errors occurring systematically will contribute to biases in the survey estimates. Considerable time and effort was made to reduce non-sampling errors in the CCHS. Quality assurance measures were implemented at each step of data collection and processing to monitor the quality of the data. These measures included the use of highly skilled interviewers, extensive training with respect to the survey procedures and questionnaire, and the observation of interviewers to detect problems. Testing of the CAI application and field tests were also essential procedures to ensure that data collection errors were minimized.

A major source of non-sampling errors in surveys is the effect of *non-response* on the survey results. The extent of non-response varies from partial non-response (failure to answer just one or some questions) to total non-response. Partial non-response to the CCHS was minimal; once the questionnaire was started, it tended to be completed with very little non-response. Total non-response occurred either because a person refused to participate in the survey or because the interviewer was unable to contact the selected person. Total non-response was handled by adjusting the weight of persons who responded to the survey to compensate for those who did not respond. See section 8 for details on the weight adjustment for non-response.

9.3.2 Sampling Errors

Since it is an unavoidable fact that estimates from a sample survey are subject to sampling error, sound statistical practice calls for researchers to provide users with some indication of the magnitude of this sampling error. The basis for measuring the potential size of sampling errors is the standard deviation of the estimates derived from survey results. However, because of the large variety of estimates that can be produced from a survey, the standard deviation of an estimate is usually expressed relative to the estimate to which it pertains. This resulting measure, known as the coefficient of variation (CV) of an estimate, is obtained by dividing the standard deviation of the estimate by the estimate itself and is expressed as a percentage of the estimate.

For example, suppose hypothetically that it is estimated that 25% of Canadians aged 12 and over are regular smokers and that this estimate is found to have a standard deviation of 0.003. Then the CV of the estimate is calculated as:

$$(0.003/0.25) \times 100\% = 1.20\%$$

Statistics Canada commonly uses CV results when analyzing data and urges users producing estimates from the CCHS data files to also do so. For details on how to determine CVs, see Section 11. For guidelines on how to interpret CV results, see the table at the end of sub-section 10.4.

10. GUIDELINES FOR TABULATION, ANALYSIS AND RELEASE

This section of the documentation offers guidelines to users for tabulating, analyzing, publishing or otherwise releasing any estimates derived from the survey files. With the aid of these guidelines, users of microdata should be able to produce figures that are in close agreement with those produced by Statistics Canada. They will also be able to develop currently unpublished figures in a manner consistent with these established guidelines. Methods to measure precision and quality are also described along with release guidelines to help decide when an estimate should be used in publication.

10.1 Rounding guidelines

In order that estimates for publication or other release derived from the data files (Master, Share or PUMF) correspond to those produced by Statistics Canada, users are urged to adhere to the following guidelines regarding the rounding of such estimates:

a) Estimates in the main body of a statistical table are to be rounded to the nearest hundred units using the normal rounding technique. In normal rounding, if the first or only digit to be dropped is 0 to 4, the last digit to be retained is not changed. If the first or only digit to be dropped is 5 to 9, the last digit to be retained is raised by one. For example, in normal rounding to the nearest 100, if the last two digits are between 00 and 49, they are changed to 00 and the preceding digit (the hundreds digit) is left unchanged. If the last digits are between 50 and 99 they are changed to 00 and the proceeding digit is incremented by 1;

b) Marginal sub-totals and totals in statistical tables are to be derived from their corresponding unrounded components and then are to be rounded themselves to the nearest 100 units using normal rounding;

c) Averages, proportions, rates and percentages are to be computed from unrounded components (i.e., numerators and/or denominators) and then are to be rounded themselves to one decimal using normal rounding. In normal rounding to a single digit, if the final or only digit to be dropped is 0 to 4, the last digit to be retained is not changed. If the first or only digit to be dropped is 5 to 9, the last digit to be retained is increased by 1;

d) Sums and differences of aggregates (or ratios) are to be derived from their corresponding unrounded components and then are to be rounded themselves to the nearest 100 units (or the nearest one decimal) using normal rounding;

e) In instances where, due to technical or other limitations, a rounding technique other than normal rounding is used resulting in estimates to be published or otherwise released that differ from corresponding estimates published by Statistics Canada, users are urged to note the reason for such differences in the publication or release document(s);

f) Under no circumstances are unrounded estimates to be published or otherwise released by users. Unrounded estimates imply greater precision than actually exists.

10.2 Sample weighting guidelines for tabulation

The sample design used for this survey was not self-weighting. That is to say, the sampling weights are not identical for all individuals in the sample. When producing simple estimates, including the production of ordinary statistical tables, users must apply the proper sampling weight. If proper weights are not used, the estimates derived from the data file cannot be considered to be representative of the survey population, and will not correspond to those produced by Statistics Canada.

Users should also note that some software packages might not allow the generation of estimates that exactly match those available from Statistics Canada, because of their treatment of the weight field. If options are available, users should ensure that they specify that the weight is a sample weight rather than a frequency weight.

10.2.1 Definitions: categorical estimates, quantitative estimates

Before discussing how the survey data can be tabulated and analyzed, it is useful to describe the two main types of point estimates of population characteristics that can be generated from the data files.

Categorical estimates:

Categorical estimates are estimates of the number or percentage of the surveyed population possessing certain characteristics or falling into some defined category. The number of individuals who smoke daily is an example of such an estimate. An estimate of the number of persons possessing a certain characteristic may also be referred to as an estimate of an aggregate.

Example of categorical question:

At the present do/does ... smoke cigarettes daily, occasionally or not at all? ***(SMK_202)***
__ Daily
__ Occasionally
__ Not at all

Quantitative estimates:

Quantitative estimates are estimates of totals or of means, medians and other measures of central tendency of quantities based upon some or all of the members of the surveyed population.

An example of a quantitative estimate is the average number of cigarettes smoked per day by individuals who smoke daily. The numerator is an estimate of the total number of cigarettes smoked per day by individuals who smoke daily, and its denominator is an estimate of the number of individuals who smoke daily.

Example of quantitative question:

*How many cigarettes do/does you/he/she smoke each day now? **(SMK_204)***
|_|_| Number of cigarettes

10.2.2 Tabulation of categorical estimates

Estimates of the number of people with a certain characteristic can be obtained from the data file by summing the final weights of all records possessing the characteristic of interest.

Proportions and ratios of the form $\hat{X} / \hat{Y}$ are obtained by:

a) summing the final weights of records having the characteristic of interest for the numerator ($\hat{X}$);

b) summing the final weights of records having the characteristic of interest for the denominator ($\hat{Y}$); then

c) dividing the numerator estimate by the denominator estimate.

10.2.3 Tabulation of quantitative estimates

Estimates of sums or averages for quantitative variables can be obtained using the following three steps (only step a) is necessary to obtain the estimate of a sum):

a) multiplying the value of the variable of interest by the final weight and summing this quantity over all records of interest to obtain the numerator ($\hat{X}$);

b) summing the final weights of records having the characteristic of interest for the denominator ($\hat{Y}$); then

c) dividing the numerator estimate by the denominator estimate.

For example, to obtain the estimate of the average number of cigarettes smoked each day by individuals who smoke daily, first compute the numerator ($\hat{X}$) by summing the product between the value of variable **SMK_204** and the weight **WTS_M.** Next, sum this value over those records with a value of "daily" to the variable **SMK_202**. The denominator ($\hat{Y}$) is obtained by summing the final weight of those records with a value of "daily" to the variable **SMK_202**. Divide ($\hat{X}$) by ($\hat{Y}$) to obtain the average number of cigarettes smoked each day by daily smokers.

10.3 Guidelines for statistical analysis

The CCHS is based upon a complex design, with stratification and multiple stages of selection, and unequal probabilities of selection of respondents. Using data from such complex surveys presents problems to analysts because the survey design and the selection probabilities affect the estimation

and variance calculation procedures that should be used. The use of the survey weights is the first step to ensuring that the proper results are obtained.

While many analysis procedures found in statistical packages allow weights to be used, the meaning or definition of the weight in these procedures can differ from what is appropriate in a sample survey framework. The end result is that, while in many cases the estimates produced by the packages are correct, the variances and the statistics based on those variances are almost meaningless. To get the proper results, the weights must be correctly interpreted by the software package and the proper variance estimation techniques must be used.

To ensure that results from this complex design are meaningful, there are several options. The first and most appropriate option is to use the variance calculation options outlined in chapter 11 based on the bootstrap methodology. Second, survey specific procedures exist in many packages that properly interpret the weight. For example, PROC SURVEYMEANS would provide results that are more appropriate in SAS than the results from PROC MEANS. Finally, for many analysis techniques (for example linear regression, logistic regression, analysis of variance), rescaling the weights so that the average weight is one (1) will ensure that the results obtained by standard packages will be more reasonable. The rescaling can be accomplished by using in the analysis a weight equal to the original weight divided by the average of the original weights for the sampled units (people) contributing to the estimator in question.

The last two options have the advantage of taking the unequal sampling probabilities into account and properly treat the weights as sampling weights. However, only the options outlined in chapter 11 based on the bootstrap methodology will take the stratification, clustering and multiple frame design into account when calculating the variance.

10.4 Release guidelines

Since the estimates obtained from the survey are based on a sample, there is variability in the values obtained in the sense that a different sample could result in different results. To take this into consideration, users should first ensure that there are enough observations to properly estimate the statistic and also to estimate the variance. Once the variance is obtained, users should ensure that the variance is reasonable enough that the estimate can properly be interpreted as being near the true population value. The number of observations as well as how to obtain the variance differs depending on if the user is accessing the PUMF or the Share / Master files.

PUMF

Before releasing and/or publishing any estimate from the data files, users must ensure that enough observations are available to calculate a quality estimate. i.e. They should determine the number of sampled respondents having the characteristic of interest (for example, the number of respondents who smoke when interested in the proportion of smokers for a given population) to determine if they have enough observations. For users of the PUMF, they should ensure that there are 30 observations with the characteristic of interest. If there are less than 30 observations, the estimate should not be released regardless of the variance and the coefficient of variation for this estimate. With 30 observations, users should continue by estimating the variance of the estimate using the CV

lookup provided with the PUMF using the methods described in chapter 11. Guidelines to determine if the resulting estimate should be released based on the CV are provided in Table 10.1.

Master / Share

For users of the master or share files, it is recommended to have at least 10 observations with the characteristic of interest and 20 in the domain if a proportion is being calculated. With enough observations, the user can proceed to calculating the variance and the coefficients of variation using the bootstrap weights provided with the data along with the appropriate software to do the analysis. The variances can be used to calculate the CVs and the estimates should be vetted using the guidelines in Table 10.1.

Table 10.1 Sampling variability guidelines

Type of Estimate	CV (in %)	Guidelines
Acceptable	$0.0 \leq CV \leq 16.5$	Estimates can be considered for general unrestricted release. Requires no special notation.
Marginal	$16.6 \leq CV \leq 33.3$	Estimates can be considered for general unrestricted release but should be accompanied by a warning cautioning subsequent users of the high sampling variability associated with the estimates. Such estimates should be identified by the letter E (or in some other similar fashion).
Unacceptable	$CV > 33.3$	Statistics Canada recommends not to release estimates of unacceptable quality. However, if the user chooses to do so then estimates should be flagged with the letter F (or in some other fashion) and the following warning should accompany the estimates: "The user is advised that . . .(specify the data) . . . do not meet Statistics Canada's quality standards for this statistical program. Conclusions based on these data will be unreliable and most likely invalid. These data and any consequent findings should not be published. If the user chooses to publish these data or findings, then this disclaimer must be published with the data."

11. APPROXIMATE SAMPLING VARIABILITY TABLES

In order to supply coefficients of variation that will be applicable to a wide variety of categorical estimates produced from a PUMF and that could be readily accessed by the user, a set of Approximate Sampling Variability Tables will be produced with each PUMF. These "look-up" tables allow the user to obtain an approximate coefficient of variation based on the size of the estimate calculated from the survey data.

The coefficients of variation (CV) are derived using the variance formula for simple random sampling and incorporating a factor which reflects the multi-stage, clustered nature of the sample design. This factor, known as the ***design effect,*** was determined by first calculating design effects for a wide range of characteristics and then choosing, for each table produced, a conservative value among all design effects relative to that table. The value chosen was then used to generate a table that applies to the entire set of characteristics.

The Approximate Sampling Variability Tables, along with the design effects, the sample sizes and the population counts that were used to produce them, are provided in the document *Approximate Sampling Variability Tables*, which is available to the share file and PUMF users. All coefficients of variation in the Approximate Sampling Variability Tables are approximate and, therefore, unofficial. Options concerning the computation of exact coefficients of variation are discussed in sub-section 11.7.

Remember: As indicated in Sampling Variability Guidelines in Section 10.4, if the number of observations on which an estimate is based is less than 30, the weighted estimate should not be released regardless of the value of the coefficient of variation. Coefficients of variation based on small sample sizes are too unpredictable to be adequately represented in the tables.

11.1 How to use the CV tables for categorical estimates

The following rules should enable the user to determine the approximate coefficients of variation from the Sampling Variability Tables for estimates of the number, proportion or percentage of the surveyed population possessing a certain characteristic and for ratios and differences between such estimates.

Rule 1: Estimates of numbers possessing a characteristic (aggregates)

The coefficient of variation depends only on the size of the estimate itself. On the appropriate Approximate Coefficients of Variations Table, locate the estimated number in the left-most column of the table (headed "Numerator of Percentage") and follow the asterisks (if any) across to the first figure encountered. Since not all the possible values for the estimate are available, the smallest value which is the closest must be taken (as an example, if the estimate is equal to 1,700 and the two closest available values are 1,000 and 2,000, the first has to be chosen). This figure is the approximate coefficient of variation.

Rule 2: Estimates of proportions or percentages of people possessing a characteristic

The coefficient of variation of an estimated proportion (or percentage) depends on both the size of the proportion and the size of the numerator upon which the proportion is based. Estimated proportions are relatively more reliable than the corresponding estimates of the numerator of the proportion when the proportion is based upon a sub-group of the population. This is due to the fact that the coefficients of variation of the latter type of estimates are based on the largest entry in a row of a particular table, whereas the coefficients of variation of the former type of estimators are based on some entry (not necessarily the largest) in that same row. (Note that in the tables the CVs decline in value reading across a row from left to right). For example, the estimated proportion of individuals who smoke daily out of those who smoke at all is more reliable than the estimated number who smoke daily.

When the proportion (or percentage) is based upon the total population covered by each specific table, the CV of the proportion is the same as the CV of the numerator of the proportion. In this case, this is equivalent to applying Rule 1.

When the proportion (or percentage) is based upon a subset of the total population (e.g., those who smoke at all), reference should be made to the proportion (across the top of the table) and to the numerator of the proportion (down the left side of the table). Since not all the possible values for the proportion are available, the smallest value which is the closest must be taken (for example, if the proportion is 23% and the two closest values available in the column are 20% and 25%, 20% must be chosen). The intersection of the appropriate row and column gives the coefficient of variation.

Rule 3: Estimates of differences between aggregates or percentages

The standard error of a difference between two estimates is approximately equal to the square root of the sum of squares of each standard error considered separately. That is, the standard error of a difference ($\hat{d} = \hat{X}_2 - \hat{X}_1$) is:

$$\sigma_{\hat{d}} = \sqrt{(\hat{X}_1 \alpha_1)^2 + (\hat{X}_2 \alpha_2)^2}$$

where $\hat{x}_1$ is estimate 1, $\hat{x}_2$ is estimate 2, and α_1 and α_2 are the coefficients of variation of $\hat{x}_1$ and $\hat{X}_2$ respectively. The coefficient of variation of $\hat{d}$ is given by $\sigma_{\hat{d}} / \hat{d}$. This formula is accurate for the difference between independent populations or subgroups, but is only approximate otherwise. It will tend to overstate the error, if $\hat{X}_1$ and $\hat{X}_2$ are positively correlated and understate the error if $\hat{X}_1$ and $\hat{X}_2$ are negatively correlated.

Rule 4: Estimates of ratios

In the case where the numerator is a subset of the denominator, the ratio should be converted to a percentage and Rule 2 applied. This would apply, for example, to the case where the denominator is

the number of individuals who smoke at all and the numerator is the number of individuals who smoke daily out of those who smoke at all.

Consider the case where the numerator is not a subset of the denominator, as for example, the ratio of the number of individuals who smoke daily or occasionally as compared to the number of individuals who do not smoke at all. The standard deviation of the ratio of the estimates is approximately equal to the square root of the sum of squares of each coefficient of variation considered separately multiplied by $\hat{R}$, where $\hat{R}$ is the ratio of the estimates ($\hat{R} = \hat{X}_1 / \hat{X}_2$). That is, the standard error of a ratio is:

$$\sigma_{\hat{R}} = \hat{R}\sqrt{\alpha_1^{\,2} + \alpha_2^{\,2}}$$

Where α_1 and α_2 are the coefficients of variation of $\hat{X}_1$ and $\hat{X}_2$ respectively.

The coefficient of variation of $\hat{R}$ is given by $\sigma_{\hat{R}} / \hat{R} = \sqrt{\alpha_1^{\,2} + \alpha_2^{\,2}}$. The formula will tend to overstate the error, if $\hat{X}_1$ and $\hat{X}_2$ are positively correlated and understate the error if $\hat{X}_1$ and $\hat{X}_2$ are negatively correlated.

Rule 5: Estimates of differences of ratios

In this case, Rules 3 and 4 are combined. The CVs for the two ratios are first determined using Rule 4, and then the CV of their difference is found using Rule 3.

11.2 Examples of using the CV tables for categorical estimates

The following "real life" examples are included to assist users in applying the foregoing rules.

Example 1 : Estimates of numbers possessing a characteristic (aggregates)

Suppose that a user estimates that 4,722,617 individuals smoke daily in Canada. How does the user determine the coefficient of variation of this estimate?

1) Refer to the CANADA level CV table.

2) The estimated aggregate (4,722,617) does not appear in the left-hand column (the "Numerator of Percentage" column), so it is necessary to use the smallest figure closest to it, namely 4,000,000.

3) The coefficient of variation for an estimated aggregate (expressed as a percentage) is found by referring to the first non-asterisk entry on that row, namely, 2.0%.

4) So the approximate coefficient of variation of the estimate is 2.0%. According to the Sampling Variability Guidelines presented in Section 10.4, the finding that there were 4,722,617 individuals who smoke daily is publishable with no qualifications.

Example 2 : Estimates of proportions or percentages possessing a characteristic

Suppose that the user estimates that 4,722,617/6,081,453=77.7% of individuals in Canada who smoke at all smoke daily. How does the user determine the coefficient of variation of this estimate?

1) Refer to the CANADA level CV table.

2) Because the estimate is a percentage which is based on a subset of the total population (i.e., individuals who smoke at all, that is to say, daily or occasionally), it is necessary to use both the percentage (77.7%) and the numerator portion of the percentage (4,722,617) in determining the coefficient of variation.

3) The numerator (4,722,617) does not appear in the left-hand column (the "Numerator of Percentage" column) so it is necessary to use the smallest figure closest to it, namely 4,000,000. Similarly, the percentage estimate does not appear as any of the column headings, so it is necessary to use the smallest figure closest to it, 70.0%.

4) The figure at the intersection of the row and column used, namely 1.1% is the coefficient of variation (expressed as a percentage) to be used.

5) So the approximate coefficient of variation of the estimate is 1.1%. According to the Sampling Variability Guidelines presented in Section 10.4, the finding that 77.7% of individuals who smoke at all smoke daily can be published with no qualifications.

Example 3 : Estimates of differences between aggregates or percentages

Suppose that a user estimates that, among men, 2,535,367/13,078,499 = 19.4% smoke daily (estimate 1), while for women, this percentage is estimated at 2,187,250 / 13,476,931 = 16.2% (estimate 2). How does the user determine the coefficient of variation of the difference between these two estimates?

1) Using the CANADA level CV table in the same manner as described in example 2 gives the CV for estimate 1 as 2.7% (expressed as a percentage), and the CV for estimate 2 as 2.7% (expressed as a percentage).

2) Using rule 3, the standard error of a difference ($\hat{d} = \hat{X}_2 - \hat{X}_1$) is :

$$\sigma_{\hat{d}} = \sqrt{(\hat{X}_1 \alpha_1)^2 + (\hat{X}_2 \alpha_2)^2}$$

Where $\hat{X}_1$ is estimate 1, $\hat{X}_2$ is estimate 2, and α_1 and α_2 are the coefficients of variation of $\hat{X}_1$ and $\hat{X}_2$ respectively. The standard error of the difference $\hat{d}$ = (0.194 - 0.162) = 0.032 is :

$$\sigma_{\hat{d}} = \sqrt{[(0.194)(0.027)]^2 + [(0.162)(0.027)]^2}$$
$$= 0.0068$$

3) The coefficient of variation of $\hat{d}$ is given by $\sigma_{\hat{d}} / \hat{d}$ = 0.0068/0.032 = 0.212.

4) So the approximate coefficient of variation of the difference between the estimates is 21.2% (expressed as a percentage). According to the Sampling Variability Guidelines presented in Section 10.4, this estimate can be published but a warning has to be issued.

Example 4 : Estimates of ratios

Suppose that the user estimates that 4,722,617 individuals smoke daily, while 1,358,836 individuals smoke occasionally. The user is interested in comparing the estimate of daily to occasional smokers in the form of a ratio. How does the user determine the coefficient of variation of this estimate?

1) First of all, this estimate is a ratio estimate, where the numerator of the estimate (= $\hat{X}_1$) is the number of individuals who smoke occasionally. The denominator of the estimate (= $\hat{X}_2$) is the number of individuals who smoke daily.

2) Refer to the CANADA level CV table.

3) The numerator of this ratio estimate is 1,358,836. The smallest figure closest to it is 1,000,000. The coefficient of variation for this estimate (expressed as a percentage) is found by referring to the first non-asterisk entry on that row, namely, 4.1%.

4) The denominator of this ratio estimate is 4,722,617. The figure closest to it is 4,000,000. The coefficient of variation for this estimate (expressed as a percentage) is found by referring to the first non-asterisk entry on that row, namely, 2.0%.

5) So the approximate coefficient of variation of the ratio estimate is given by rule 4, which is,

$$\alpha_{\hat{R}} = \sqrt{\alpha_1^2 + \alpha_2^2},$$

That is,

$$\alpha_{\hat{R}} = \sqrt{(.041)^2 + (.020)^2}$$

$$= 0.046$$

where α_1 and α_2 are the coefficients of variation of $\hat{X}_1$ and $\hat{X}_2$ respectively. The obtained ratio of occasional to daily smokers is 1,358,836/4,722,617 which is 0.29:1. The coefficient of variation of this estimate is 4.6% (expressed as a percentage), which is releasable with no qualifications, according to the Sampling Variability Guidelines presented in Section 10.4.

11.3 How to use the CV tables to obtain confidence limits

Although coefficients of variation are widely used, a more intuitively meaningful measure of sampling error is the confidence interval of an estimate. A confidence interval constitutes a statement on the level of confidence that the true value for the population lies within a specified range of values. For example a 95% confidence interval can be described as follows: if sampling of the population is repeated indefinitely, each sample leading to a new confidence interval for an estimate, then in 95% of the samples the interval will cover the true population value.

Using the standard error of an estimate, confidence intervals for estimates may be obtained under the assumption that under repeated sampling of the population, the various estimates obtained for a population characteristic are normally distributed about the true population value. Under this assumption, the chances are about 68 out of 100 that the difference between a sample estimate and the true population value would be less than one standard error, about 95 out of 100 that the difference would be less than two standard errors, and about 99 out of 100 that the differences would be less than three standard errors. These different degrees of confidence are referred to as the confidence levels.

Confidence intervals for an estimate, $\hat{X}$, are generally expressed as two numbers, one below the estimate and one above the estimate, as $\left(\hat{X}-k,\ \hat{X}+k\right)$, where k is determined depending upon the level of confidence desired and the sampling error of the estimate.

Confidence intervals for an estimate can be calculated directly from the Approximate Sampling Variability Tables by first determining from the appropriate table the coefficient of variation of the estimate $\hat{X}$, and then using the following formula to convert to a confidence interval CI:

$$CI_X = [\ \hat{X} - z\ \hat{X}\ \alpha_{\hat{X}}\ , \hat{X} + z\ \hat{X}\ \alpha_{\hat{X}}\ ]$$

Where $\alpha_{\hat{X}}$ is determined coefficient of variation for $\hat{X}$, and

$z =$ 1 if a 68% confidence interval is desired
$z =$ 1.6 if a 90% confidence interval is desired
$z =$ 2 if a 95% confidence interval is desired
$z =$ 3 if a 99% confidence interval is desired.

Note: Release guidelines presented in section 10.4 which apply to the estimate also apply to the confidence interval. For example, if the estimate is not releasable, then the confidence interval is not releasable either.

11.4 Example of using the CV tables to obtain confidence limits

A 95% confidence interval for the estimated proportion of individuals who smoke daily from those who smoke at all (from example 2, sub-section 11.2) would be calculated as follows:

$\hat{X}$ = 0.777

z = 2

$\alpha_{\hat{x}}$ = 0.011 is the coefficient of variation of this estimate as determined from the tables.

$CI_{\hat{x}}$ = {0.777 - (2) (0.777) (0.011) , 0.777 + (2) (0.777) (0.011)}

$CI_{\hat{x}}$ = {0.760, 0.794}

11.5 How to use the CV tables to do a Z-test

Standard errors may also be used to perform hypothesis testing, a procedure for distinguishing between population parameters using sample estimates. The sample estimates can be numbers, averages, percentages, ratios, etc. Tests may be performed at various levels of significance, where a level of significance is the probability of concluding that the characteristics are different when, in fact, they are identical.

Let $\hat{X}_1$ and $\hat{X}_2$ be sample estimates for 2 characteristics of interest. Let the standard error on the difference $\hat{X}_1 - \hat{X}_2$ be $\sigma_{\hat{d}}$. If the ratio of $\hat{X}_1 - \hat{X}_2$ over $\sigma_{\hat{d}}$ is between -2 and 2, then no conclusion about the difference between the characteristics is justified at the 5% level of significance. If however, this ratio is smaller than -2 or larger than +2, the observed difference is significant at the 0.05 level.

11.6 Example of using the CV tables to do a Z-test

Let us suppose we wish to test, at 5% level of significance, the hypothesis that there is no difference between the proportion of men who smoke daily AND the proportion of women who smoke daily. From example 3, sub-section 11.2, the standard error of the difference between these two estimates was found to be = 0.0068. Hence,

$$z = \frac{\hat{X}_1 - \hat{X}_2}{\sigma_{\hat{d}}} = \frac{0.194 - 0.162}{0.0068} = \frac{0.032}{0.0068} = 4.71$$

Since $z = 4.71$ is greater than 2, it must be concluded that there is a significant difference between the two estimates at the 0.05 level of significance. Note that the two sub-groups compared are considered as being independent, so the test is correct.

11.7 Exact variances/coefficients of variation

All coefficients of variation in the Approximate Sampling Variability Tables (CV Tables) are indeed approximate and, therefore, unofficial.

The computation of exact coefficients of variation is not a straightforward task since there is no simple mathematical formula that would account for all CCHS sampling frame and weighting aspects. Therefore, other methods such as resampling methods must be used in order to estimate measures of precision. Among these methods, the bootstrap method is the one recommended for analysis of CCHS data.

The computation of coefficients of variation (or any other measure of precision) with the use of the bootstrap method requires access to information that is considered confidential and not available on the PUMF. This computation must be done using the Master file. Access to the Master file is discussed in section 12.3.

For the computation of coefficients of variation, the bootstrap method is advised. A macro program, called "Bootvar", was developed in order to give users easy access to the bootstrap method. The Bootvar program is available in SAS and SPSS formats, and is made up of macros that calculate the variances of totals, ratios, differences between ratios, and linear and logistic regressions.

There are a number of reasons why a user may require an exact variance. A few are given below.

Firstly, if a user desires estimates at a geographic level other than those available in the tables (for example, at the rural/urban level), then the CV tables provided are not adequate. Coefficients of variation of these estimates may be obtained using "domain" estimation techniques through the exact variance program.

Secondly, should a user require more sophisticated analyses such as estimates of parameters from linear regressions or logistic regressions, the CV tables will not provide correct associated coefficients of variation. Although some standard statistical packages allow sampling weights to be incorporated in the analyses, the variances that are produced often do not take into account the stratified and clustered nature of the design properly, whereas the exact variance program would do so.

Thirdly, for estimates of quantitative variables, separate tables are required to determine their sampling error. Since most of the variables for the CCHS are primarily categorical in nature, this has not been done. Thus, users wishing to obtain coefficients of variation for quantitative variables can do so through the exact variance program. As a general rule, however, the coefficient of variation of a quantitative total will be larger than the coefficient of variation of the corresponding category estimate (i.e., the estimate of the number of persons contributing to the quantitative estimate). If the corresponding category estimate is not releasable, the quantitative estimate will not be either. For example, the coefficient of variation of the estimate of the total number of cigarettes smoked each day by individuals who smoke daily would be greater than the coefficient of variation of the corresponding estimate of the number of individuals who smoke daily. Hence if the

coefficient of variation of the latter is not releasable, then the coefficient of variation of the corresponding quantitative estimate will also not be releasable.

Lastly, should users find themselves in a position where they can use the CV tables, but this renders a coefficient of variation in the "marginal" range (16.6% - 33.3%), the user should release the associated estimate with a warning cautioning users of the high sampling variability associated with the estimate. This would be a good opportunity to recalculate the coefficient of variation through the exact variance program to find out if it is releasable without a qualifying note. The reason for this is that the coefficients of variation produced by the tables are based on a wide range of variables and are therefore considered crude, whereas the exact variance program would give an exact coefficient of variation associated with the variable in question.

11.8 Release cut-offs for the CCHS

The document *Approximate Sampling Variability Table*, which is available to the share file and PUMF users, presents tables giving the minimum cut-offs for estimates of totals at the Canada, provincial, health region and CLSC levels and those for various age groups at the Canada level. Estimates smaller than the value given in the "Marginal" column may not be released under any circumstances.

12. MICRODATA FILES: DESCRIPTION, ACCESS AND USE

The CCHS produces three types of microdata files: master files, share files and public use microdata files (PUMF). Table 12.1 includes the list of all available 2013 data files.

12.1 Master files

The master files contain all variables and all records from the survey collected during a collection period. These files are accessible at Statistics Canada for internal use and in Statistics Canada's Research Data Centres (RDC), and are also subject to custom tabulation requests.

12.1.1 Research Data Centre

The RDC Program enables researchers to use the survey data in the master files in a secure environment in several universities across Canada. Researchers must submit research proposals that, once approved, give them access to the RDC. For more information, please consult the following web page: http://www.statcan.ca/english/rdc/index.htm

12.1.2 Custom tabulations

Another way to access the master files is to offer all users the option of having staff in Client Services of the Health Statistics Division prepare custom tabulations. This service is offered on a cost-recovery basis. It allows users who do not possess knowledge of tabulation software products to get custom results. The results are screened for confidentiality and reliability concerns before release. For more information, please contact Client Services at 613-951-1746 or by e-mail at hd-ds@statcan.gc.ca.

12.1.3 Remote access

Finally, the remote access service to the survey master files is another way to have access to these data if, for some reason, the user cannot access a Research Data Centre. Each purchaser of the microdata product can be supplied with a synthetic or 'dummy' master file and a corresponding record layout. With these tools, the researcher can develop his own set of analytical computer programs. The code for the custom tabulations is then sent via e-mail to cchs-escc@statcan.gc.ca. The code will then be transferred into Statistics Canada's internal secured network and processed using the appropriate master file of CCHS data. Estimates generated will be released to the user, subject to meeting the guidelines for analysis and release outlined in Section 10 of this document. Results are screened for confidentiality and reliability concerns and then the output is returned to the client. There is no charge for this service.

12.2 Share files

The share files contain all variables and all records of CCHS respondents who agreed to share their data with Statistic Canada's partners, which are the provincial and territorial health departments, Health Canada and the Public Health Agency of Canada. Statistics Canada also asks respondents living in Quebec for their permission to share their data with the Institut de la statistique du Québec.

The share file is released only to these organizations. Personal identifiers are removed from the share files to respect respondent confidentiality. Users of these files must first certify that they will not disclose, at any time, any information that might identify a survey respondent.

12.3 Public use microdata files

The public use microdata files (PUMF) are developed from the master files using a technique that balances the need to ensure respondent confidentiality with the need to produce the most useful data possible at the health region level. The PUMF must meet stringent security and confidentiality standards required by the *Statistics Act* before they are released for public access. To ensure that these standards have been achieved, each PUMF goes through a formal review and approval process by an executive committee of Statistics Canada.

Variables most likely to lead to identification of an individual are deleted from the data file or are collapsed to broader categories.

The PUMF contains the data collected over two years. It includes questions that were asked over two years. Unless otherwise specified, these questions are usually those included in the annual common content and in the two-year common content as well as the optional content selected for two years by the provinces and territories.

There is no charge to access the PUMF in a post-secondary educational institution that is part of the Data Liberation Initiative. They are also free of charge from Client Services on request at 613-951-1746 or by e-mail at hd-ds@statcan.gc.ca**.**

Table 12.1 2013 CCHS data files

Reference Period	Files	File name	Sampling weight	Bootstrap weights file	Variables included	Records included
2014	Main master file	HS.txt	WTS_M	b5.txt	All common and all optional modules.	All respondent records
	Share file	HS.txt	WTS_S	b5.txt	All common and all optional modules.	Records of all respondents who agreed to share their data
2013-2014	Main master file	HS.txt	WTS_M	b5.txt	All common and all optional modules (optional content selected over the two year period).	All respondent records
	Share file	HS.txt	WTS_S	b5.txt	All common and all optional modules (optional content selected over the two year period).	Records of all respondents who agreed to share their data

12.4 How to use the CCHS data files: annual data file or two-year data file?

Since the 2008 and 2007-2008 data were released, users that have access to share files or master files have had the choice of using one-year or two-year data files. Decisions about which period to use in a given data analysis should be guided by the level of detail and the quality required. With a one-year file, estimates will not always be available because of the quality associated with limited sample sizes.

Before interpreting and using a CCHS estimate, it is recommended to make sure that the estimates meets the following rules:

- Coefficient of Variation 33.3% or less
- a minimum of 10 respondents in the domain with the characteristic and
- total domain of interest includes at least 20 respondents.

This will not be possible for rare characteristics and detailed domains with one-year files. Instead, users will have to rely on two-year files or multi-year files.

Where the use of either a one-year or two-year file is viable, the user should consider the trade-off between accuracy and currency. If it is important to reflect the current characteristics of a population as closely as possible, the one-year file would be preferable. However, with the increased sample size, more detailed estimates and analyses can be carried out with a two-year file.

12.5 Use of weight variable

The weight variable **WTS_M** represents the sampling weight for key survey files. For a given respondent, the sampling weight can be interpreted as the number of people the respondent represents in the Canadian population. This weight must always be used when computing statistical estimates in order to make inference at the population level possible. The production of unweighted estimates is not recommended. The sample allocation, as well as the survey design specifics can cause such results to not correctly represent the population. Refer to section 8 on weighting for a more detailed explanation on the creation of this weight. The weight variable **WTS_M** must be used for regional analyses.

The **Food Security** module, included in certain reference period data files, measures concepts that apply not only to the respondent's situation, but also to that of the respondent's entire household. Depending on the level of analysis, the analysis of the variables may require use of a weight calculated to represent the number of Canadian households, rather than the number of persons. This weight variable **WTS_HH** is found in a separate file (HS_HHWT.txt). It can be used in place of the variable **WTS_M** for household analyses at the national and provincial levels.

12.6 Variable naming convention beginning in 2007

The variable naming convention adopted allows data users to easily use and identify the data based on the module and variable type. The CCHS variable naming convention fulfils two requirements: to restrict variable names to a maximum of eight characters for ease of use by analytical software products and to identify easily conceptually identical variables from one survey collection period to the next. Questions to which changes are made between two collection periods, and where the changes alter the concept measured by the question, are entirely renamed to avoid any confusion in the analysis.

The CCHS variable naming convention was changed beginning with the data from the 2007 collection period. The letter corresponding to the survey version (e.g., A = 2000 (cycle 1.1), C = 2003 (cycle 2.1) and E = 2005 (3.1) is no longer used in the variable names. A new variable (REFPER, format = YYYYMM-YYYYMM) was added to the microdata files in order to identify the beginning and the end of the reference during which data included in the file were collected. This variable will be useful, notably for users wanting to use data from several collection periods at a time. Therefore, variable names for identical modules or questions from one collection year to the next (e.g., 2007 and 2008) will be the same.

The naming convention used for variables beginning with the 2007 CCHS use up to eight characters. The variable names are structured as follows:

Positions 1 to 3:	Module/questionnaire section name
Position 4:	Variable type (underscore, C, D, F or G)
Positions 5 to 8:	Question number and answer option for multiple response questions

Example 1 shows that the structure of the variable name for question 202, Smoking Module, is SMK_202 :

Positions 1 to 3:	SMK	Smoking module
Position 4 :	_	(underscore = collected data)
Position 5 to 8:	202	Question number

Example 2 shows the structure of the variable name for question 2 of the Health Care Utilization Module (HCU_02A), which is a multi-response question:

Positions 1 to 3:	**HCU**	Health care utilization module
Position 4 :	_	(underscore = collected data)
Position 5 to 8:	02AA	Corresponding question number and answer option

Positions 1 to 3 contain the acronyms for each of the modules. These acronyms appear beside the module names given in the table in Appendix A.

Position 4 designates the variable type based on whether it is a variable collected directly from a questionnaire question ("_"), from a coded ("C"), derived ("D"), grouped ("G"), or flag ("F") variable.

In general, the last four positions (5 to 8) follow the variable numbering used on the questionnaire. The letter "Q" used to represent the word "question" is removed, and all question numbers are presented in a two or three digit format. For example, question Q01A in the questionnaire becomes simply 01A, and question Q15 becomes simply 15.

Table 12.2 Designation of codes used in the 4th position of the CCHS variable names

_	Collected variable	A variable that appears directly on the questionnaire
C	Coded variable	A variable coded from one or more collected variables (e.g., SIC, Standard Industrial Classification code)
D	Derived variable	A variable calculated from one or more collected or coded variables, usually calculated during head office processing (e.g., Health Utility Index)
F	Flag variable	A variable calculated from one or more collected variables (like a derived variable), but usually calculated by the data collection computer application for later use during the interview (e.g., work flag)
G	Grouped variable	Collected, coded, suppressed or derived variables collapsed into groups (e.g., age groups)

For questions that have more than one response option, the final position in the variable naming sequence is represented by a letter. For this type of question, new variables were created to differentiate between a "yes" or "no" answer for each response option. For example, if Q2 had 4 response options, the new questions would be named Q2A for option 1, Q2B for option 2, Q2C for

option 3, etc. If only options 2 and 3 were selected, then Q2A = No, Q2B = Yes, Q2C = Yes and Q2D = No.

12.7 Variable naming convention before 2007

As mentioned earlier, the variable naming convention was changed in 2007. The flag for the cycle in which the variables were collected was removed. This flag was found in the 4th position for 2000 to 2005 data (cycles 1.1 to 3.1).

Here is the list of letters used in the CCHS microdata files between cycles 1.1 and 3.1 and their corresponding cycle.

Letter	Cycle and cycle name
A	**2000 (**Cycle 1.1) : Canadian Community Health Survey
B	**2002 (**Cycle 1.2) : Canadian Community Health Survey - Mental Health and Well-Being
C	**2003 (**Cycle 2.1) : Canadian Community Health Survey
D	**2004 (**Cycle 2.2) : Canadian Community Health Survey - Nutrition
E	**2005 (**Cycle 3.1) : Canadian Community Health Survey

12.8 Guidelines for the use of sub-sample variables – Not applicable to 2014 and 2013-2014 data files

In 2013, a sub-sample of respondents was selected at random to answer questions from two modules about the performance of the Canadian health care system: Access to Health Care Services (ACC) and Waiting Times (WTM).[15]

12.8.1 Sub-sample modules as optional content

Each of the sub-sample modules was also made available to health regions as optional content. The Nova Scotia health regions chose the Access to Health Care Services module. As such, only Nova Scotia will have data for this module on the master file. On the sub-sample file, respondents from all provinces who were randomly selected will have data for both the ACC and WTM modules.

12.8.2 Separate file

[15] In 2000-2001, this sub-sample was part of a follow-up survey to the CCHS known as the Health Services and Access Survey (HSAS). This survey was incorporated in the CCHS in 2003.

To encourage appropriate use of CCHS data, sub-sample content is provided on a physically separate file. Each file has a corresponding sample weight and set of bootstrap weights that must be used to produce valid estimates for all variables on the file. The sampling weight for sub-sample 1 (in which all modules apply to respondents aged 15 and older) is calibrated so that it represents the total Canadian population aged 15 and older. Table 12.1 describes the two data files released in 2013.

12.8.3 Analysis combining sub-sample and optional content

The aim of the CCHS sub-sample modules is to permit the calculation of estimates at the provincial and national levels. The territories are excluded from the sub-sample. The sub-sample file and the associated weights are not intended to support health region level estimates.

As mentioned earlier, one of the two sub-sample modules was also selected by all health regions of at least one province as optional content. In these instances, it is possible to calculate health region and provincial estimates of the variables in that module using the **main master file** and the **master sampling weight**. This offers the advantage of a large sample size for the calculation and therefore smaller sampling error. The provincial estimate can then be compared to the estimate for other provinces calculated using the appropriate sub-sample file and sub-sample sampling weight.

12.9 Data dictionaries

Separate data dictionary reports, including universe statements and frequencies, are provided for the main master and share files and each of the sub-sample files.

In the master file data dictionary reports, optional content modules are treated in the same way as previous CCHS cycles. For each module, a flag indicates whether a given respondent lives in a health region where the module was selected as optional content. When the flag is equal to 2 (No), all variables in the module have "not applicable" values. For example, the DOWST variable indicates if the Work stress module applies to a given respondent.

12.10 Differences in calculation of common content variables using different files

Variables from common content modules can be estimated using either of the two data files provided, when a one year and a two-year data file is available. Depending on which file is used, very small differences will be observed.

All official Statistics Canada estimates of variables from common modules are based on the main master file sampling weight.

Appendix A – Canadian community health survey content overview (2013-2014)

Appendix A – Canadian community health survey content overview (2013 - 2014)

Annual common content (all health regions)[i]

- Age of respondent (ANC)
- Alcohol use (ALC)
- Chronic conditions (CCC)
- Contact with health professionals (CHP)[iii]
- Exposure to second-hand smoke (ETS)
- Fruit and vegetable consumption (FVC)
- Flu shots (FLU)
- General health (GEN)
- Health care utilization (HCU)
- Height and weight – Self –reported (HWT)
- Pain and discomfort (HUP)
- Physical activities (PAC)
- Restriction of activities (RAC)
- Smoking (SMK)

Administration and Socio-demographics

- Administration information (ADM)
- Education (EDU)
- Income (INC)
- Labour force (LBS)
- Person most knowledgeable about the household situation (PMK)
- Socio-demographic characteristics (SDC)

Two-year biennial common content (all health regions)

2013-2014

1) *Injuries and Functional Health*

- Injuries (INJ)
- Health utilities index (HUI)
- Expanded restriction of activities (RAC) and Activities of Daily Living (ADL)
- Use of protective equipment (UPE)

2) Sexual Behaviours

One-year biennial/quadrennial common content (all health regions)

2013	*2014*
1) Health Services Access Survey [ii] • Access to health care services (ACC) • Waiting times (WTM)	1) *Health Care Utilization* • Contact with health professionals (CHP/CP2) • Unmet health care needs (UCN) 2) *Economic Burden* • Loss of productivity (LOP) • Chronic fatigue syndrome (CC3) • Fibromyalgia (CC4) • Multiple chemical sensitivities (CC4)

Rapid Response (national estimates only)

2013	2014
• Food skills - mechanical skills and food conceptualization (FS2) (January - February) • Access to health care services (ACC) (March - June) • Waiting times (WTM) (March - June) • Every day discrimination scale (EDS) (July - October)	• Tanning Equipment Use (TEU) (March - June) • Laser Beam Exposure (LBE) (March - June)

i RAC has been a core module throughout the years, with the exception of 2011 when it was asked only in the territories.
ii Asked of a sub-sample of respondents. These theme modules were not asked of respondents in the territories.
iii In 2011,CHP changed from being a common content module to an optional module. In 2012, CHP returned to being a common content module but was divided into two modules (CHP and CP2), CP2 is an optional module.

Appendix B – Selection of optional content by province and territory (2014 and 2013-2014)

Appendix B – Optional content selection by health regions (grouped by province) (2014)

Description	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt
ACC Access to Health Care Services	☑	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
ALD Alcohol use - Dependence	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐
ALW Alcohol use during the past week	☑	☑	☐	☐	☑	☑	☑	☑	☐	☑	☐	☐	☑
BPC Blood Pressure Check	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐
CIH Changes made to improve health	☐	☑	☑	☐	☐	☐	☑	☐	☐	☑	☑	☑	☐
CCS Colorectal cancer screening	☑	☑	☐	☑	☑	☐	☑	☐	☑	☐	☐	☑	☐
CMH Consultations about mental health	☑	☐	☐	☐	☑	☑	☑	☐	☐	☑	☐	☑	☑
DEN Dental Visits	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐
DEP Depression	☑	☑	☑	☐	☑	☐	☑	☐	☐	☐	☐	☑	☑
DIA Diabetes Care	☑	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
DIS Distress	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
DRV Driving and safety	☐	☐	☐	☐	☐	☑	☑	☐	☑	☐	☑	☐	☑
EYX Eye examinations	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐
FDC Food choices	☐	☐	☑	☑	☐	☐	☐	☐	☑	☑	☐	☑	☐
FSC Food security	☐	☑	☑	☑	☑	☑	☐	☑	☑	☐	☐	☑	☑
HCS Health care system satisfaction	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐
SFR Health status (SF-36)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
HMC Home care services	☐	☑	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐
IDG Illicit drug use	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑
INS Insurance coverage	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	☑	☐	☐
MAM Mammography	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☑	☐

Description	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt
MXA Maternal experiences - Alcohol use during pregnancy	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑
MEX Maternal experiences - Breastfeeding	☐	☐	☑	☑	☑	☑	☐	☐	☑	☐	☐	☑	☑
MXS Maternal experiences - Smoking during pregnancy	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑
MDB Mood	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐
OH1 Oral health 1	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑
OH2 Oral health 2	☐	☐	☐	☐	☐	☑	☑	☑	☐	☐	☐	☐	☑
PAP Pap smear test	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☑
PSC Patient satisfaction - Community-based care	☐	☑	☐	☐	☐	☑	☐	☐	☑	☐	☐	☐	☐
PAS Patient satisfaction - Health care services	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐
CPG Problem gambling	☐	☐	☐	☐	☑	☐	☑	☑	☐	☑	☐	☐	☐
PSA Prostate cancer screening	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐
SWL Satisfaction with life	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
SAC Sedentary activities	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
SLP Sleep	☐	☑	☐	☐	☐	☐	☑	☐	☑	☐	☐	☑	☐
TAL Smoking - Other tobacco products	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐
SPC Smoking - Physician counselling	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑
SCH Smoking - Stages of change	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐
YSM Smoking - Youth smoking	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐
SCA Smoking cessation methods	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☐	☐
SPS Social provisions	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
SCP Stages of changes - Physical activity	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☐
STS Stress - Sources	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐
SUI Suicidal thoughts and attempts	☑	☑	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑

Description	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt
SSB Sun safety behaviours	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐
ORG Voluntary organizations - Participation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐
WTM Waiting times	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Appendix B – Optional content selection by health regions (grouped by province) (2013-2014)

Description	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt
ACC Access to Health Care Services	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
ALD Alcohol use - Dependence	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐
ALW Alcohol use during the past week	☐	☑	☐	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐
BPC Blood Pressure Check	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐
CIH Changes made to improve health	☐	☑	☑	☐	☐	☐	☑	☐	☐	☑	☑	☑	☐
CCS Colorectal cancer screening	☑	☑	☐	☑	☑	☐	☑	☐	☑	☐	☐	☑	☐
CMH Consultations about mental health	☑	☐	☐	☐	☑	☑	☑	☐	☐	☑	☐	☑	☑
CP2 Contacts with health professionals Part 2	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
DEN Dental Visits	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☑	☐
DEP Depression	☑	☑	☑	☐	☑	☐	☑	☐	☐	☐	☐	☑	☑
DIA Diabetes Care	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
DIS Distress	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
DRV Driving and safety	☐	☐	☐	☐	☐	☑	☑	☐	☑	☐	☑	☐	☑
FDC Food choices	☐	☐	☑	☑	☐	☐	☐	☐	☑	☑	☐	☑	☐
FSC Food security	☐	☑	☑	☑	☑	☑	☐	☑	☑	☐	☐	☑	☑
HCS Health care system satisfaction	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐
SFR Health status (SF-36)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
HMC Home care services	☐	☑	☐	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐
IDG Illicit drug use	☑	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑
INS Insurance coverage	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐
LOP Loss of productivity at work	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐
MAM Mammography	☐	☐	☑	☑	☐	☐	☐	☐	☑	☐	☐	☑	☐

Description	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt
MXA Maternal experiences - Alcohol use during pregnancy	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☑
MEX Maternal experiences - Breastfeeding	☐	☐	☑	☑	☑	☑	☐	☐	☑	☐	☐	☑	☑
MXS Maternal experiences - Smoking during pregnancy	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☑	☑
MDB Mood	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐
OH1 Oral health 1	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑
OH2 Oral health 2	☐	☐	☐	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐
PAP Pap smear test	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☑
PSC Patient satisfaction - Community-based care	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐
PAS Patient satisfaction - Health care services	☐	☑	☑	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐
CPG Problem gambling	☐	☐	☐	☐	☑	☐	☑	☑	☐	☑	☐	☐	☐
PSA Prostate cancer screening	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☑	☐
SWL Satisfaction with life	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐
SAC Sedentary activities	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
SLP Sleep	☐	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
TAL Smoking - Other tobacco products	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐
SPC Smoking - Physician counselling	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑
SCH Smoking - Stages of change	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐
YSM Smoking - Youth smoking	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐
SCA Smoking cessation methods	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☑	☐	☐
SPS Social provisions	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐
SCP Stages of changes - Physical activity	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☐
STS Stress - Sources	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐
SUI Suicidal thoughts and attempts	☑	☑	☐	☑	☐	☐	☐	☐	☐	☑	☐	☐	☑

Description	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Nvt
SSB Sun safety behaviours	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐
UCN Unmet health care needs	☑	☐	☐	☐	☐	☑	☐	☐	☑	☐	☐	☑	☐
ORG Voluntary organizations - Participation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐

Appendix C - Available geography in the master and share files and their corresponding codes: Canada, provinces/territories, health regions and peer groups

0	Canada
10	Newfoundland and Labrador
1011-C	Eastern Regional Integrated Health Authority
1012-I	Central Regional Integrated Health Authority
1013-I	Western Regional Integrated Health Authority
1014-H	Labrador-Grenfell Regional Integrated Health Authority
11	Prince Edward Island
1100-A	Prince Edward Island
12	Nova Scotia
1210-C	South Shore -- South West Nova
1223-C	Annapolis Valley District Health Authority
1230-C	Colchester East Hants -- Cumberland
1240-C	Pictou County -- Guysborough Antigonish Strait
1258-I	Cape Breton District Health Authority
1269-A	Capital District Health Authority
13	New Brunswick
1301-C	Zone 1 (Moncton area)
1302-C	Zone 2 (Saint John area)
1303-C	Zone 3 (Fredericton area)
1304-C	Zone 4 (Edmundston area)
1305-I	Zone 5 (Campbellton area)
1306-I	Zone 6 (Bathurst area)
1307-I	Zone 7 (Miramichi area)
24	Quebec
2401-C	Région du Bas-Saint-Laurent
2402-C	Région du Saguenay - Lac-Saint-Jean
2403-A	Région de la Capitale-Nationale
2404-C	Région de la Mauricie et du Centre-du-Québec
2405-A	Région de l'Estrie
2406-G	Région de Montréal
2407-A	Région de l'Outaouais
2408-C	Région de l'Abitibi-Témiscamingue
2409-H	Région de la Côte-Nord
2410-H	Région du Nord-du-Québec
2411-I	Région de la Gaspésie - Îles-de-la-Madeleine
2412-D	Région de la Chaudière-Appalaches
2413-A	Région de Laval
2414-A	Région de Lanaudière
2415-A	Région des Laurentides
2416-A	Région de la Montérégie
35	Ontario by Local Health Integration Network
3501	Erie St. Clair Health Integration Network
3502	South West Health Integration Network
3503	Waterloo Wellington Health Integration Network
3504	Hamilton Niagara Haldimand Brant Health Integration Network
3505	Central West Health Integration Network
3506	Mississauga Halton Health Integration Network

3507	Toronto Central Health Integration Network
3508	Central Health Integration Network
3509	Central East Health Integration Network
3510	South East Health Integration Network
3511	Champlain Health Integration Network
3512	North Simcoe Muskoka Health Integration Network
3513	North East Health Integration Network
3514	North West Health Integration Network
35	Ontario by Health Unit
3526-C	District of Algoma Health Unit
3527-A	Brant County Health Unit
3530-B	Durham Regional Health Unit
3531-A	Elgin-St. Thomas Health Unit
3533-D	Grey Bruce Health Unit
3534-A	Haldimand-Norfolk Health Unit
3535-A	Haliburton, Kawartha, Pine Ridge District Health Unit
3536-B	Halton Regional Health Unit
3537-A	City of Hamilton Health Unit
3538-A	Hastings and Prince Edward Counties Health Unit
3539-D	Huron County Health Unit
3540-C	Chatham-Kent Health Unit
3541-A	Kingston, Frontenac and Lennox and Addington Health Unit
3542-A	Lambton Health Unit
3543-A	Leeds, Grenville and Lanark District Health Unit
3544-A	Middlesex-London Health Unit
3546-A	Niagara Regional Area Health Unit
3547-C	North Bay Parry Sound District Health Unit
3549-H	Northwestern Health Unit
3551-B	City of Ottawa Health Unit
3552-A	Oxford County Health Unit
3553-J	Peel Regional Health Unit
3554-D	Perth District Health Unit
3555-A	Peterborough County-City Health Unit
3556-C	Porcupine Health Unit
3557-D	Renfrew County and District Health Unit
3558-A	Eastern Ontario Health Unit
3560-B	Simcoe Muskoka District Health Unit
3561-C	Sudbury and District Health Unit
3562-C	Thunder Bay District Health Unit
3563-C	Timiskaming Health Unit
3565-B	Waterloo Health Unit
3566-B	Wellington-Dufferin-Guelph Health Unit
3568-A	Windsor-Essex County Health Unit
3570-J	York Regional Health Unit
3595-G	City of Toronto Health Unit

46	Manitoba	
4601-A		Winnipeg Regional Health Authority
4602-D		Prairie Mountain Health
4603-E		Interlake-Eastern Regional Health Authority
4604-F		Northern Regional Health Authority
4605-D		Southern Health
47	Saskatchewan	
4701-D		Sun Country Regional Health Authority
4702-D		Five Hills Regional Health Authority
4703-D		Cypress Regional Health Authority
4704-A		Regina Qu'Appelle Regional Health Authority
4705-D		Sunrise Regional Health Authority
4706-A		Saskatoon Regional Health Authority
4707-D		Heartland Regional Health Authority
4708-D		Kelsey Trail Regional Health Authority
4709-H		Prince Albert Parkland Regional Health Authority
4710-H		Prairie North Regional Health Authority
4714-F		Mamawetan/Keewatin/Athabasca
48	Alberta	
4831-A		South Zone
4832-B		Calgary Zone
4833-E		Central Zone
4834-B		Edmonton Zone
4835-E		North Zone
59	British Columbia	
5911-D		East Kootenay Health Service Delivery Area
5912-D		Kootenay-Boundary Health Service Delivery Area
5913-A		Okanagan Health Service Delivery Area
5914-A		Thompson/Cariboo Health Service Delivery Area
5921-A		Fraser East Health Service Delivery Area
5922-J		Fraser North Health Service Delivery Area
5923-J		Fraser South Health Service Delivery Area
5931-J		Richmond Health Service Delivery Area
5932-G		Vancouver Health Service Delivery Area
5933-J		North Shore/Coast Garibaldi Health Service Delivery Area
5941-A		South Vancouver Island Health Service Delivery Area
5942-A		Central Vancouver Island Health Service Delivery Area
5943-A		North Vancouver Island Health Service Delivery Area
5951-H		Northwest Health Service Delivery Area
5952-H		Northern Interior Health Service Delivery Area
5953-E		Northeast Health Service Delivery Area
60	Yukon	
6001-E		Yukon
61	Northwest Territories	
6101-E		Northwest Territories
62	Nunavut	
6201-F		Nunavut
A	Peer group A	
B	Peer group B	
C	Peer group C	

D	Peer group D
E	Peer group E
F	Peer group F
G	Peer group G
H	Peer group H
I	Peer group I
J	Peer group J

Appendix D (2014) Sample allocation by health region and frame and sample allocation by Local Health Integrated Network (LHIN) and frame in Ontario

Appendix D (2014) Sample allocation by health region and frame[16]

Geography		Area Frame		Phone frames		Combined	
Prov./Terr.	Health Region	expected # of respondents	raw sample size	expected # of respondents	raw sample size	expected # of respondents	raw sample size
Canada	**Total**	27,434	46,084	38,404	74,777	65,838	120,861
N.L.	**Total**	822	1,401	1,183	2,324	2,005	3,725
	1011	332	608	478	926	810	1,534
	1012	193	313	277	548	470	861
	1013	174	288	251	490	425	778
	1014	123	192	177	360	300	552
P.E.I.	**Total**	411	747	590	1,420	1,001	2,167
	1101	73	128	105	270	178	398
	1102	189	327	271	668	460	995
	1103	149	292	214	482	363	774
N.S.	**Total**	1,035	1,861	1,486	2,864	2,521	4,725
	1210	163	284	233	454	396	738
	1223	131	268	189	348	320	616
	1230	148	236	212	418	360	654
	1240	144	260	206	394	350	654
	1258	172	326	248	508	420	834
	1269	277	487	398	742	675	1,229
N.B.	**Total**	1,057	1,789	1,518	2,687	2,575	4,476
	1301	205	356	295	511	500	867
	1302	199	374	286	476	485	850
	1303	193	325	277	488	470	813
	1304	111	156	159	294	270	450
	1305	103	170	147	264	250	434
	1306	141	210	204	372	345	582
	1307	105	198	150	282	255	480
Que.	**Total**	4,815	7,517	7,331	14,354	12,146	21,871
	2401	246	384	354	588	600	972
	2402	257	341	371	640	628	981
	2403	380	572	546	960	926	1,532
	2404	328	484	472	784	800	1,268
	2405	253	416	365	641	618	1,057
	2406	637	1,034	916	1,756	1,553	2,790
	2407	266	442	382	682	648	1,124
	2408	246	408	354	594	600	1,002
	2409	246	372	354	744	600	1,116
	2410	0	0	400	1,780	400	1,780
	2411	246	426	354	720	600	1,146
	2412	296	452	427	764	723	1,216
	2413	275	448	395	748	670	1,196
	2414	294	450	424	788	718	1,238
	2415	312	492	450	864	762	1,356

[16] As mentioned in section 5.2, the figures for Prince Edward Island are based on the definitions of health regions that were used at the time of sampling.

Geography		Area Frame		Phone frames		Combined	
Prov./Terr.	Health Region	expected # of respondents	raw sample size	expected # of respondents	raw sample size	expected # of respondents	raw sample size
	2416	533	796	767	1,301	1,300	2,097
Ont.	**Total**	9,142	15,534	13,146	24,668	22,288	40,202
	3526	174	288	251	472	425	760
	3527	166	254	239	442	405	696
	3530	334	560	481	908	815	1,468
	3531	139	205	201	366	340	571
	3533	193	301	278	568	471	869
	3534	159	294	227	426	386	720
	3535	195	390	280	572	475	962
	3536	289	433	416	764	705	1,197
	3537	338	616	487	938	825	1,554
	3538	193	331	277	524	470	855
	3539	121	187	174	348	295	535
	3540	164	230	236	430	400	660
	3541	207	402	298	532	505	934
	3542	178	266	257	472	435	738
	3543	195	340	280	476	475	816
	3544	308	488	442	836	750	1,324
	3546	314	494	451	835	765	1,329
	3547	164	310	236	496	400	806
	3549	165	300	237	528	402	828
	3551	420	702	605	1,025	1,025	1,727
	3552	154	202	221	359	375	561
	3553	554	836	797	1,552	1,351	2,388
	3554	133	187	192	312	325	499
	3555	174	312	251	472	425	784
	3556	154	284	221	407	375	691
	3557	154	296	221	382	375	678
	3558	213	321	307	494	520	815
	3560	469	944	676	1,327	1,145	2,271
	3561	221	394	319	601	540	995
	3562	273	528	393	740	666	1,268
	3563	103	224	147	270	250	494
	3565	314	508	451	830	765	1,338
	3566	240	366	345	568	585	934
	3568	293	532	422	802	715	1,334
	3570	392	662	557	1,066	949	1,728
	3595	885	1,547	1,273	2,528	2,158	4,075
Man.	**Total**	1,538	2,540	2,212	4,326	3,750	6,866
	4601	439	709	631	1,106	1,070	1,815
	4602	369	615	531	1,002	900	1,617
	4603	244	406	351	768	595	1,174
	4604	199	362	286	726	485	1,088
	4605	287	448	413	724	700	1,172
Sask.	**Total**	1,481	2,408	2,379	5,214	3,860	7,622
	4701	123	177	177	312	300	489

Geography		Area Frame		Phone frames		Combined	
Prov./Terr.	Health Region	expected # of respondents	raw sample size	expected # of respondents	raw sample size	expected # of respondents	raw sample size
	4702	123	192	177	330	300	522
	4703	109	176	156	306	265	482
	4704	254	388	366	690	620	1,078
	4705	127	176	183	330	310	506
	4706	271	500	389	676	660	1,176
	4707	111	186	159	306	270	492
	4708	107	179	153	276	260	455
	4709	133	254	192	372	325	626
	4710	123	180	177	354	300	534
	4714	0	0	250	1,262	250	1,262
Alta.	**Total**	2,500	4,229	3,597	7,152	6,097	11,381
	4831	379	628	546	1,110	925	1,738
	4832	571	980	823	1,577	1,394	2,557
	4833	469	780	675	1,346	1,144	2,126
	4834	537	872	772	1,495	1,309	2,367
	4835	544	969	781	1,624	1,325	2,593
B.C.	**Total**	3,298	5,628	4,747	9,195	8,045	14,823
	5911	125	214	180	342	305	556
	5912	127	212	183	324	310	536
	5913	242	358	348	678	590	1,036
	5914	205	349	295	609	500	958
	5921	213	342	307	602	520	944
	5922	312	534	448	866	760	1,400
	5923	328	524	472	938	800	1,462
	5931	174	252	251	490	425	742
	5932	328	578	472	992	800	1,570
	5933	223	440	322	656	545	1,096
	5941	277	451	398	706	675	1,157
	5942	215	364	310	548	525	912
	5943	109	218	156	282	265	500
	5951	133	236	192	432	325	668
	5952	174	330	251	430	425	760
	5953	113	226	162	300	275	526
Y.T.	**6001**	475	886	125	291	600	1,177
N.W.T.	**6101**	510	919	90	282	600	1,201
Nvt.	**6201**	350	625	0	0	350	625

Appendix D (2014) - Sample allocation by Local Health Integrated Network (LHIN) and frame in Ontario

Geography		Area Frame		Phone frames		Combined	
Province	LHIN	expected # of respondents	raw sample size	expected # of respondents	raw sample size	expected # of respondents	raw sample size
Ont.	**Total**	9,142	15,534	13,146	24,668	22,288	40,202
	3501	635	1,028	915	1,704	1,550	2,732
	3502	1,068	1,598	1,536	2,835	2,604	4,433
	3503	495	768	711	1,264	1,206	2,032
	3504	1,065	1,810	1,532	2,877	2,597	4,687
	3505	449	705	639	1,248	1,088	1,953
	3506	458	669	657	1,234	1,115	1,903
	3507	465	828	669	1,326	1,134	2,154
	3508	578	990	833	1,600	1,411	2,590
	3509	864	1,542	1,244	2,410	2,108	3,952
	3510	539	975	774	1,388	1,313	2,363
	3511	843	1,417	1,214	2,045	2,057	3,462
	3512	429	876	618	1,223	1,047	2,099
	3513	816	1,500	1,174	2,246	1,990	3,746
	3514	438	828	630	1,268	1,068	2,096

Appendix E (2014) - Response rates by health region and frame and response rates by Local Health Integrated Network (LHIN) and frame in Ontario

Appendix E (2014) - Table 9.1 response rates by health region and frame

Geography		Area frame							Phone frames							Combined
Prov. Terr.	Health Region	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
Canada	**Total**	37,985	29,718	78.2	29,718	26,635	89.6	70.1	59,482	43,472	73.1	43,472	37,329	85.9	62.8	65.6
N.L.	**Total**	1,101	932	84.7	932	830	89.1	75.4	1,841	1,380	75.0	1,380	1,188	86.1	64.5	68.6
	1011	455	364	80.0	364	314	86.3	69.0	765	566	74.0	566	490	86.6	64.1	65.9
	1012	247	217	87.9	217	199	91.7	80.6	415	317	76.4	317	265	83.6	63.9	70.1
	1013	252	223	88.5	223	206	92.4	81.7	389	301	77.4	301	267	88.7	68.6	73.8
	1014	147	128	87.1	128	111	86.7	75.5	272	196	72.1	196	166	84.7	61.0	66.1
P.E.I.	**Total**	566	426	75.3	426	372	87.3	65.7	907	688	75.9	688	624	90.7	68.8	67.6
	1100	566	426	75.3	426	372	87.3	65.7	907	688	75.9	688	624	90.7	68.8	67.6
N.S.	**Total**	1,413	1,157	81.9	1,157	1,044	90.2	73.9	2,277	1,815	79.7	1,815	1,593	87.8	70.0	71.5
	1210	206	181	87.9	181	168	92.8	81.6	363	288	79.3	288	251	87.2	69.1	73.6
	1223	190	149	78.4	149	136	91.3	71.6	272	218	80.1	218	195	89.4	71.7	71.6
	1230	179	152	84.9	152	134	88.2	74.9	336	277	82.4	277	252	91.0	75.0	75.0
	1240	201	158	78.6	158	147	93.0	73.1	304	240	78.9	240	211	87.9	69.4	70.9
	1258	237	189	79.7	189	171	90.5	72.2	389	288	74.0	288	239	83.0	61.4	65.5
	1269	400	328	82.0	328	288	87.8	72.0	613	504	82.2	504	445	88.3	72.6	72.4
N.B.	**Total**	1,436	1,157	80.6	1,157	1,007	87.0	70.1	2,169	1,668	76.9	1,668	1,452	87.1	66.9	68.2
	1301	302	221	73.2	221	197	89.1	65.2	424	343	80.9	343	298	86.9	70.3	68.2
	1302	297	237	79.8	237	207	87.3	69.7	385	308	80.0	308	276	89.6	71.7	70.8
	1303	263	219	83.3	219	192	87.7	73.0	383	315	82.2	315	272	86.3	71.0	71.8
	1304	132	103	78.0	103	95	92.2	72.0	240	172	71.7	172	153	89.0	63.8	66.7
	1305	122	105	86.1	105	89	84.8	73.0	216	141	65.3	141	123	87.2	56.9	62.7
	1306	166	143	86.1	143	123	86.0	74.1	294	212	72.1	212	185	87.3	62.9	67.0
	1307	154	129	83.8	129	104	80.6	67.5	227	177	78.0	177	145	81.9	63.9	65.4
Que.	**Total**	6,327	5,110	80.8	5,110	4,697	91.9	74.2	11,433	8,507	74.4	8,507	7,344	86.3	64.2	67.8

Geography		Area frame							Phone frames							Combined
Prov. Terr.	Health Region	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
	2401	280	240	85.7	240	229	95.4	81.8	490	377	76.9	377	327	86.7	66.7	72.2
	2402	299	247	82.6	247	225	91.1	75.3	536	425	79.3	425	372	87.5	69.4	71.5
	2403	502	410	81.7	410	387	94.4	77.1	839	635	75.7	635	559	88.0	66.6	70.5
	2404	400	328	82.0	328	302	92.1	75.5	689	529	76.8	529	452	85.4	65.6	69.2
	2405	324	261	80.6	261	240	92.0	74.1	558	437	78.3	437	393	89.9	70.4	71.8
	2406	885	684	77.3	684	634	92.7	71.6	1,482	997	67.3	997	824	82.6	55.6	61.6
	2407	341	268	78.6	268	239	89.2	70.1	568	426	75.0	426	368	86.4	64.8	66.8
	2408	340	267	78.5	267	244	91.4	71.8	483	363	75.2	363	320	88.2	66.3	68.5
	2409	314	250	79.6	250	223	89.2	71.0	563	414	73.5	414	336	81.2	59.7	63.7
	2410	.	.	.	.	.	.	.	697	516	74.0	516	442	85.7	63.4	63.4
	2411	334	288	86.2	288	257	89.2	76.9	589	433	73.5	433	377	87.1	64.0	68.7
	2412	388	331	85.3	331	304	91.8	78.4	659	503	76.3	503	443	88.1	67.2	71.3
	2413	411	320	77.9	320	286	89.4	69.6	668	491	73.5	491	421	85.7	63.0	65.5
	2414	393	329	83.7	329	303	92.1	77.1	683	511	74.8	511	437	85.5	64.0	68.8
	2415	396	312	78.8	312	283	90.7	71.5	751	541	72.0	541	469	86.7	62.5	65.6
	2416	720	575	79.9	575	541	94.1	75.1	1,178	909	77.2	909	804	88.4	68.3	70.9
Ont.	**Total**	12,943	9,727	75.2	9,727	8,618	88.6	66.6	20,376	14,661	72.0	14,661	12,383	84.5	60.8	63.0
	3526	184	146	79.3	146	134	91.8	72.8	381	281	73.8	281	239	85.1	62.7	66.0
	3527	227	166	73.1	166	144	86.7	63.4	367	275	74.9	275	235	85.5	64.0	63.8
	3530	509	372	73.1	372	327	87.9	64.2	773	577	74.6	577	465	80.6	60.2	61.8
	3531	177	156	88.1	156	141	90.4	79.7	303	232	76.6	232	207	89.2	68.3	72.5
	3533	194	164	84.5	164	147	89.6	75.8	437	322	73.7	322	274	85.1	62.7	66.7
	3534	250	175	70.0	175	151	86.3	60.4	341	244	71.6	244	203	83.2	59.5	59.9
	3535	270	183	67.8	183	159	86.9	58.9	409	321	78.5	321	276	86.0	67.5	64.1
	3536	404	306	75.7	306	263	85.9	65.1	669	495	74.0	495	427	86.3	63.8	64.3
	3537	510	370	72.5	370	313	84.6	61.4	786	542	69.0	542	459	84.7	58.4	59.6

Geography		Area frame							Phone frames							Combined
Prov. Terr.	Health Region	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
	3538	260	197	75.8	197	179	90.9	68.8	427	314	73.5	314	267	85.0	62.5	64.9
	3539	152	124	81.6	124	118	95.2	77.6	253	190	75.1	190	170	89.5	67.2	71.1
	3540	177	146	82.5	146	137	93.8	77.4	328	248	75.6	248	210	84.7	64.0	68.7
	3541	329	232	70.5	232	193	83.2	58.7	433	341	78.8	341	297	87.1	68.6	64.3
	3542	242	196	81.0	196	188	95.9	77.7	394	297	75.4	297	260	87.5	66.0	70.4
	3543	277	214	77.3	214	192	89.7	69.3	375	279	74.4	279	239	85.7	63.7	66.1
	3544	427	337	78.9	337	309	91.7	72.4	720	542	75.3	542	451	83.2	62.6	66.3
	3546	434	317	73.0	317	281	88.6	64.7	711	517	72.7	517	417	80.7	58.6	61.0
	3547	177	141	79.7	141	117	83.0	66.1	375	271	72.3	271	229	84.5	61.1	62.7
	3549	250	179	71.6	179	160	89.4	64.0	368	259	70.4	259	229	88.4	62.2	62.9
	3551	616	488	79.2	488	423	86.7	68.7	878	676	77.0	676	582	86.1	66.3	67.3
	3552	141	101	71.6	101	97	96.0	68.8	309	241	78.0	241	205	85.1	66.3	67.1
	3553	759	592	78.0	592	533	90.0	70.2	1,322	870	65.8	870	698	80.2	52.8	59.2
	3554	178	156	87.6	156	148	94.9	83.1	259	195	75.3	195	170	87.2	65.6	72.8
	3555	250	194	77.6	194	176	90.7	70.4	369	262	71.0	262	229	87.4	62.1	65.4
	3556	228	183	80.3	183	168	91.8	73.7	334	243	72.8	243	220	90.5	65.9	69.0
	3557	227	164	72.2	164	146	89.0	64.3	325	255	78.5	255	224	87.8	68.9	67.0
	3558	272	219	80.5	219	187	85.4	68.8	424	339	80.0	339	283	83.5	66.7	67.5
	3560	732	527	72.0	527	456	86.5	62.3	1,041	752	72.2	752	635	84.4	61.0	61.5
	3561	301	224	74.4	224	184	82.1	61.1	503	388	77.1	388	350	90.2	69.6	66.4
	3562	430	302	70.2	302	266	88.1	61.9	599	447	74.6	447	388	86.8	64.8	63.6
	3563	151	119	78.8	119	104	87.4	68.9	225	173	76.9	173	147	85.0	65.3	66.8
	3565	454	345	76.0	345	306	88.7	67.4	715	527	73.7	527	448	85.0	62.7	64.5
	3566	323	253	78.3	253	232	91.7	71.8	492	363	73.8	363	315	86.8	64.0	67.1
	3568	455	334	73.4	334	309	92.5	67.9	707	515	72.8	515	437	84.9	61.8	64.2
	3570	608	479	78.8	479	419	87.5	68.9	936	608	65.0	608	488	80.3	52.1	58.7

Geography		Area frame							Phone frames							Combined
Prov. Terr.	Health Region	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
	3595	1,368	926	67.7	926	811	87.6	59.3	2,088	1,260	60.3	1,260	1,010	80.2	48.4	52.7
Man.	**Total**	2,085	1,689	81.0	1,689	1,516	89.8	72.7	3,219	2,507	77.9	2,507	2,248	89.7	69.8	71.0
	4601	644	496	77.0	496	434	87.5	67.4	929	749	80.6	749	680	90.8	73.2	70.8
	4602	497	407	81.9	407	383	94.1	77.1	811	622	76.7	622	553	88.9	68.2	71.6
	4603	280	236	84.3	236	218	92.4	77.9	538	400	74.3	400	349	87.3	64.9	69.3
	4604	288	239	83.0	239	216	90.4	75.0	384	286	74.5	286	258	90.2	67.2	70.5
	4605	376	311	82.7	311	265	85.2	70.5	557	450	80.8	450	408	90.7	73.2	72.1
Sask.	**Total**	1,962	1,513	77.1	1,513	1,376	90.9	70.1	3,529	2,572	72.9	2,572	2,278	88.6	64.6	66.5
	4701	147	132	89.8	132	126	95.5	85.7	250	197	78.8	197	179	90.9	71.6	76.8
	4702	158	119	75.3	119	112	94.1	70.9	276	198	71.7	198	184	92.9	66.7	68.2
	4703	139	118	84.9	118	97	82.2	69.8	241	199	82.6	199	181	91.0	75.1	73.2
	4704	312	231	74.0	231	204	88.3	65.4	555	420	75.7	420	370	88.1	66.7	66.2
	4705	136	114	83.8	114	104	91.2	76.5	267	193	72.3	193	175	90.7	65.5	69.2
	4706	430	317	73.7	317	295	93.1	68.6	550	418	76.0	418	366	87.6	66.5	67.4
	4707	139	104	74.8	104	95	91.3	68.3	224	165	73.7	165	149	90.3	66.5	67.2
	4708	138	104	75.4	104	94	90.4	68.1	222	168	75.7	168	157	93.5	70.7	69.7
	4709	221	161	72.9	161	147	91.3	66.5	274	199	72.6	199	176	88.4	64.2	65.3
	4710	142	113	79.6	113	102	90.3	71.8	260	194	74.6	194	171	88.1	65.8	67.9
	4714	.	.	.	.	.	.	.	410	221	53.9	221	170	76.9	41.5	41.5
Alta.	**Total**	3,526	2,793	79.2	2,793	2,484	88.9	70.4	5,880	4,132	70.3	4,132	3,577	86.6	60.8	64.4
	4831	477	394	82.6	394	348	88.3	73.0	924	655	70.9	655	582	88.9	63.0	66.4
	4832	886	694	78.3	694	612	88.2	69.1	1,330	922	69.3	922	795	86.2	59.8	63.5
	4833	643	519	80.7	519	472	90.9	73.4	1,082	780	72.1	780	680	87.2	62.8	66.8
	4834	787	628	79.8	628	564	89.8	71.7	1,285	922	71.8	922	784	85.0	61.0	65.1
	4835	733	558	76.1	558	488	87.5	66.6	1,259	853	67.8	853	736	86.3	58.5	61.4
B.C.	**Total**	4,662	3,595	77.1	3,595	3,216	89.5	69.0	7,613	5,367	70.5	5,367	4,487	83.6	58.9	62.8

Geography		Area frame							Phone frames							Combined
Prov. Terr.	Health Region	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
	5911	182	143	78.6	143	125	87.4	68.7	286	203	71.0	203	180	88.7	62.9	65.2
	5912	170	139	81.8	139	129	92.8	75.9	273	212	77.7	212	182	85.8	66.7	70.2
	5913	297	247	83.2	247	228	92.3	76.8	572	417	72.9	417	363	87.1	63.5	68.0
	5914	293	225	76.8	225	202	89.8	68.9	510	378	74.1	378	320	84.7	62.7	65.0
	5921	297	216	72.7	216	191	88.4	64.3	486	348	71.6	348	289	83.0	59.5	61.3
	5922	455	349	76.7	349	314	90.0	69.0	737	517	70.1	517	424	82.0	57.5	61.9
	5923	464	378	81.5	378	328	86.8	70.7	789	536	67.9	536	439	81.9	55.6	61.2
	5931	224	179	79.9	179	171	95.5	76.3	410	258	62.9	258	212	82.2	51.7	60.4
	5932	455	330	72.5	330	293	88.8	64.4	818	507	62.0	507	382	75.3	46.7	53.0
	5933	355	287	80.8	287	254	88.5	71.5	552	383	69.4	383	318	83.0	57.6	63.1
	5941	385	303	78.7	303	266	87.8	69.1	581	428	73.7	428	366	85.5	63.0	65.4
	5942	293	229	78.2	229	203	88.6	69.3	448	339	75.7	339	294	86.7	65.6	67.1
	5943	157	108	68.8	108	100	92.6	63.7	226	181	80.1	181	167	92.3	73.9	69.7
	5951	177	133	75.1	133	120	90.2	67.8	331	229	69.2	229	190	83.0	57.4	61.0
	5952	281	189	67.3	189	164	86.8	58.4	348	260	74.7	260	212	81.5	60.9	59.8
	5953	177	140	79.1	140	128	91.4	72.3	246	171	69.5	171	149	87.1	60.6	65.5
Y.T.	**6001**	737	615	83.4	615	563	91.5	76.4	141	101	71.6	101	89	88.1	63.1	74.3
N.W.T.	**6101**	731	612	83.7	612	556	90.8	76.1	97	74	76.3	74	66	89.2	68.0	75.1
Nvt.	**6201**	496	392	79.0	392	356	90.8	71.8	.	.	.	.	.	.	.	71.8

Appendix E (2014) - Table 9.2 Response rate by Local Health Integrated Network (LHIN) and frame in Ontario

Geography		Area frame							Phone frames							Combined
Province	LHIN	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
Ont.	**Total**	12,943	9,727	75.2	9,727	8,618	88.6	66.6	20,376	14,661	72.0	14,661	12,383	84.5	60.8	63.0
	3501	874	676	77.3	676	634	93.8	72.5	1,429	1,060	74.2	1,060	907	85.6	63.5	66.9
	3502	1,281	1,049	81.9	1,049	967	92.2	75.5	2,268	1,715	75.6	1,715	1,470	85.7	64.8	68.7
	3503	692	541	78.2	541	486	89.8	70.2	1,136	837	73.7	837	715	85.4	62.9	65.7
	3504	1,570	1,139	72.5	1,139	987	86.7	62.9	2,409	1,740	72.2	1,740	1,454	83.6	60.4	61.3
	3505	620	453	73.1	453	416	91.8	67.1	1,052	669	63.6	669	537	80.3	51.0	57.0
	3506	622	486	78.1	486	421	86.6	67.7	1,070	733	68.5	733	615	83.9	57.5	61.2
	3507	710	461	64.9	461	408	88.5	57.5	1,063	666	62.7	666	557	83.6	52.4	54.4
	3508	906	699	77.2	699	611	87.4	67.4	1,393	881	63.2	881	688	78.1	49.4	56.5
	3509	1,292	942	72.9	942	826	87.7	63.9	1,925	1,386	72.0	1,386	1,143	82.5	59.4	61.2
	3510	788	582	73.9	582	511	87.8	64.8	1,145	865	75.5	865	741	85.7	64.7	64.8
	3511	1,193	932	78.1	932	809	86.8	67.8	1,737	1,354	78.0	1,354	1,165	86.0	67.1	67.4
	3512	674	473	70.2	473	409	86.5	60.7	964	693	71.9	693	589	85.0	61.1	60.9
	3513	1,041	813	78.1	813	707	87.0	67.9	1,818	1,356	74.6	1,356	1,185	87.4	65.2	66.2
	3514	680	481	70.7	481	426	88.6	62.6	967	706	73.0	706	617	87.4	63.8	63.3

Appendix F (2013-2014) - Sample allocation by health region and frame and sample allocation by Local Health Integrated Network (LHIN) and frame in Ontario

Appendix F (2013-2014) Sample allocation by health region and frame[17]

Geography		Area Frame		Phone frames		Combined	
Prov./Terr.	Health Region	expected # of respondents	raw sample size	expected # of respondents	raw sample size	expected # of respondents	raw sample size
Canada	**Total**	54,949	91,362	76,808	149,538	131,757	240,900
N.L.	**Total**	1,644	2,706	2,366	4,650	4,010	7,356
	1011	664	1,146	956	1,848	1,620	2,994
	1012	386	633	554	1,096	940	1,729
	1013	348	558	502	986	850	1,544
	1014	246	369	354	720	600	1,089
P.E.I.	**Total**	822	1,521	1,180	2,792	2,002	4,313
	1101	146	256	210	540	356	796
	1102	378	711	542	1,306	920	2,017
	1103	298	554	428	946	726	1,500
N.S.	**Total**	2,070	3,613	2,972	5,735	5,042	9,348
	1201	326	544	466	914	792	1,458
	1202	262	470	378	702	640	1,172
	1203	296	492	424	833	720	1,325
	1204	288	528	412	800	700	1,328
	1205	344	598	496	1,004	840	1,602
	1206	554	981	796	1,482	1,350	2,463
N.B.	**Total**	2,114	3,632	3,036	5,386	5,150	9,018
	1301	410	736	590	1,016	1,000	1,752
	1302	398	760	572	946	970	1,706
	1303	386	657	554	970	940	1,627
	1304	222	318	318	600	540	918
	1305	206	357	294	528	500	885
	1306	282	408	408	750	690	1,158
	1307	210	396	300	576	510	972
Que.	**Total**	9,653	14,996	14,664	28,725	24,317	43,721
	2401	492	762	708	1,176	1,200	1,938
	2402	514	687	742	1,268	1,256	1,955
	2403	760	1,162	1,092	1,914	1,852	3,076
	2404	656	996	944	1,584	1,600	2,580
	2405	531	853	730	1,269	1,261	2,122
	2406	1,274	2,086	1,832	3,492	3,106	5,578
	2407	530	874	766	1,354	1,296	2,228
	2408	492	792	708	1,176	1,200	1,968
	2409	492	732	708	1,500	1,200	2,232
	2410	0	0	800	3,654	800	3,654
	2411	492	768	708	1,434	1,200	2,202
	2412	592	912	854	1,527	1,446	2,439
	2413	550	896	790	1,490	1,340	2,386
	2414	588	888	848	1,552	1,436	2,440

[17] As mentioned in section 5.2, the figures for Prince Edward Island are based on the definitions of HRs that were used at the time of sampling.

Geography		Area Frame		Phone frames		Combined	
Prov./Terr.	Health Region	expected # of respondents	raw sample size	expected # of respondents	raw sample size	expected # of respondents	raw sample size
	2415	624	1,014	900	1,716	1,524	2,730
	2416	1,066	1,574	1,534	2,619	2,600	4,193
Ont.	**Total**	18,284	30,764	26,292	49,280	44,576	80,044
	3526	348	540	502	944	850	1,484
	3527	332	546	478	867	810	1,413
	3530	668	1,072	962	1,822	1,630	2,894
	3531	278	423	402	738	680	1,161
	3533	386	626	556	1,148	942	1,774
	3534	318	575	454	856	772	1,431
	3535	390	822	560	1,144	950	1,966
	3536	578	878	832	1,530	1,410	2,408
	3537	676	1,220	974	1,882	1,650	3,102
	3538	386	656	554	1,036	940	1,692
	3539	242	368	348	702	590	1,070
	3540	328	478	472	848	800	1,326
	3541	414	798	596	1,062	1,010	1,860
	3542	356	534	514	956	870	1,490
	3543	390	651	560	940	950	1,591
	3544	616	978	884	1,656	1,500	2,634
	3546	628	954	902	1,659	1,530	2,613
	3547	328	638	472	998	800	1,636
	3549	330	660	474	1,053	804	1,713
	3551	840	1,422	1,210	2,055	2,050	3,477
	3552	308	410	442	723	750	1,133
	3553	1,108	1,656	1,594	3,092	2,702	4,748
	3554	266	399	384	624	650	1,023
	3555	348	594	502	944	850	1,538
	3556	308	556	442	813	750	1,369
	3557	308	550	442	758	750	1,308
	3558	426	636	614	988	1,040	1,624
	3560	938	1,848	1,352	2,649	2,290	4,497
	3561	442	800	638	1,197	1,080	1,997
	3562	546	1,026	786	1,478	1,332	2,504
	3563	206	430	294	534	500	964
	3565	628	1,038	902	1,672	1,530	2,710
	3566	480	715	690	1,126	1,170	1,841
	3568	586	987	844	1,604	1,430	2,591
	3570	784	1,269	1,114	2,126	1,898	3,395
	3595	1,770	3,011	2,546	5,056	4,316	8,067
Man.	**Total**	3,078	5,055	4,422	8,683	7,500	13,738
	4601	872	1,436	1,253	2,206	2,125	3,642
	4602	739	1,222	1,061	2,026	1,800	3,248
	4603	488	804	702	1,536	1,190	2,340
	4604	405	738	580	1,455	985	2,193
	4605	574	855	826	1,460	1,400	2,315

Geography		Area Frame		Phone frames		Combined	
Prov./Terr.	Health Region	expected # of respondents	raw sample size	expected # of respondents	raw sample size	expected # of respondents	raw sample size
Sask.	**Total**	2,962	4,700	4,758	10,542	7,720	15,242
	4701	246	360	354	636	600	996
	4702	246	357	354	660	600	1,017
	4703	218	333	312	618	530	951
	4704	508	750	732	1,392	1,240	2,142
	4705	254	357	366	672	620	1,029
	4706	542	994	778	1,364	1,320	2,358
	4707	222	378	318	618	540	996
	4708	214	334	306	552	520	886
	4709	266	447	384	756	650	1,203
	4710	246	390	354	714	600	1,104
	4714	0	0	500	2,560	500	2,560
Alta.	**Total**	5,056	8,490	7,194	14,293	12,250	22,783
	4831	758	1,220	1,092	2,214	1,850	3,434
	4832	1,198	1,948	1,646	3,151	2,844	5,099
	4833	938	1,652	1,350	2,696	2,288	4,348
	4834	1,074	1,718	1,544	2,984	2,618	4,702
	4835	1,088	1,952	1,562	3,248	2,650	5,200
B.C.	**Total**	6,596	11,151	9,494	18,300	16,090	29,451
	5911	250	411	360	684	610	1,095
	5912	254	418	366	639	620	1,057
	5913	484	684	696	1,326	1,180	2,010
	5914	410	681	590	1,229	1,000	1,910
	5921	426	708	614	1,192	1,040	1,900
	5922	624	972	896	1,738	1,520	2,710
	5923	656	1,048	944	1,870	1,600	2,918
	5931	348	510	502	980	850	1,490
	5932	656	1,146	944	1,978	1,600	3,124
	5933	446	940	644	1,312	1,090	2,252
	5941	554	915	796	1,404	1,350	2,319
	5942	430	698	620	1,084	1,050	1,782
	5943	218	424	312	570	530	994
	5951	266	508	384	864	650	1,372
	5952	348	648	502	836	850	1,484
	5903	226	440	324	594	550	1,034
Y.T.	**6001**	950	1,652	250	582	1,200	2,234
N.W.T.	**6101**	1,020	1,838	180	570	1,200	2,408
Nvt.	**6201**	700	1,244	0	0	700	1,244

Appendix F (2013-2014) - Sample allocation by Local Health Integrated Network (LHIN) and frame in Ontario

Geography		Area Frame		Phone frames		Combined	
Province	LHIN	expected # of respondents	raw sample size	expected # of respondents	raw sample size	expected # of respondents	raw sample size
Ont.	**Total**	18,284	30,764	26,292	49,280	44,576	80,044
	3501	1,270	1,999	1,830	3,408	3,100	5,407
	3502	2,136	3,266	3,072	5,681	5,208	8,947
	3503	990	1,552	1,422	2,530	2,412	4,082
	3504	2,130	3,587	3,064	5,744	5,194	9,331
	3505	898	1,424	1,278	2,484	2,176	3,908
	3506	916	1,332	1,314	2,464	2,230	3,796
	3507	930	1,602	1,338	2,646	2,268	4,248
	3508	1,156	1,875	1,666	3,200	2,822	5,075
	3509	1,728	3,042	2,488	4,826	4,216	7,868
	3510	1,078	1,919	1,548	2,756	2,626	4,675
	3511	1,686	2,794	2,428	4,083	4,114	6,877
	3512	858	1,722	1,236	2,441	2,094	4,163
	3513	1,632	2,964	2,348	4,486	3,980	7,450
	3514	876	1,686	1,260	2,531	2,136	4,217

Appendix G (2013-2014) - Response rates by health region and frame and response rates by Local Health Integrated Network (LHIN) and frame in Ontario

Appendix G (2013-2014) - Table 9.3 response rates by health region and frame

Geography		Area frame							Phone frames							Combined
Prov. Terr.	Health Region	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
Canada	**Total**	75,610	60,245	79.7	60,245	54,009	89.6	71.4	118,203	86,764	73.4	86,764	74,301	85.6	62.9	66.2
N.L.	**Total**	2,127	1,811	85.1	1,811	1,600	88.3	75.2	3,680	2,791	75.8	2,791	2,379	85.2	64.6	68.5
	1011	891	711	79.8	711	613	86.2	68.8	1,530	1,128	73.7	1,128	965	85.5	63.1	65.2
	1012	489	436	89.2	436	397	91.1	81.2	818	634	77.5	634	533	84.1	65.2	71.2
	1013	472	417	88.3	417	379	90.9	80.3	802	640	79.8	640	563	88.0	70.2	73.9
	1014	275	247	89.8	247	211	85.4	76.7	530	389	73.4	389	318	81.7	60.0	65.7
P.E.I.	**Total**	1,152	919	79.8	919	796	86.6	69.1	1,787	1,341	75.0	1,341	1,189	88.7	66.5	67.5
	1100	1,152	919	79.8	919	796	86.6	69.1	1,787	1,341	75.0	1,341	1,189	88.7	66.5	67.5
N.S.	**Total**	2,793	2,291	82.0	2,291	2,057	89.8	73.6	4,510	3,635	80.6	3,635	3,186	87.6	70.6	71.8
	1201	400	349	87.3	349	320	91.7	80.0	732	582	79.5	582	511	87.8	69.8	73.4
	1202	347	279	80.4	279	257	92.1	74.1	536	438	81.7	438	395	90.2	73.7	73.8
	1203	368	313	85.1	313	275	87.9	74.7	648	542	83.6	542	476	87.8	73.5	73.9
	1204	408	329	80.6	329	301	91.5	73.8	630	510	81.0	510	441	86.5	70.0	71.5
	1205	446	359	80.5	359	326	90.8	73.1	763	566	74.2	566	478	84.5	62.6	66.5
	1206	824	662	80.3	662	578	87.3	70.1	1,201	997	83.0	997	885	88.8	73.7	72.2
N.B.	**Total**	2,893	2,401	83.0	2,401	2,116	88.1	73.1	4,291	3,280	76.4	3,280	2,825	86.1	65.8	68.8
	1301	598	467	78.1	467	419	89.7	70.1	832	641	77.0	641	561	87.5	67.4	68.5
	1302	611	506	82.8	506	444	87.7	72.7	752	604	80.3	604	523	86.6	69.5	70.9
	1303	531	442	83.2	442	391	88.5	73.6	768	625	81.4	625	548	87.7	71.4	72.3
	1304	262	221	84.4	221	205	92.8	78.2	479	342	71.4	342	289	84.5	60.3	66.7
	1305	271	232	85.6	232	201	86.6	74.2	422	285	67.5	285	244	85.6	57.8	64.2
	1306	320	284	88.8	284	246	86.6	76.9	590	432	73.2	432	370	85.6	62.7	67.7
	1307	300	249	83.0	249	210	84.3	70.0	448	351	78.3	351	290	82.6	64.7	66.8
Que.	**Total**	12,776	10,504	82.2	10,504	9,634	91.7	75.4	22,524	16,769	74.4	16,769	14,512	86.5	64.4	68.4
	2401	570	501	87.9	501	477	95.2	83.7	1,001	775	77.4	775	680	87.7	67.9	73.6
	2402	612	524	85.6	524	475	90.6	77.6	1,060	847	79.9	847	757	89.4	71.4	73.7

Geography		Area frame							Phone frames							Combined
Prov. Terr.	Health Region	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
	2403	1,023	842	82.3	842	784	93.1	76.6	1,679	1,255	74.7	1,255	1,097	87.4	65.3	69.6
	2404	901	764	84.8	764	713	93.3	79.1	1,362	1,058	77.7	1,058	925	87.4	67.9	72.4
	2405	664	515	77.6	515	477	92.6	71.8	1,074	845	78.7	845	755	89.3	70.3	70.9
	2406	1,789	1,420	79.4	1,420	1,302	91.7	72.8	2,951	1,991	67.5	1,991	1,668	83.8	56.5	62.7
	2407	736	586	79.6	586	524	89.4	71.2	1,083	814	75.2	814	712	87.5	65.7	67.9
	2408	665	541	81.4	541	494	91.3	74.3	965	739	76.6	739	650	88.0	67.4	70.2
	2409	619	515	83.2	515	463	89.9	74.8	1,119	799	71.4	799	650	81.4	58.1	64.0
	2410	.	.	.	.	.	.	.	1,298	991	76.3	991	848	85.6	65.3	65.3
	2411	599	523	87.3	523	471	90.1	78.6	1,177	856	72.7	856	734	85.7	62.4	67.8
	2412	796	678	85.2	678	630	92.9	79.1	1,324	1,014	76.6	1,014	906	89.3	68.4	72.5
	2413	815	635	77.9	635	565	89.0	69.3	1,317	941	71.5	941	791	84.1	60.1	63.6
	2414	750	640	85.3	640	586	91.6	78.1	1,332	986	74.0	986	834	84.6	62.6	68.2
	2415	801	656	81.9	656	593	90.4	74.0	1,445	1,059	73.3	1,059	921	87.0	63.7	67.4
	2416	1,436	1,164	81.1	1,164	1,080	92.8	75.2	2,337	1,799	77.0	1,799	1,584	88.0	67.8	70.6
Ont.	**Total**	25,621	19,626	76.6	19,626	17,478	89.1	68.2	40,458	29,641	73.3	29,641	25,075	84.6	62.0	64.4
	3526	351	272	77.5	272	254	93.4	72.4	776	584	75.3	584	501	85.8	64.6	67.0
	3527	494	383	77.5	383	320	83.6	64.8	706	532	75.4	532	455	85.5	64.4	64.6
	3530	956	707	74.0	707	628	88.8	65.7	1,539	1,150	74.7	1,150	943	82.0	61.3	63.0
	3531	361	310	85.9	310	286	92.3	79.2	624	467	74.8	467	407	87.2	65.2	70.4
	3533	422	363	86.0	363	329	90.6	78.0	867	659	76.0	659	581	88.2	67.0	70.6
	3534	490	367	74.9	367	317	86.4	64.7	687	507	73.8	507	427	84.2	62.2	63.2
	3535	568	388	68.3	388	326	84.0	57.4	835	637	76.3	637	554	87.0	66.3	62.7
	3536	818	654	80.0	654	572	87.5	69.9	1,351	1,011	74.8	1,011	857	84.8	63.4	65.9
	3537	1,034	762	73.7	762	659	86.5	63.7	1,579	1,099	69.6	1,099	915	83.3	57.9	60.2
	3538	521	419	80.4	419	379	90.5	72.7	823	630	76.5	630	543	86.2	66.0	68.6
	3539	289	249	86.2	249	237	95.2	82.0	513	396	77.2	396	342	86.4	66.7	72.2
	3540	343	280	81.6	280	257	91.8	74.9	615	464	75.4	464	399	86.0	64.9	68.5
	3541	634	462	72.9	462	394	85.3	62.1	845	653	77.3	653	566	86.7	67.0	64.9

Geography		Area frame							Phone frames							Combined
Prov. Terr.	Health Region	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
	3542	483	407	84.3	407	391	96.1	81.0	807	613	76.0	613	534	87.1	66.2	71.7
	3543	548	428	78.1	428	388	90.7	70.8	751	572	76.2	572	504	88.1	67.1	68.7
	3544	829	651	78.5	651	590	90.6	71.2	1,425	1,068	74.9	1,068	890	83.3	62.5	65.7
	3546	830	638	76.9	638	570	89.3	68.7	1,404	1,043	74.3	1,043	865	82.9	61.6	64.2
	3547	367	290	79.0	290	255	87.9	69.5	738	561	76.0	561	486	86.6	65.9	67.1
	3549	520	377	72.5	377	336	89.1	64.6	701	516	73.6	516	452	87.6	64.5	64.5
	3551	1,256	984	78.3	984	868	88.2	69.1	1,756	1,370	78.0	1,370	1,185	86.5	67.5	68.2
	3552	302	227	75.2	227	214	94.3	70.9	624	486	77.9	486	420	86.4	67.3	68.5
	3553	1,514	1,215	80.3	1,215	1,095	90.1	72.3	2,599	1,775	68.3	1,775	1,395	78.6	53.7	60.5
	3554	368	333	90.5	333	314	94.3	85.3	509	405	79.6	405	352	86.9	69.2	75.9
	3555	474	364	76.8	364	338	92.9	71.3	737	539	73.1	539	464	86.1	63.0	66.2
	3556	465	384	82.6	384	354	92.2	76.1	674	515	76.4	515	459	89.1	68.1	71.4
	3557	419	325	77.6	325	294	90.5	70.2	661	519	78.5	519	458	88.2	69.3	69.6
	3558	545	444	81.5	444	381	85.8	69.9	839	671	80.0	671	581	86.6	69.2	69.5
	3560	1,411	1,041	73.8	1,041	909	87.3	64.4	2,005	1,507	75.2	1,507	1,279	84.9	63.8	64.1
	3561	628	464	73.9	464	395	85.1	62.9	986	784	79.5	784	700	89.3	71.0	67.8
	3562	826	584	70.7	584	504	86.3	61.0	1,191	904	75.9	904	785	86.8	65.9	63.9
	3563	278	210	75.5	210	173	82.4	62.2	440	341	77.5	341	296	86.8	67.3	65.3
	3565	915	707	77.3	707	630	89.1	68.9	1,452	1,099	75.7	1,099	924	84.1	63.6	65.7
	3566	633	499	78.8	499	461	92.4	72.8	971	750	77.2	750	648	86.4	66.7	69.1
	3568	868	637	73.4	637	584	91.7	67.3	1,440	1,046	72.6	1,046	870	83.2	60.4	63.0
	3570	1,168	927	79.4	927	817	88.1	69.9	1,842	1,220	66.2	1,220	973	79.8	52.8	59.5
	3595	2,693	1,874	69.6	1,874	1,659	88.5	61.6	4,146	2,548	61.5	2,548	2,065	81.0	49.8	54.5
Man.	**Total**	4,144	3,397	82.0	3,397	3,063	90.2	73.9	6,413	4,915	76.6	4,915	4,375	89.0	68.2	70.5
	4601	1,307	1,016	77.7	1,016	902	88.8	69.0	1,874	1,486	79.3	1,486	1,328	89.4	70.9	70.1
	4602	971	811	83.5	811	758	93.5	78.1	1,596	1,197	75.0	1,197	1,055	88.1	66.1	70.6
	4603	580	495	85.3	495	454	91.7	78.3	1,059	795	75.1	795	701	88.2	66.2	70.5
	4604	567	466	82.2	466	419	89.9	73.9	752	551	73.3	551	489	88.7	65.0	68.8

Geography		Area frame							Phone frames							Combined
Prov. Terr.	Health Region	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
	4605	719	609	84.7	609	530	87.0	73.7	1,132	886	78.3	886	802	90.5	70.8	72.0
Sask.	**Total**	3,826	3,037	79.4	3,037	2,744	90.4	71.7	7,253	5,210	71.8	5,210	4,627	88.8	63.8	66.5
	4701	298	269	90.3	269	254	94.4	85.2	521	402	77.2	402	365	90.8	70.1	75.6
	4702	293	226	77.1	226	211	93.4	72.0	535	402	75.1	402	371	92.3	69.3	70.3
	4703	250	224	89.6	224	194	86.6	77.6	502	385	76.7	385	347	90.1	69.1	71.9
	4704	620	478	77.1	478	421	88.1	67.9	1,146	865	75.5	865	765	88.4	66.8	67.2
	4705	271	228	84.1	228	211	92.5	77.9	548	388	70.8	388	345	88.9	63.0	67.9
	4706	855	645	75.4	645	588	91.2	68.8	1,145	854	74.6	854	754	88.3	65.9	67.1
	4707	295	240	81.4	240	217	90.4	73.6	466	343	73.6	343	313	91.3	67.2	69.6
	4708	258	199	77.1	199	174	87.4	67.4	442	324	73.3	324	297	91.7	67.2	67.3
	4709	381	270	70.9	270	240	88.9	63.0	559	407	72.8	407	358	88.0	64.0	63.6
	4710	305	258	84.6	258	234	90.7	76.7	519	389	75.0	389	346	88.9	66.7	70.4
	4714	.	.	.	.	.	.	.	870	451	51.8	451	366	81.2	42.1	42.1
Alta.	**Total**	7,223	5,820	80.6	5,820	5,165	88.7	71.5	11,672	8,065	69.1	8,065	6,907	85.6	59.2	63.9
	4831	956	815	85.3	815	740	90.8	77.4	1,807	1,288	71.3	1,288	1,103	85.6	61.0	66.7
	4832	1,784	1,379	77.3	1,379	1,204	87.3	67.5	2,647	1,801	68.0	1,801	1,541	85.6	58.2	61.9
	4833	1,387	1,136	81.9	1,136	1,025	90.2	73.9	2,146	1,511	70.4	1,511	1,300	86.0	60.6	65.8
	4834	1,557	1,266	81.3	1,266	1,130	89.3	72.6	2,574	1,799	69.9	1,799	1,543	85.8	59.9	64.7
	4835	1,539	1,224	79.5	1,224	1,066	87.1	69.3	2,498	1,666	66.7	1,666	1,420	85.2	56.8	61.6
B.C.	**Total**	9,200	7,217	78.4	7,217	6,462	89.5	70.2	15,104	10,726	71.0	10,726	8,878	82.8	58.8	63.1
	5911	337	266	78.9	266	230	86.5	68.2	558	417	74.7	417	361	86.6	64.7	66.0
	5912	336	273	81.3	273	253	92.7	75.3	535	405	75.7	405	332	82.0	62.1	67.2
	5913	576	485	84.2	485	454	93.6	78.8	1,114	823	73.9	823	706	85.8	63.4	68.6
	5914	560	431	77.0	431	389	90.3	69.5	1,020	754	73.9	754	646	85.7	63.3	65.5
	5921	616	473	76.8	473	419	88.6	68.0	988	712	72.1	712	591	83.0	59.8	63.0
	5922	854	678	79.4	678	598	88.2	70.0	1,485	1,029	69.3	1,029	822	79.9	55.4	60.7
	5923	916	769	84.0	769	666	86.6	72.7	1,570	1,103	70.3	1,103	887	80.4	56.5	62.5
	5931	456	372	81.6	372	353	94.9	77.4	825	537	65.1	537	429	79.9	52.0	61.0

Geography		Area frame							Phone frames							Combined
Prov. Terr.	Health Region	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
	5932	892	631	70.7	631	564	89.4	63.2	1,598	1,009	63.1	1,009	769	76.2	48.1	53.5
	5933	732	613	83.7	613	555	90.5	75.8	1,091	771	70.7	771	642	83.3	58.8	65.7
	5941	772	624	80.8	624	550	88.1	71.2	1,177	862	73.2	862	737	85.5	62.6	66.0
	5942	566	452	79.9	452	401	88.7	70.8	905	677	74.8	677	594	87.7	65.6	67.6
	5943	303	208	68.6	208	194	93.3	64.0	465	351	75.5	351	314	89.5	67.5	66.1
	5951	408	315	77.2	315	279	88.6	68.4	625	443	70.9	443	363	81.9	58.1	62.1
	5952	544	370	68.0	370	322	87.0	59.2	674	500	74.2	500	406	81.2	60.2	59.8
	5953	332	257	77.4	257	235	91.4	70.8	474	333	70.3	333	279	83.8	58.9	63.8
Y.T.	**6001**	1,382	1,157	83.7	1,157	1,039	89.8	75.2	285	208	73.0	208	182	87.5	63.9	73.2
N.W.T.	**6101**	1,478	1,245	84.2	1,245	1,107	88.9	74.9	226	183	81.0	183	166	90.7	73.5	74.7
Nvt.	**6201**	995	820	82.4	820	748	91.2	75.2	.	.	.	.	.	.	.	75.2

Appendix G (2013-2014) - Table 9.4 Response rate by Local Health Integrated Network (LHIN) and frame in Ontario

Geography		Area frame							Phone frames							Combined
Prov. Terr.	Health Region	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	# in scope HH	# resp. HH	HH resp. rates	# pers. select.	# resp.	Pers. resp. rates	Resp. rates	Combined resp. rates
Ont.	**Total**	25,621	19,626	76.6	19,626	17,478	89.1	68.2	40,458	29,641	73.3	29,641	25,075	84.6	62.0	64.4
	3501	1,694	1,324	78.2	1,324	1,232	93.1	72.7	2,862	2,123	74.2	2,123	1,803	84.9	63.0	66.6
	3502	2,598	2,159	83.1	2,159	1,988	92.1	76.5	4,538	3,465	76.4	3,465	2,978	85.9	65.6	69.6
	3503	1,390	1,098	79.0	1,098	989	90.1	71.2	2,272	1,733	76.3	1,733	1,471	84.9	64.7	67.2
	3504	3,139	2,372	75.6	2,372	2,066	87.1	65.8	4,800	3,500	72.9	3,500	2,933	83.8	61.1	63.0
	3505	1,258	966	76.8	966	885	91.6	70.3	2,086	1,385	66.4	1,385	1,087	78.5	52.1	59.0
	3506	1,253	1,023	81.6	1,023	900	88.0	71.8	2,117	1,496	70.7	1,496	1,224	81.8	57.8	63.0
	3507	1,392	931	66.9	931	833	89.5	59.8	2,104	1,311	62.3	1,311	1,108	84.5	52.7	55.5
	3508	1,728	1,353	78.3	1,353	1,192	88.1	69.0	2,757	1,801	65.3	1,801	1,425	79.1	51.7	58.4
	3509	2,509	1,812	72.2	1,812	1,594	88.0	63.5	3,847	2,790	72.5	2,790	2,324	83.3	60.4	61.6
	3510	1,543	1,188	77.0	1,188	1,055	88.8	68.4	2,246	1,717	76.4	1,717	1,488	86.7	66.3	67.1
	3511	2,380	1,874	78.7	1,874	1,649	88.0	69.3	3,474	2,732	78.6	2,732	2,380	87.1	68.5	68.8
	3512	1,302	945	72.6	945	824	87.2	63.3	1,849	1,383	74.8	1,383	1,175	85.0	63.5	63.4
	3513	2,089	1,620	77.5	1,620	1,431	88.3	68.5	3,614	2,785	77.1	2,785	2,442	87.7	67.6	67.9
	3514	1,346	961	71.4	961	840	87.4	62.4	1,892	1,420	75.1	1,420	1,237	87.1	65.4	64.1