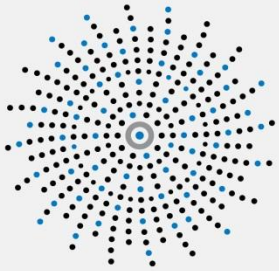
2010/2011 YOUTH SMOKING SURVEY

MICRODATA USER GUIDE

NOVEMBER 2011

Prepared for Health Canada by



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For information purposes, Health Canada would appreciate receiving advanced copies of planned publications arising from YSS data at least 3 weeks prior to the publication date. Copies could be sent either by mail or via email to Daniela Panait at Health Canada (see below).

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Table of Contents

1.0 Introduction 1

2.0 Background 2

2.1 Collaborative Provincial Projects 2

3.0 Concepts and Definitions 4

3.1 Definitions Used in this Guide 4

3.2 Definitions Used in the 2010/2011 YSS Public Use Microdata File 5

4.0 Sampling 6

4.1 Sample Design 6

4.2 Sample Selection 10

5.0 Questionnaire Development 12

5.1 Questionnaire Design and Distribution 12

5.2 Pilot Testing 14

6.0 Recruitment and Data Collection 16

6.1 Ethics Review 16

6.2 Recruitment of Boards and Schools 16

6.3 Recruitment of Students 17

6.4 Arranging Data Collection 17

6.5 School Data Collection 18

6.6 Sample Size 18

7.0 Data Processing 21

7.1 Data Capture 21

7.2 Editing and Imputation 22

7.3 Creation of Derived Variables 24

7.4 Skip Patterns 32

7.5 Weighting 38

7.6 Use of Survey Weights 42

7.7 Suppression of Confidential Information 43

8.0 Data Quality 44

8.1 Response Rates 44

8.2 Survey Errors 45

9.0 Guidelines for Tabulation, Analysis, and Release 46

9.1 Rounding Guide 46

9.2 Sample Weighting Guidelines for Tabulation 47

9.3 Definitions of Types of Estimates: Categorical and Quantitative 47

9.4 Guidelines for Statistical Analysis 48

9.5 Coefficient of Variation Release Guidelines 49

List of Tables

Table 1: Number of Participating and Non-Participating Schools by Health Stratum and Province, 2010/2011 YSS

Table 2: Eligible Combinations of YSS Eligible Grades in Schools, 2010/2011 YSS

Table 3: Number of Participating and Non-Participating Schools by School Strata and Province, 2010/2011 YSS

Table 4: Sampling Outcomes by Province , 2010/2011 YSS

Table 5: Questionnaire Module Distribution within Classes, 2010/2011 YSS

Table 6: Board Recruitment Outcomes by Province, 2010/2011 YSS

Table 7: School Recruitment Outcomes by Province, 2010/2011 YSS

Table 8: Participating Students by Province and Grade, 2010/2011 YSS

Table 9: Student Level Response Rates by Province, 2010/2011 YSS

Table 10: Quality Level Guidelines for Weighted Estimates

List of Appendices

Appendix A: 2010/2011 Youth Smoking Survey Collaborative Projects

Appendix B: Youth Smoking Survey Questions by Survey Year

Appendix C: Differences in Derived Variables between 2008/2009 YSS and 2010/2011 YSS

1.0 Introduction

The 2010/2011 Youth Smoking Survey (YSS) is a Health Canada sponsored pan-Canadian[1], classroom-based survey of a representative sample of students in grades 6 through 12. The 2010/2011 YSS was coordinated centrally by the Propel Centre for Population Health Impact (Propel) at the University of Waterloo under the leadership of Dr. Steve Manske, YSS principal investigator. Drs. Steve Brown and Rashid Ahmed at the University of Waterloo (UW) act as YSS co-investigators respectively. Propel also took leadership in implementing the 2004/2005, 2006/2007 and 2008/2009 cycles of the YSS and was involved in the writing of the 2002 YSS Technical Report.

The 2010/2011 YSS was implemented in schools between October 2010 and June 2011 by provincial level teams located in the 9 participating provinces, under the leadership of the following YSS consortium members:

Dr. Antony Card, Memorial University of Newfoundland

Dr. Donna Murnaghan, University of Prince Edward Island

Dr. Louise Parker, IWK Health Centre and Dalhousie University

Dr. Rémi Coderre, Québec en Forme

Dr. Scott Leatherdale, University of Waterloo

Dr. Jane Griffith, Cancer Care Manitoba

Dr. Nazeem Muhajarine, University of Saskatchewan

Dr. Cam Wild, University of Alberta

Dr. Candace Nykiforuk, University of Alberta

Dr. Chris Lovato, University of British Columbia

Dr. Marjorie MacDonald, University of Victoria

This manual has been produced to facilitate the manipulation and use of the 2010/2011 YSS Public Use Microdata File.

PLEASE BECOME FAMILIAR WITH THE CONTENTS OF THIS DOCUMENT BEFORE PUBLISHING OR OTHERWISE RELEASING ANY ESTIMATES DERIVED FROM THE 2010/2011 YSS PUBLIC USE MICRODATA FILE.

[1] Participation to the 2010/2011 YSS was declined by the province of New Brunswick. Based on the comparative analysis conducted using 2008/2009 survey data, there were no statistically significant differences in national estimates with and without New Brunswick.

2.0 Background

The biennial YSS is a classroom-based survey of a representative sample of schools in the ten Canadian provinces. The 2010/2011 cycle of the YSS did not include the province of New Brunswick. When first administered in 1994, the YSS was the largest and most comprehensive survey on youth smoking behaviour since 1979. The YSS was repeated in 2002, 2004/2005, 2006/2007 and 2008/2009 in order to track changes in the attitudes and behaviours of Canadian children and adolescents with respect to tobacco use. Until the 2004/2005 cycle of the YSS, the YSS was only administered to students in grades 5 through 9. Beginning in the 2006/2007 cycle of the YSS, the survey was extended to include all secondary students in a province (i.e., grades 5 to 12 in most provinces and primary 5, 6 and secondary I to V in Quebec). Beginning in the 2008/2009 YSS, the grade 5 population was eliminated from the YSS sample and as a result only included grade 6 to grade 12 students.

The main objective of the YSS is to provide benchmark tobacco use prevalence rates at national and provincial levels for students in grades 6 through 12. In addition, YSS provides a unique opportunity to advance our knowledge of the psychosocial correlates of tobacco use behaviour, including initiation and cessation. The 2010/2011 YSS questionnaire included questions about physical activity and eating behaviours allowing for opportunities to investigate the relationships between other behaviours and tobacco use. The YSS also captures issues influencing tobacco use (e.g., knowledge, social influences, education-related behaviours and attitudes). Consequently, the survey can assist policy, practice and research sectors understand individual responses to current and future policy and program initiatives (e.g., exposure to second-hand smoke, use of alternative forms of tobacco). This information is critical to assessing the need for increased legislative controls on tobacco and bolstering public support for these policy options. Without this type of monitoring, the effectiveness of our prevention efforts cannot be gauged.

All participating schools received a school-specific profile of their survey results within 8 to 10 weeks of their data collection date.[2] Schools also received summaries targeted to the general school population and the parent community to facilitate the distribution and sharing of results with others.[3] These school profiles and summaries provide valuable information for schools to address tobacco use and other health behaviour issues at their school. Throughout the profiles and summaries, 2010/2011 YSS school-specific results were compared to provincial and national 2008/2009 YSS data.

2.1 Collaborative Provincial Projects

The 2010/2011 YSS was implemented alongside five collaborative projects across the country. The collaborative projects included the Health Behaviour Survey in Nova

[2] The majority of Quebec secondary schools and schools with participating samples too small to receive school-level data, received regional or provincial level profiles in lieu of the school-specific profiles.

[3] Schools in Quebec and Prince Edward Island did not receive Parent Summaries as part of the collaborative projects being implemented alongside the YSS in these provinces.

Scotia, School Health Action, Planning and Evaluation System – Prince Edward Island (SHAPES-PEI) in Prince Edward Island, EN FORME in Quebec, Alberta Supplement Project in Alberta and the Healthy School Planner Assessment in all participating provinces. The YSS Public Use Microdata file does not include data from the collaborative projects. Please see Appendix A for further details regarding these collaborative projects.

3.0 Concepts and Definitions

The terms and definitions used in this guide and the 2010/2011 YSS Public Use Microdata File are detailed in this section.

3.1 Definitions Used in this Guide

Total Sampled Schools: Total number of schools sampled for the project, including schools sampled at project outset and schools added to the sample throughout the course of the project.

Eligible Sampled Schools: Schools in the sample that met the eligibility criteria of having at least 20 students in any of the eligible grades (grades 6-12). Federally funded schools, closed schools, schools for special needs children, native and charter schools were not eligible.

Targeted # of Schools: The total number of schools targeted to participate in the project in each of the participating provinces and in Canada. Please note that the targeted number of schools for Prince Edward Island and Quebec reflect the collaboration with SHAPES-PEI and EN FORME projects, respectively.

Approached: Eligible sampled schools and their respective boards that were available to be contacted or to participate in the survey. Approached schools do not include sampled schools excluded from the sample due to sampling adjustments or schools that were part of refusing boards.

Agreed: Boards or schools that agreed to participate in the survey.

Refused: Includes boards or schools that refused to participate, did not give a response, were unable to be reach, backed out, withdrew their participation, or did not respond to recruitment efforts to participate in the survey.

Recruitment Rate (%): The number of boards or schools that agreed to participate in the survey as a percentage of the total number of boards or schools, respectively, approached to participate in the project.

# of Schools Participating: Eligible schools that were sampled for the project and completed a school data collection.

# of Schools Not Participating: Eligible schools that were sampled for the project and did not complete a school data collection, including sampled schools not approached for the survey.

Eligible Students: Students who were enrolled in a grade 6 to 12 classroom in participating schools.

Response Rate (%): The number of grade 6-12 students who participated in the survey as a percentage of the total number of eligible students in participating grades.

3.2 Definitions Used in the 2010/2011 YSS Public Use Microdata File

Currently smokes: Has smoked at least 100 cigarettes in his/her lifetime, and has smoked in the 30 days preceding the survey. This is a derived variable and is defined based on responses to smoking questions contained in the student questionnaires. See section 7.3 for further details regarding 2010/2011 YSS derived variables.

> Currently smokes daily: Has smoked at least 100 cigarettes in his/her lifetime, and has smoked at least one cigarette per day for each of the 30 days preceding the survey.
>
> Currently smokes occasionally: Has smoked at least 100 cigarettes in his/her lifetime, and has smoked at least one cigarette during the 30 days preceding the survey, but has not smoked every day.

Formerly smoked: Has smoked 100 or more cigarettes in his/her lifetime but has not smoked at all during the 30 days preceding the survey.

> Formerly smoked daily: Has smoked 100 or more cigarettes in his/her lifetime but has not smoked at all during the 30 days preceding the survey, and has at some time smoked every day for seven days in a row.
>
> Formerly smoked occasionally: Has smoked 100 or more cigarettes in his/her lifetime but has not smoked at all during the 30 days preceding the survey, and has never smoked every day for seven days in a row.

Never smoked**:** Has smoked fewer than 100 cigarettes in his/her lifetime.

> Experimentally smokes (beginning): Has smoked between 1 and 99 cigarettes in his/her lifetime, and has smoked in the 30 days preceding the survey.
>
> Experimentally smoked in the past: Has smoked between 1 and 99 cigarettes in his/her lifetime, but has not smoked in the 30 days preceding the survey.
>
> Puffs: Has smoked less than one whole cigarette in his/her lifetime, but has tried smoking.
>
> Never tried: Has never tried smoking, not even just a puff.

4.0 Sampling

The 2010/2011 YSS was administered to grade 6 to 12 students enrolled in schools in 9 of Canada's provinces.

Sampling frames for each province began with a list of all schools in the participating provinces. The most up-to-date lists of schools were obtained from the Department of Education in each participating province and combined with information already in Propel's school database. Each provincial sampling frame consisted of a range of information about each eligible school, including the school board name (alternately called school divisions and school districts[4]), city, address, postal code, health region, and enrolment numbers by grade (if available).

The target population for the 2010/2011 YSS consisted of all young Canadian residents attending private, public, and Catholic schools enrolled in grades 6 to 12 inclusively. Those residing in New Brunswick[5], Yukon, Nunavut and Northwest Territories and those living in institutions or on First Nations reserves were not included in the target population. Young persons who were attending special schools (e.g., schools for visually-impaired and hearing-impaired) or who were attending schools located on military bases were also excluded from the target population.

4.1 Sample Design

The sampling of schools for the 2010/2011 YSS was based on a stratified single stage design. Within most provinces, stratification was based on two classifications: 1) health region smoking rate; and 2) type of school (elementary or secondary). Different sampling strategies were used in Prince Edward Island and Quebec.

Stratum 1: Health Region

For Newfoundland & Labrador, Manitoba, Nova Scotia, Saskatchewan and British Columbia (provinces without a provincial collaborative project) the list of all schools was divided into two strata based on the smoking rate for 15-19 year olds in the health region in which the school is located, as determined using the school's six-digit postal code and the current Canadian Community Health Survey (CCHS) data. Schools located in a health region with a smoking rate lower than the median smoking rate for the province were assigned to the "low" smoking rate stratum. The remaining schools were assigned to the "high" smoking rate stratum.

Based on experience with previous cycles of the YSS, a third stratum was defined for Ontario and Alberta. For Ontario and Alberta only, schools defined as being part of the urban areas of Toronto (Ontario) and Calgary/Edmonton (Alberta) were reserved for a third urban stratum to acknowledge the size of the school boards in these metropolitan areas and the recruitment challenges due to competing research projects in these areas. In

[4] For consistency, this guide will refer to school boards, school districts and school divisions by the term "school board".

[5] While New Brunswick participated in all prior cycles of YSS, the provincial government chose not to participate in 2010/2011.

Ontario, the urban stratum consisted of all schools in the Greater Toronto Area, defined as comprising the following health units: Toronto Regional Health Unit, York Regional Health Unit, Peel Regional Health Unit, Halton Regional Health Unit and Durham Regional Health Unit. In Alberta, the third stratum consisted of all schools located within 20 kilometres of Calgary and 20 kilometers of Edmonton, including schools located in Calgary, Edmonton, St. Albert and Sherwood Park.

Prince Edward Island

In the province of Prince Edward Island, each school is identified as being part of a low or high smoking rate stratum as defined above; however all 61 grade 6-12 public schools on the Island were included in the YSS sample as part of the collaboration with the SHAPES-PEI project in that province.

Quebec

In Quebec, elementary schools were randomly sampled from 17 of the 19 Quebec health regions, each defined as having two economic strata (underprivileged vs. normal/privileged). The northern Région du Nunavik and Région des Terres-Cries-de-la-Baie-James were not included in the targeted population for Quebec. The economic strata were based on the Socio-Economic Background Index (SEBI) for each school. SEBI includes family education and unemployment information. Elementary schools with an SEBI lower than 7 were assigned as privilege/normal and schools with an SEBI of 7-10 were assigned as underprivileged. In cases where the SEBI was missing, the Low Income Cut off Index (LICO) was used to define the strata. LICO includes the proportion of families with children, whose income is at or below the low income level. Therefore, each elementary school can be found in one of 34 strata. A total of 2 to 6 elementary schools were sampled within each stratum, based on the number of schools available within the strata for each of the targeted 17 health regions. A total of 88 elementary schools participated. Within each participating grade 6 class, a randomly selected third of students received the YSS Module A questionnaire. The remaining two thirds received the EN FORME elementary questionnaire. Only the EN FORME elementary questionnaire was administered to grade 5 students in the elementary schools.

In Quebec, secondary schools were randomly sampled from a list of schools within 13 of the 17 targeted health regions. Four of the 17 health regions were excluded because of the census Quebec Health Survey of High School Students being implemented in these regions by the Ministère de la santé et des services sociaux. The excluded regions were Région de l'Estrie, Région de la Côte-Nord, Région du Nord-du-Québec and Région de la Gaspésie-Îles-de-la-Madeleine.

A total of 2 to 8 secondary schools were randomly sampled from a list of eligible schools within each of the targeted health regions, based on the number of schools available within the region[6]. A total of 44 secondary schools participated in the EN FORME/YSS collaborative survey. Within each secondary I-V class, half of the students were

[6] Schools participating in a census as part of this project, were not eligible to participate in the EN FORME/YSS project.

randomly assigned a YSS Module B questionnaire and half an EN FORME secondary questionnaire. One class per grade was surveyed in participating secondary schools.

Table 1: Number of Participating and Non-Participating Schools by Health Region Strata and Province, 2010/2011 YSS

Province	Target # Schools[+]	Stratum[++]	# of Schools Participating[+++]	# of Schools Not Participating[+++]
NL	24	Low	19	0
		High	10	9
PE[+]	61	Low	32	4
		High	22	3
NS	24	Low	10	8
		High	17	4
QC[+]	138	Underprivileged (Elementary)	50	46
		Privileged/Normal (Elementary)	41	90
		Secondary	44	162
ON	54	Low	17	47
		High	25	42
		Urban	14	40
MB	28	Low	15	17
		High	15	18
SK	28	Low	15	20
		High	17	17
AB	32	Low	15	20
		High	14	24
		Urban	6	29
BC	32	Low	20	48
		High	8	62
Canada	**421**		**426**	**710**

[+]The target number of schools reflects the collaboration with SHAPES-PEI and EN FORME projects. [++] "Low", "high" and "urban" represent the health region smoking strata in each province. In Quebec, "underprivileged" and "privileged/normal" represent the economic strata for elementary schools and "secondary" represents the secondary schools in Quebec. [+++] Table definitions can be found in Section 3.2.

Stratum 2: School Type

For all provinces, schools were defined as members of either an elementary or secondary school stratum. If the total enrolment of elementary grades (grades 6-8 or grade 6 in Quebec) was greater than or equal to the total enrolment of the secondary grades (grades

9-12 or Secondary I to V in Quebec) for a school, the school was assigned to the elementary school stratum. Otherwise, the school was assigned to the secondary school stratum. The list of private and independent schools within each province were obtained and included with the list of all public schools in the provinces. This round of YSS did not differentiate the private schools from the public schools and private schools were selected as part of overall sample.

Table 2 describes the various combinations of grade levels within each school that needed to be considered in our sampling in order to have representative proportions from each grade.

Table 2: Eligible Combinations of YSS Eligible Grades in Schools, 2010/2011 YSS

Possible Sets of Grades Represented in Schools						
6						
6	7					
6	7	8				
6	7	8	9			
6	7	8	9	10		
6	7	8	9	10	11	
6	7	8	9	10	11	12
7	8					
7	8	9				
7	8	9	10			
7	8	9	10	11		
7	8	9	10	11	12	
8	9					
8	9	10				
8	9	10	11			
8	9	10	11	12		
9	10					
9	10	11				
9	10	11	12			
10	11	12				

Table 3 reflects the distribution of schools by school type stratum and province.

Table 3: Number of Participating and Non-Participating Schools by School Strata and Province, 2010/2011 YSS

Province	School Stratum	Target # Schools	# of Schools Participating	# of Schools Not Participating
NL	Elementary	16	17	7
	Secondary	8	12	2
PE[+]	Elementary	49	42	6
	Secondary	12	12	1
NS	Elementary	16	17	7
	Secondary	8	10	5
QC[+]	Elementary	88	91	136
	Secondary	50	44	162
ON	Elementary	36	35	82
	Secondary	18	21	47
MB	Elementary	18	17	20
	Secondary	10	13	15
SK	Elementary	18	18	23
	Secondary	10	14	14
AB	Elementary	20	22	43
	Secondary	12	13	30
BC	Elementary	20	18	38
	Secondary	12	10	72
Canada		**421**	**426**	**710**

[+] The number of schools reflects the collaboration with SHAPES-PEI and EN FORME projects.

4.2 Sample Selection

Thus, within each provincial sampling frame (excluding Prince Edward Island and Quebec), two (or three) health region strata ("low" and "high", and "urban" for Ontario and Alberta) and two school-level strata ("elementary" and "secondary") are defined. Crossing these stratifications yields six strata in Ontario and Alberta and four in each of the other provinces. Within each stratum, in each province, schools were selected based on simple random sampling. With the exception of Prince Edward Island and Quebec, there are 2 elementary schools sampled for every 1 secondary school sampled to ensure appropriate distribution of schools across all grades, given that elementary schools have lower enrolments than secondary schools. In Prince Edward Island, all 61 public schools were included in the sample which includes 48 elementary and 13 secondary schools, as part of the YSS collaboration with the SHAPES-PEI project. In Quebec, 50 secondary and 88 elementary schools were the target sample as part of the YSS collaboration with EN FORME.

Selection of Students

With the exception of Quebec secondary grades, within each sampled participating school, all students in the eligible grades (grades 6-12 or Grade 6 in Quebec) were eligible for participation. In Quebec, a total of 44 secondary schools participated in the EN FORME/YSS collaborative survey. Within each secondary I-V class, half of the students were randomly assigned a YSS Module B questionnaire and half an EN FORME secondary questionnaire. One class per grade was surveyed in participating secondary schools with the following exceptions:

- In two schools, all eligible classes participated in both the EN FORME/YSS survey;
- In three schools, two eligible classes per grade participated in the EN FORME/YSS survey; and,
- In one school all eligible classes participated in only the YSS survey.

Selection of Schools

In total 1178 schools from 252 school boards made up the 2010/2011 YSS sample of schools. Schools were added throughout the course of the project to ensure provincial representativeness in each province and to account for province specific needs. Approximately 1136 of the sampled schools were eligible for participation in the survey.

Table 4 describes the sampling outcome by province for the 2010/2011 YSS and includes the target number of schools and the final number of sampled and eligible sampled schools. Some sampled schools were eliminated from the sample at the project outset as they did not meet the school eligibility criteria.

Table 4: Sampling Outcomes by Province, 2010/2011 YSS

Province	# Target Schools	Total Sampled Schools	Eligible Sampled Schools
NL	24	38	38
PE[+]	61	62	61
NS	24	40	39
QC[+]	138	453	433
ON	54	189	185
MB	28	66	65
SK	28	74	69
AB	32	112	108
BC	32	144	138
Canada	**421**	**1178**	**1136**

[+]The target number and sampled list of schools reflects the YSS collaboration with SHAPES-PEI and EN FORME.

5.0 Questionnaire Development

Data collections were implemented in participating schools between October 2010 and June 2011, with school board recruitment beginning as early as February 2010 and school recruitment beginning as early as April 2010. Students from recruited schools were surveyed in their classrooms on a scheduled data collection date.

5.1 Questionnaire Design and Distribution

Several key considerations guided the design of the 2010/2011 YSS student questionnaire:

- **Comparability** - the basis of the questionnaire was the 2002, 2004/2005, 2006/2007 and, 2008/2009 YSS questionnaires with most items unchanged to allow for comparisons across cycles;
- **Responsiveness** - to meet the needs of users of the data, provincial collaborators and those responsible for federal and provincial tobacco strategies were given an opportunity to contribute topics/items for consideration at content meetings;
- **Relevancy** - to ensure value-added for participating schools, items and content areas (e.g., physical activity and eating behaviours) were added in order to enhance the relevancy of reported results in the school-level profiles and summaries to schools; and
- **Feasibility** - to meet the criterion of students being able to complete the questionnaire in one class period, questionnaire length was restricted.

The questionnaire was finalized in a series of meetings with an expert panel Content Committee, comprised of specialists across Canada in the field of tobacco control, to identify current research and literature, and emerging trends and needs in tobacco. The committee included representatives from Health Canada and specialists across four provinces (Newfoundland and Labrador, Quebec, Ontario and Alberta) with tobacco control expertise and/or linkages with tobacco research, education, health (including physical activity), policy and/or practice. Appendix B includes information about questions that have been asked across all the YSS cycles and questions unique to certain YSS cycles.

In the 2010/2011 YSS, student data was collected using two instruments:

- **Module A questionnaire** was administered to students in grade 6. This instrument contained 58 questions (190 items) that were deemed relevant to students in this grade level. Module A did not include drug and alcohol questions. The questionnaire included:
  - 32 questions (89 items) that assess youth tobacco use and behaviours directly,
  - 7 questions (7 items) that assess measures predictive of or related to youth tobacco use,
  - 7 questions (24 items) about physical activity and eating behaviours,
  - 7 questions (20 items) on participant demographics, and

- 5 questions (10 items) regarding students and their school.

- **Module B questionnaire** was administered to students in grades 7 through 12. This instrument contained 67 questions (190 items) including all questions from Module A detailed above, and additional drug and alcohol questions.
  - 33 questions (89 items) that assess youth tobacco use and behaviours directly,
  - 7 questions (7 items) that assess measures predictive of or related to youth tobacco use,
  - 7 questions (24 items) about physical activity and eating behaviours,
  - 7 questions (20 items) on participant demographics,
  - 5 questions (10 items) regarding students and their school, and
  - 8 questions (40 items) on alcohol, marijuana and drug use.

Questionnaire distribution was different in provinces with collaborative projects. The following details the distribution of questionnaires in the provinces with collaborative projects. Further details regarding the collaborative projects can be found in Appendix A.

In Prince Edward Island, YSS collaborated with the SHAPES-PEI project. Each grade 6-12 student participating from Prince Edward Island randomly received either a YSS questionnaire (Module A to grade 6 students and Module B to grade 7-12 students), a SHAPES-PEI healthy eating questionnaire or a SHAPES-PEI physical activity questionnaire. Both modules of the SHAPES-PEI questionnaires also collected data on core smoking behaviours. In each participating classroom, one-third of the grade 6-12 student population received a YSS questionnaire and two-thirds received one of the two SHAPES-PEI questionnaires. Grade 5 students only received one of the two SHAPES-PEI questionnaires.

In Quebec, YSS collaborated with the EN FORME project. Each primary 6 to secondary V Quebec student randomly received either a YSS questionnaire (Module A to primary 6 students or Module B to secondary I to V students), an EN FORME elementary questionnaire or an EN FORME secondary questionnaires. In each participating elementary school classroom, one-third of the student population received a YSS Module A questionnaire and two-thirds received the EN FORME elementary questionnaire. In each participating secondary school class, half of the student population received the YSS Module B questionnaire and the other half received the EN FORME secondary questionnaire. Grade 5 students only received an EN FORME elementary questionnaire.

In Nova Scotia, students from 8 of the 10 participating secondary schools completed a one-page Health Behaviour Survey following the completion of the YSS Module B questionnaire. In Alberta, students from 6 participating secondary schools completed a one-page Alberta Supplement questionnaire following the completion of the YSS Module B questionnaire. Details of questionnaire module distribution within eligible participating classes are outlined in Table 5.

Table 5: Questionnaire Module Distribution within Classes, 2010/2011 YSS

Provinces	Grades	Questionnaire Module Distribution within Classes
PE	Grade 6	⅓ Module A, ⅓ HE Module, ⅓ PA Module
	Grades 7 to 12	⅓ Module B, ⅓ HE Module, ⅓ PA Module
QC	Grade 6	⅓ Module A, ⅔ EN FORME Elementary Module
	Secondary I to V	½ Module B, ½ EN FORME Secondary Module
all other provinces	Grade 6	Module A
	Grades 7 to 12	Module B+

[+] In Nova Scotia, students from 8 of the 10 participating secondary schools completed a one-page Health Behaviour Survey following the completion of the YSS Module B questionnaire as part of the Health Behaviour Survey collaborative project. In Alberta, students from 6 participating secondary schools completed a one-page Alberta Supplement questionnaire following the completion of the YSS Module B questionnaire as part of the Alberta Supplement Collaborative project.

5.2 Pilot Testing

In April 2010, two rounds of questionnaire pilot testing (English and French) were conducted by Propel staff prior to implementing the 2010/2011 YSS. The English-language pilot testing was conducted in Sudbury, Ontario and the French-language pilot testing occurred in Montréal, Quebec.[7] The pilot test was divided into two components: completing the questionnaire (allotted 35-minutes) and attending a discussion session (allotted 75-minutes). Grade 6 participants completed the Module A questionnaire and grades 7-12 completed the Module B questionnaire.

The primary objectives of the pilot testing sessions were to:

- assess the logic and student understanding of the questions - particularly new and revised questions,
- test responses to the logic and flow of the questionnaire, and
- determine the length of time students took to complete the questionnaire.

Pilot Testing Participant Recruitment

The participants for pilot tests were recruited via Opinion Search, a market research firm that used panel/database procedures. Opinion Search was used for the 2008/2009 YSS Pilot recruitment and was retained for the 2010/2011 YSS Pilot based on their thorough understanding of the project requirements, including the challenges of recruiting youth with smoking experience. Parents who previously expressed interest in participating in market research were approached via online (panel) or phone (database) procedures. To supplement the panel and database recruitment, Opinion Search also obtained referrals from teachers in the focus group areas and conducted general population calling. A Facebook page was also developed to recruit additional participants. Recruiters used a standard script.

[7] University of Waterloo. 2010 (May). Youth Smoking Survey (YSS): 2010/2011 YSS English and French Pilot Tests Report. Waterloo: Propel Centre for Population Health Impact, 1-47.

The sample for the English Pilot test was drawn from the city of Sudbury, Ontario, including the Greater Sudbury Region within a 20 kilometre radius. Participants were clustered into five separate focus groups: one focus group for grade 6, two focus groups for grades 7-8, and two focus groups for grades 9-12. Attempts were made to recruit twelve participants per group, anticipating that eight to ten participants would attend each group, on the day of pilot testing. A trained Propel staff person facilitated the pilot testing session in Sudbury.

The sample for the French Pilot test was drawn from the city of Montreal, Quebec. Participants were clustered into three separate focus groups: one for primary 6 (grade 6), one for secondary I and II (grades 7-8), and one for secondary III-V (grades 9-11). Attempts were made to recruit thirteen participants per group, anticipating that eight to ten participants would attend each group, on the day of pilot testing. The same facilitator from the 2008/2009 YSS pilot test facilitated the Montreal pilot testing session.

Once recruiters obtained verbal agreement to participate from the parent and participant and the student smoking status was determined, the participant was scheduled into a pilot test session. A parent information package, including a participant information letter and permission form, was emailed in advance of the focus group session. Written parental permission was required for all participants under the age of 18.

To identify smokers, potential participants were asked three or four behavioural questions consistent with how smokers are defined in YSS smoking status reporting. Participants in grades 6 to 8/primary 6 to secondary II were defined as smokers if they had “ever tried”, smoked, or shared cigarettes in the last 30 days. Participants in grades 9 to 12/secondary III to V were defined as smokers if they had “ever tried”, smoked a whole cigarette, smoked cigarettes in the past 30 days, or had smoked 100 or more cigarettes in their lifetime.

Overall, the pilot test was effective in meeting its objectives. As a result of the pilot testing sessions, changes were made to 21 questions and one question was added to both the Module A and Module B questionnaires. In addition, changes were made to the format of the front cover of the questionnaire and classroom instructions provided to teachers. The findings from the pilot testing were especially useful in the question ordering and layout of the questionnaire.

6.0 Recruitment and Data Collection

6.1 Ethics Review

Prior to implementation, the University of Waterloo Human Research Ethics Committee and the Health Canada Research Ethics Board reviewed and approved all YSS project protocols and materials. Where required, provincial institutional ethics review boards, affiliated with the institutions of consortium members, and school board ethics review committees also reviewed and approved the project protocols and materials. All protocols and materials received ethics approval by the appropriate institutions (e.g., in some cases, from four levels: Health Canada, University of Waterloo, provincial host institution, and school board). Throughout the course of the project, all subsequent modifications to protocols and documents were submitted to the appropriate ethics review committee(s) for approval.

6.2 Recruitment of Boards and Schools

The recruitment process began with sending project information letters to all provincial Ministries of Education and Health across the country, to inform them of the planned 2010/2011 YSS for the 2010-11 school year. In response to these letters, letters of support were received from several Ministers and Deputy Ministers of Education and Health, providing information on the importance of the YSS and describing how the survey "fits" within their mandate. When available, these support letters were included in project recruitment packages sent to schools and boards across the country.

Each provincial consortium member hired a site coordinator (and data collectors, as needed) to be responsible for school board and school recruitment and data collection preparation and implementation. Training for provincial staff was provided by Propel project staff and included a two-day training session at the University of Waterloo, web-based training sessions, a comprehensive manual and ready-access to a Propel contact person for advice regarding day-to-day issues throughout the course of implementation. Materials, protocols and an online, real-time database were centrally developed by Propel staff for use by all provincial staff to ensure consistency across provinces. The online database permitted the central coordinating staff at Propel to monitor progress, recruitment and participation rates and alignment with protocols.

Provincial site coordinators took responsibility for recruiting all boards and schools within their province. Schools with no governing school board were approached directly regarding the project. School boards were typically contacted via a formal application (if required) or a board recruitment package and follow-up phone calls. Once a school board was successfully recruited, the schools within that school board were approached via a YSS school recruitment package and follow-up phone calls. Boards and schools also had access to all project materials via the YSS website (www.yss.uwaterloo.ca).

6.3 Recruitment of Students

A mix of active permission protocols and active information-passive permission (also referred to as passive permission) protocols were used for the YSS project. Schools were encouraged to use the permission method most typically used to obtain parental permission in their school. Approximately 76% of students participated in the YSS with passive parental permission and 24% of students participated with active parental permission.

Active Permission

For schools participating with active permission protocols, an information letter and permission form were sent home with students enrolled in grade 6 to 12 eligible classes. Parent information letters provided details about the project, contact information for project staff and referral to the project website for further details and copies of the questionnaires. Parents could also view copies of the questionnaires at the school. Parents were given a minimum of two weeks to return permission forms. To improve permission form return rates, some schools chose to resend permission materials, conduct phone follow-ups to parents and/or provide verbal or written reminders to students. Secondary schools requiring active permission protocols also had the option to offer student incentives to boost permission form return rates. A total of 5 secondary schools (3 Ontario schools and 2 Nova Scotia schools) used a student incentive, where students who returned a permission form were entered into a draw for an iPod Shuffle (512mb). Only those students with "yes" indicated on a parent signed permission form were able to participate in the survey. Students also had the opportunity to decline participation on the day of data collection.

Active Information - Passive Permission

For schools participating with active information-passive permission protocols, school staff mailed information-permission letters to the student's home address. Parent information letters provided details about the project, contact information for project staff and requested parents to call a toll-free number if they did not want their child to participate in the survey. Parents could also go to the project website for further details about the project and copies of the questionnaires. Parents could also view copies of the questionnaires at the school. If no call or letter was received, it was assumed that parents passively provided permission for their child to participate in the survey. Students whose parents called or wrote to refuse their child's participation in the survey did not participate. Students also had the opportunity to decline participation on the day of data collection.

6.4 Arranging Data Collection

Provincial site coordinators worked with a school contact to arrange data collection dates with each recruited school. School contacts were asked to provide a list of classes for the eligible grades that included: teacher name, course name and/or the classroom number, grade, room number (*optional)*, and the number of students enrolled. Project staff used this information to prepare permission materials and entered it along with other school

particulars (e.g., address, data collection date, etc.) into an online database. Upon receipt of permission forms or calls from parents, student information was entered into this database to ensure only students with permission received a student questionnaire. Questionnaires were bundled by classroom and couriered to the school contact for distribution to classroom teachers prior to the data collection date.

6.5 School Data Collection

On the day of the school data collection, teachers administered the survey during a designated class period according to detailed instructions provided to them. Students took approximately 35 minutes to complete the questionnaire, based on teacher reporting on the day of the data collection. To protect confidentiality, teachers were asked not to circulate among the students, and students were required to place their completed questionnaire in a sealable envelope before it was collected by a fellow student. Individual envelopes containing the completed student questionnaire were placed in a large classroom envelope and delivered to the YSS project staff person attending the data collection.

The YSS staff person attending the data collection typically set up a station in front of the school office or in another central location. The staff person was available to answer questions and receive classroom bundles of questionnaires at the end of the data collection period. Within a few days of data collection, the site coordinators shipped the completed questionnaires, organized by school and classroom, to the YSS-Propel team at the University of Waterloo for processing.

6.6 Sample Size

The following tables 6 and 7 provide board and school recruitment outcomes by province. Table 8 provides the total number of students who participated in the survey.

Table 6: Board Recruitment Outcomes by Province, 2010/2011 YSS

Province	Board Recruitment Outcome			
	Approached	Agreed	Refused[+]	Recruitment Rate (%)
NL	4	4	0	100
PE	3	3	0	100
NS	7	7	0	100
QC	65	59	6	91
ON	43	33	10	77
MB	21	17	4	81
SK	17	16	1	94
AB	39	28	11	72
BC	42	31	11	74
Canada	**241**	**198**	**43**	**82**

[+] Refused boards include all boards that refused and all boards that did not respond to recruitment efforts.

Table 7: School Recruitment Outcomes by Province, 2010/2011 YSS

Province	School Recruitment Outcome				
	Approached	Not Approached	Agreed	Refused[++]	Recruitment Rate (%)
NL	29	9	29	0	100
PE[+]	61	0	54	7	89
NS	35	4	27	8	77
QC[+]	276	157	135	141	49
ON	132	53	56	76	42
MB	31	34	30	1	97
SK	59	10	32	27	54
AB	70	38	35	35	50
BC	72	66	28	44	39
Canada	**765**	**371**	**426**	**339**	**56**

[+]Numbers reported reflect collaboration with the SHAPES-PEI and EN FORME projects in PE and QC, respectively.
[++]Refused numbers include schools that were unable to reach, backed out, withdrew their participation, did not respond to recruitment efforts and refused to participate in the survey.

Table 8: Participating Students by Province and Grade, 2010/2011 YSS

Province	Number of Students Participating, by Grade							
	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12	Total
NL	751	708	637	718	735	775	686	5010
PE	280	345	363	424	521	450	447	2830
NS	532	763	795	778	1194	1181	997	6240
QC	1300	714	750	569	456	477	0	4266
ON	764	1328	1313	1872	1671	1533	1336	9817
MB	532	865	849	1599	1523	1180	923	7471
SK	527	598	551	430	368	431	379	3284
AB	833	602	577	342	847	729	570	4500
BC	578	790	908	1464	1391	1303	1097	7531
Canada	6097	6713	6743	8196	8706	8059	6435	50949

7.0 Data Processing

The YSS produces a Public Use Microdata File. This chapter presents a brief summary of the processing steps involved in producing this file.

7.1 Data Capture

Student questionnaires were machine scanned using Optical Mark Read (OMR) technology. Procedures detailed several quality control measures to ensure the accuracy of the scanned data. First, processing staff visually scanned all questionnaires and darkened marks that were too light or incomplete (e.g., check marks instead of filled-in circles) to ensure that they would be recognized by the scanner. At this time, processing staff separated the perforated questionnaire booklets and oriented them in preparation for the OMR scan. Processing staff then inserted "standard questionnaires" to ensure that the calibration of the scanner remained constant.

The visual scanning aspect of questionnaire processing ensures that the data on the questionnaires are correctly recorded by the OMR scanner. In the course of visually scanning a questionnaire, processing staff could "correct" a questionnaire in a variety of ways, including: darkening marks that needed to be read by the OMR scanner; erasing marks from answers where the respondents changed their mind but did not sufficiently erase the original response; erasing accidental/wayward marks that were not meant to indicate answers (e.g. graffiti or doodles); erasing marks made in any places reserved for "office use only"; and correcting answers on two-part questions where two different responses were given for the same question (i.e., height and weight questions). For the height and weight questions, if the answer that was hand-written was different than that entered in the corresponding OMR bubbles, the written answer was taken to be correct and the OMR bubbles were corrected accordingly. As with all questions, if processing staff were unsure as to how to proceed with an answer, s/he would go to the questionnaire processing manager who would instruct the processing staff as to what to do, or would seek the advice of a data analyst to decide the appropriate action.

Once the questionnaires were OMR scanned, the data outputs were checked for uncodeable responses. Each uncodeable response was checked by trained staff to verify that a response was actually uncodeable (i.e., where the respondent chose two answers) or if OMR scanning errors needed to be corrected (e.g., where the respondent erased one mark and chose another answer, but the OMR scanning recorded both responses). For the 2010/2011 YSS, and previous implementations, about 10% to 15% of all questionnaires had one or more uncodeable responses. Of the uncodeable responses, approximately 20% were altered to the value determined to be what the respondent intended. Approximately 3% of the total questionnaires were altered in this stage.

7.2 Editing and Imputation

The following standard codes are used in the YSS Public Use Microdata file:

Valid skip - 96 and 996
Not stated - 99 and 999
Not asked - 9996

Prior to data cleaning, the 2010/2011 YSS student dataset contained 50,984 records. The final number of records is 50,949. All records for which gender was not given and could not be imputed (see below) were removed. In addition, Quebec secondary I, II, III, IV, and V were converted to grades 7, 8, 9, 10, and 11, respectively.

Note to SPSS users: in the SPSS Public Use Microdata File, many variables have the values 96, 99 and 9996 defined as "Missing" and are therefore based on SPSS commands. These cases are automatically excluded from the analysis when producing estimates for these variables. These cases can be changed by the user in the "Missing" column in the SPSS "Variable View" of the dataset.

Treatment of the 'I do not know' Option

There are several variables in the dataset that require attention with regards to the "I do not know" option. These variables include the following:

- SPUFF0B1 ("How old were you when you first tried smoking cigarettes, even just a few puffs?")
- SWHOLEB1 ("How old were you when you smoked your first whole cigarette?")
- ADRINKA1 ("In the last 12 months, how often did you have a drink of alcohol that was more than just a sip?")
- AEVRETB1 ("How old were you when you first had a drink of alcohol that was more than a sip?")
- A5DRNKC1 ("In the last 12 months, how often did you have 5 drinks of alcohol or more on one occasion?")
- A5DRNKB1 ("How old were you when you first had 5 drinks or more of alcohol on one occasion?")
- ANRGDKA1 ("In the last 12 months, have you had alcohol mixed or pre-mixed with an energy drink such as Red Bull, Rock Star, Monster, or another brand?")
- AOFTMJA1 ("In the last 12 months, how often did you use marijuana or cannabis? (a joint, pot, weed, hash…)")
- AEVRMJB1 ("How old were you when you first used marijuana or cannabis?")

In the Public Use Microdata File, the "I do not know" option is not considered to be a valid response for the above variables. **Note to SPSS Users:** In the SPSS version of this file, this response is defined as "Missing" (along with values 96, 99 and 9996) and will not be included in estimates produced using these variables. These cases can be changed by the user in the "Missing" column in the SPSS Variable View of the dataset.

Treatment of the DACS Response Option (Question 66d)

We introduced this question whether students are responding to the drug questions truthfully. This has been inserted as a dummy question with the other drug questions with the same response options. We advise the user NOT to use this question in the same way as the other drug questions, but only to use it for validation purposes of the other drug questions.

The following items required specific editing and/or imputation:

Grade

During the cleaning process, data analysts investigated cases where grade was missing, uncodeable, improper for the province or inconsistent with the grades represented in their school. If a student indicated a grade that did not match the relevant grades in the school, province or if grade was missing or uncodeable, the variable was recoded to the grade on the classroom envelope form completed by classroom teachers. If that was not available, the median grade of the class to which the student belonged was used. If these options were not available, then student age was used to impute grade.

Gender

If the student gender was missing or uncodeable, then the variable GCHFAMA1, "In your family you are… (Check only one)" would be used to impute gender. In Nova Scotia secondary schools, if gender remained missing and the student had completed the Health Behaviour Survey (HBS), a set of gender-specific questions on the HBS was used to impute gender. For the 2010/2011 YSS, there were a maximum of 35 cases of missing data for gender that resulted in the removal of the student record.

Age-related Variables

If age-related variables, as in SPUFF0B1 ("How old were you when you first tried smoking cigarettes, even just a few puffs?"), were reported to be greater than the actual age variable then they were given a value of "99 = Not Stated". If the actual age variable was "99 = Not Stated" then the age-related questions were compared to an imputed version of age based on median age per class and the grade. If this was found to be less than the age-related variable then the age-related variable was given a value of "99 = Not Stated".

Question 21

This question asks how many whole cigarettes were smoked on each of the last 7 days. The range that was allowed for each day was 0 - 36. All responses between 37 and 90 have been set to "99 = Not Stated". Valid skips were set to "96 = Valid Skip" as for other variables.

Module

In the rare cases where a grade 6 student completed a Module B questionnaire, the student was given a value of "9996 = Not Asked" for the questions that were only available on the Module B questionnaire (see Section 5.1). All grade 7 to 12 students who filled out a Module A questionnaire were given a value of "99 = Not Stated" for the questions that were only available on the Module B questionnaire.

Inconsistencies

In order to be consistent with the 2002 YSS dataset released by Statistics Canada, the responses as recorded by the students are provided. However, note that in certain cases responses to one question may contradict a response to a previous question. In conducting analyses of these variables, it is recommended that the observations with inconsistent responses be taken into consideration. For example, a student may have responded in one question "having smoked in the last seven days" and in another question, the same student may have responded "I have not smoked in the last 30 days."

7.3 Creation of Derived Variables

A number of variables in the Public Use Microdata File were derived by combining items on the questionnaire in order to facilitate data analyses. Examples of derived variables include the average number of whole cigarettes smoked daily and the number of whole cigarettes the respondent had smoked.

Derived Variable	DVTY1ST		
Response Options for DVTY1ST	1 = Currently Smokes 2 = Formerly Smoked 3 = Never Smoked		
Derivation of Responses for DVTY1ST	Currently Smokes	Definition	A person who currently smokes is someone who has smoked at least 100 cigarettes in his or her lifetime, and who has smoked at least one whole cigarette during the past 30 days.
		Calculation	SHUND0A1: *Have you ever smoked 100 or more <u>whole</u> cigarettes in your life?* Valid response 1 (Yes) AND SLST30A1: *On how many of the last 30 days did you smoke one or more cigarettes?* Valid responses 2 (1 day) 3 (2 to 3 days) 4 (4 to 5 days) 5 (6 to 10 days) 6 (11 to 20 days) 7 (21 to 29 days) 8 (30 days *(every day)*)
	Formerly Smoked	Definition	An individual who formerly smoked is a person who reports having smoked 100 or more cigarettes but did not smoke in the last 30 days.
		Calculation	SHUND0A1: *Have you ever smoked 100 or more <u>whole</u> cigarettes in your life?* Valid response 1 (Yes)
			AND SLST30A1: *On how many of the last 30 days did you smoke one or more cigarettes?* Valid response 1 (None)
	Never Smoked	Definition	Someone who has never smoked is a person who reports that he or she has not smoked 100 or more whole cigarettes in his or her life time but might have smoked a whole cigarette.
		Calculation	SHUND0A1: *Have you ever smoked 100 or more <u>whole</u> cigarettes in your life*? Valid response 2 (No) OR SWHOLEA1: *Have you ever smoked a <u>whole</u> cigarette?* Valid responses 2 (No) 96 (Valid Skip)

Derived Variable	**DVTY2ST**		
Response Options for DVTY2ST	1 = Currently Smokes Daily 2 = Currently Smokes Occasionally 3 = Formerly Smoked Daily 4 = Formerly Smoked Occasionally 5 = Experimentally Smokes (Beginning) 6 = Experimentally Smoked in the Past 7 = Puffs 8 = Never Tried		
Derivation of Responses for DVTY2ST	Currently Smokes Daily	Definition	A person who currently smokes daily is a person who reports currently smoking cigarettes every day.
		Calculation	SHUND0A1: *Have you ever smoked 100 or more <u>whole</u> cigarettes in your life?* Valid response 1 (Yes) AND SLST30A1: *On how many of the last 30 days did you smoke one or more cigarettes?* Valid response 8 (30 days *(every day)*)
	Currently Smokes Occasionally	Definition	Someone who currently smokes occasionally is a person who currently smokes cigarettes but not every day.
		Calculation	SHUND0A1: *Have you ever smoked 100 or more <u>whole</u> cigarettes in your life?* Valid response 1 (Yes) AND SLST30A1: *On how many of the last 30 days did you smoke one or more cigarettes?* Valid responses 2 (1 day) 3 (2 to 3 days) 4 (4 to 5 days) 5 (6 to 10 days) 6 (11 to 20 days) 7 (21 to 29 days)
	Formerly Smoked Daily	Definition	Someone who formerly smoked daily is a person who smoked at least 100 cigarettes in his/her lifetime and smoked at least seven days *in* a row but did not smoke in the last 30 days.
		Calculation	SHUND0A1: *Have you ever smoked 100 or more <u>whole</u> cigarettes in your life?* Valid response 1 (Yes) AND SLST30A1: *On how many of the last 30 days did you smoke one or more cigarettes?* Valid Response 1 (None) AND SLAST7A1: *Have you ever smoked <u>every day</u> for at least 7 days in row?*

Derived Variable	DVTY2ST		
			Valid Response 1 (Yes)
	Formerly Smoked Occasionally	Definition	Someone who formerly smoked occasionally is a person who smoked at least 100 cigarettes in his/her life time and did not smoke for at least seven days in a row and also did not smoke in the last 30 days.
		Calculation	SHUND0A1: *Have you ever smoked 100 or more <u>whole</u> cigarettes in your life?* Valid response 1 (Yes) AND SLST30A1: *On how many of the last 30 days did you smoke one or more cigarettes?* Valid response 1 (None) AND SLAST7A1: *Have you ever smoked <u>every day</u> for at least 7 days in row?* Valid response 2 (No)
	Experimentally Smokes (Beginning)	Definition	Someone who experimentally smokes (beginning) is a person who has smoked in the last 30 days but has not smoked 100 or more cigarettes.
		Calculation	SWHOLEA1: *Have you ever smoked a <u>whole</u> cigarette?* Valid response 1 (Yes) AND SHUND0A1: *Have you ever smoked 100 or more <u>whole</u> cigarettes in your life?* Valid response 2 (No) AND SLST30A1: *On how many of the last 30 days did you smoke one or more cigarettes?* Valid responses 2 (1 day) 3 (2 to 3 days) 4 (4 to 5 days) 5 (6 to 10 days) 6 (11 to 20 days) 7 (21 to 29 days) 8 (30 days *(every day)*)
	Experimentally Smoked in the Past	Definition	An individual who experimentally smoked in the past is a person who has smoked a whole cigarette but did not smoke in the last 30 days and also did not smoke 100 cigarettes in his/her lifetime.
		Calculation	SWHOLEA1: *Have you ever smoked a <u>whole</u> cigarette?* Valid response

Derived Variable	DVTY2ST		
			1 (Yes) AND SHUND0A1: *Have you ever smoked 100 or more <u>whole</u> cigarettes in your life?* Valid response 2 (No) AND SLST30A1: *On how many of the last 30 days did you smoke one or more cigarettes?* Valid response 1 (none)
	Puffs	Definition	An individual who puffs is a person who has tried smoking, but has never smoked a whole cigarette.
		Calculation	SPUFF0A1: *Have you <u>ever</u> tried cigarette smoking, even just a few puffs?* Valid response 1 (Yes) AND SWHOLEA1: *Have you ever smoked a <u>whole</u> cigarette?* Valid response 2 (No)
	Never Tried	Definition	A person classified as never tried, has never tried a cigarette, not even just a few puffs.
		Calculation	SPUFF0A1: *Have you <u>ever</u> tried cigarette smoking, even just a few puffs?* Valid response 2 (No)

Derived Variable	DSUSCEPT		
Response Options for DSUSCEPT	1 = No 2 = Yes 96 = Valid Skip 99 = Not Stated		
Basis for Susceptibility Scale	SSUSMTA1	*Do you think in the future you <u>might try smoking</u> cigarettes?*	1 = Definitely yes 2 = Probably yes 3 = Probably not 4 = Definitely not 96 = Valid Skip 99 = Not Stated
	SSUSFOA1	*If one of your best friends was to offer you a cigarette would you smoke it?*	1 = Definitely yes 2 = Probably yes 3 = Probably not 4 = Definitely not 99 = Not Stated
	SSUSNYA1	*At any time during the <u>next year</u> do you think you will smoke a*	1 = Definitely yes 2 = Probably yes 3 = Probably not

		cigarette?	4 = Definitely not 99 = Not Stated
Derivation of Responses for DSUSCEPT	1 (No)	Calculation	If SSUSMTA1 = 4 and SSUSFOA1 = 4 and SSUSNYA1 = 4
	2 (Yes)	Calculation	If SSUSMTA1 = 1,2,3 or 99 or SSUSFOA1 = 1,2, 3 or 99 or SSUSNYA1 = 1,2, 3 or 99
	96 (Valid Skip)	Calculation	If SPUFF0A1 = 1
	99 (Not Stated)	Calculation	If SSUSMTA1 = 99 and SSUSFOA1 = 99 and SSUSNYA1 = 99 Only those students who had all three questions missing were given DSUSCEPT = 99.

Derived Variable	**DVSELF**	
Objective	To measure the student's overall self-esteem.	
Questions	*For the next 3 questions, choose the answer that describes how you feel about the statement.* OHOWFLA1: *In general, I like the way I am.* OHOWFLB1: *When I do something, I do it well.* OHOWFLC1: *I like the way I look.*	1 = True 2 = Mostly true 3 = Neutral 4 = Mostly false 5 = False
	Scale recoded as:	0 = False 1 = Mostly false 2 = Neutral 3 = Mostly true 4 = True
Notes	• Following the re-coding of the scale, the scores were added up across the questions that were answered by the student, giving an overall score for variable DVSELF. • Only those records who had all three questions missing were given DVSELF = 99.	

Several derived variables were formed from the response to the following question.

Question	Variable Name	Response Options
Think back over the last 7 days. Find yesterday on the wheel and fill in the number of whole cigarettes you smoked. Then follow the wheel backwards and fill in the number of whole cigarettes you smoked on each of the last 7 days.		
a) Sunday	SLAST7B3	0 = 0 whole cigarettes smoked
b) Monday	SLAST7C3	
c) Tuesday	SLAST7D3	1 : 36 whole cigarettes smoked
d) Wednesday	SLAST7E3	
e) Thursday	SLAST7F3	96 = Valid Skip
f) Friday	SLAST7G3	99 = Not Stated
g) Saturday	SLAST7H3	

Coverage: Respondents where SWHOLEA1=1 (Ever smoked a whole cigarette)

Derived Variable	DVAMTSMK
Definition	The average number of whole cigarettes smoked per day in the past week as an integer value.
Calculation of Responses for DVAMTSMK	$\frac{SLAST7B3 + SLAST7C3 + SLAST7D3 + SLAST7E3 + SLAST7F3 + SLAST7G3 + SLAST7H3}{7}$
Notes	• All responses had to have valid responses for valid data. If all responses have 99 or if any of the days are missing then DVAMTSMK = 99.

Derived Variable	DVCIGWK
Definition	Total number of whole cigarettes smoked in the 7 days prior to the survey.
Calculation of Responses for DVCIGWK	SLAST7B3 + SLAST7C3 + SLAST7D3 + SLAST7E3 + SLAST7F3 + SLAST7G3 + SLAST7H3
Notes	• Not necessary for all to have valid responses. • Zero value has been treated as a valid response. • If all days have missing data then DVCIGWK = 999.

Derived Variable	DVNDSMK
Definition	Number of days on which respondent smoked at least 1 whole cigarette in the week prior to the survey.
Calculation of Responses for DVNDSMK	A count of SLAST7B3, SLAST7C3, SLAST7D3, SLAST7E3, SLAST7F3, SLAST7G3, and SLAST7H3 excluding days with a missing or zero response.
Notes	• Zero has been treated as a zero response. • If all days have missing data then DVNDSMK = 99.

Derived Variable	DVAVCIGD
Definition	Average number of whole cigarettes smoked on the days that the respondent smoked.
Calculation of Responses for DVAVCIGD	$\frac{DVCIGWK}{DVNDSMK}$
Notes	• If DVCIGWK and DVNDSMK were both zero responses then DVAVCIGD = 0. • If either DVCIGWK or DVNDSMK were missing then DVAVCIGD = 99.

Derived Variable	DVSMKPTN
Definition	Smoking pattern in the last 7 days.

Calculation of Responses for DVSMKPTN	Calculated based on these variables: SLAST7B3, SLAST7C3, SLAST7D3, SLAST7E3, SLAST7F3, SLAST7G3, SLAST7H3 1 = Smoked every day 2 = Smoked week days only 3 = Smoked weekend days only 4 = Did not smoke in the last 7 days 5 = Other pattern 99 = Not stated

Derived Variable	**BMI**
Objective	To measure the respondent's Body Mass Index (BMI).
Questions	How tall are you without your shoes on?* AND How much do you weigh without your shoes on?* *Please note: the height and weight questions were removed from the public use dataset for confidentiality reasons
Calculation of Responses for BMI	The body mass index (BMI) is a student's weight in kilograms (kg) divided by their height in meters (m) squared
Notes	• Heights less than 4 feet (121.92cm), heights more than 6 foot 11 inches (210.82cm), weights less than 45 pounds (20.41kg) and weights more than 390 pounds (176.90kg) were excluded prior to the calculation of BMI. • BMI measurements less than 10 and more than 50 were excluded.

Derived Variable	**BMI_ACAT**
Objective	To categorize the respondent's Body Mass Index (BMI)
Response Options for BMI_ACAT	1 = Underweight 2 = Healthy weight 3 = Overweight 4 = Obese
Derivation of Responses for BMI_ACAT	This variable was calculated using a table of cut-offs for each of these four categories by age and sex. This table was based on the World Health Organization (WHO) guidelines. Respondents most have a valid response for BMI, SEX and AGE to be able to calculate this variable. If any of these variables were missing than BMI_ACAT = 99.

7.4 Skip Patterns

The questionnaire was intentionally designed with no respondent-use skip patterns to avoid the identification of smokers by rate of questionnaire completion time in the classroom. Thus all smoking behaviour items included a response option such as, "*I do*

not smoke". However, due to the logical flow of the questions, a number of questions are extraneous based on the answer to a previous question. In these cases, a skip pattern has been imposed onto the data set. If, within the structure of the questionnaire, a question could have been skipped, it was coded as "96 = Valid Skip", "996 = Valid Skip" or "9996 = Not Asked". The following explains each question that has a 96 or a 996 code and the logical reasoning for coding the question. The code 9996 has only been used to identify those individuals who have not completed the additional questions in Module B. Note that the questionnaire distribution corresponds to grade whereby, grade 6 students received a Module A questionnaire and grades 7 to 12 students received a Module B questionnaire. See section 5.1 for details regarding questionnaire distribution.

Skip Patterns

Variable	Question	Valid Condition(s): If Respondent	Skip Condition (Variable coded 96 or 996)
SPUFF0B1	*How old were you when you first tried smoking cigarettes, even just a few puffs?*	Had tried smoking	If SPUFF0A1 = 2 (NO) *Have you ever tried cigarette smoking, even just a few puffs*?
SSUSMTA1	*Do you think in the future you might try smoking cigarettes?*	Had not tried smoking	If SPUFF0A1 = 1 (YES) *Have you ever tried cigarette smoking, even just a few puffs?*
SWHOLEA1	*Have you ever smoked a whole cigarette?*	Had tried smoking	If SPUFF0A1 = 2 (NO) *Have you ever tried cigarette smoking, even just a few puffs?*
SWHOLEB1	*How old were you when you smoked your first whole cigarette?*	Had smoked a whole cigarette	If SWHOLEA1 = 2 (NO) or 96 (Valid Skip) *Have you ever smoked a whole cigarette?*
SHUND0A1	*Have you ever smoked 100 or more whole cigarettes in your life?*	Had smoked a whole cigarette	If SWHOLEA1 = 2 (NO) or 96 (Valid Skip) *Have you ever smoked a whole cigarette?*
SLAST7A1	*Have you ever smoked every day for at least 7 days in a row?*	Had tried smoking	If SPUFF0A1 = 2 (NO) *Have you ever tried cigarette smoking, even just a few puffs?*
SLST30A1	*On how many of the last 30 days did you smoke one or more cigarettes?*	Had smoked a whole cigarette	If SWHOLEA1 = 2 (NO) or 96 (Valid Skip) *Have you ever smoked a whole cigarette?*
SLST30B1	*Thinking back over the last 30 days, on the days that you smoked, how many cigarettes did you usually smoke each day?*	Had smoked a whole cigarette	If SWHOLEA1 = 2 (NO) or 96 (Valid Skip) *Have you ever smoked a whole cigarette?*

Variable	Question	Valid Condition(s): If Respondent	Skip Condition (Variable coded 96 or 996)
SLAST7A3 to SLAST7H3	*Think back over the last 7 days. Find yesterday on the wheel and fill in the number of whole cigarettes you smoked. Then, follow the wheel backwards and fill in the number of whole cigarettes you smoked on each of the last 7 days.*	Had smoked a whole cigarette	If SWHOLEA1 = 2 (NO) or 96 (Valid Skip) *Have you ever smoked a whole cigarette?*
SSHAREA1	*When you smoke, how often do you share a cigarette with others?*	Had tried smoking	If SPUFF0A1 = 2 (NO) *Have you ever tried cigarette smoking, even just a few puffs?*
SSDRNKA1	*When you first tried smoking cigarettes, were you drinking alcohol at the same time?*	Had tried smoking	If SPUFF0A1 = 2 (NO) *Have you ever tried cigarette smoking, even just a few puffs?*
SBRNDUA1	*What brand of cigarettes do you usually smoke?*	Had tried smoking	If SPUFF0A1 = 2 (NO) *Have you ever tried cigarette smoking, even just a few puffs?*
SCGSIZB2 to SCGSIZG2	*For the cigarette brand that you indicated, what size cigarette do you usually smoke?*	Had a usual brand	If SBRNDUA1 = 1 (I do not smoke), 2 (I do not have a regular brand), 96 (Valid Skip) or 99 (Not Stated) *What brand of cigarettes do you usually smoke?*
SBRNDYC1 to SBRNDYL1	*Why do you smoke the brand of cigarettes that you do?*	Had a usual brand	If SBRNDUA1 = 1 (I do not smoke), 2 (I do not have a regular brand), 96 (Valid Skip) or 99 (Not Stated) *What brand of cigarettes do you usually smoke?*
SGETCGA1	*Where do you usually get your cigarettes?*	Had tried smoking	If SPUFF0A1 = 2 (NO) *Have you ever tried cigarette smoking, even just a few puffs?*
SL12KDA1 to SL12KDE1	*In the last 12 months, how often did you smoke the following kinds of cigarettes?*	Had tried smoking	If SPUFF0A1 = 2 (NO) *Have you ever tried cigarette smoking, even just a few puffs?*
SEVRQTA1	*Have you ever tried to quit smoking cigarettes?*	Had tried smoking	If SPUFF0A1 = 2 (NO) *Have you ever tried cigarette smoking, even just a few puffs?*

Variable	Question	Valid Condition(s): If Respondent	Skip Condition (Variable coded 96 or 996)
S30DFLA1	*In the last 30 days, did you use any of the following flavoured tobacco products? Menthol cigarette*	Currently smokes daily, currently smokes occasionally, experimentally smokes (beginning), or puffs	If DVTY2ST = 3 (Formerly Smoked Daily), 4 (Formerly Smoked Occasionally), 6 (Experimentally Smoked in the Past) or 8 (Never Tried) *Smoking Detailed Classifications*
SSDRNKA1, ADRINKA1 to AUJMSWA2	*All alcohol and drug use items*	Is a grade 7 to 12 student	If GRADE = 6 (GRADE 6 STUDENTS)
AEVRETB1	*How old were you when you first had a drink of alcohol that was more than a sip?*	Had tried alcohol	If ADRINKA1 = 1 (I have never drank alcohol), 3 (I have only had a sip of alcohol) or 99 (Not Stated) *In the last 12 months, how often did you have a drink of alcohol that was more than just a sip?*
A5DRNKC1	*In the last 12 months, how often did you have 5 drinks of alcohol or more on one occasion?*	Had tried alcohol	If ADRINKA1 = 1 (I have never drank alcohol), 3 (I have only had a sip of alcohol) or 99 (Not Stated) *In the last 12 months, how often did you have a drink of alcohol that was more than just a sip?*
A5DRNKB1	*How old were you when you first had 5 drinks or more of alcohol on one occasion?*	Had 5 drinks or more on one occasion	If A5DRNKC1 = 1 (I have never done this), 96 (Valid Skip) or 99 (Not Stated) *In the last 12 months, how often did you have 5 drinks of alcohol or more on one occasion?*
AEVRMJB1	*How old were you when you first used marijuana or cannabis?*	Had tried marijuana	If AOFTMJA1 = 1 (I have never used marijuana) or 99 (Not Stated) *In the last 12 months, how often did you use marijuana or cannabis?*
AUAMPHA2	*Have you used or tried amphetamines in the last 12 months?*	Had tried amphetamines	If AUAMPHB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried amphetamines?*

Variable	Question	Valid Condition(s): If Respondent	Skip Condition (Variable coded 96 or 996)
AUMDMAA2	*Have you used or tried MDMA in the last 12 months?*	Had tried MDMA	If AUMDMAB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried MDMA?*
AUHALUA2	*Have you used or tried hallucinogens in the last 12 months?*	Had tried hallucinogens	If AUHALUB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried hallucinogens?*
AUDACSA2	*Have you used or tried DACS in the last 12 months?*	Had tried DACS	If AUDACSB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried DACS?*
AUHEROA2	*Have you used or tried heroin in the last 12 months?*	Had tried heroin	If AUHEROB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried heroin?*
AUCOCNA2	*Have you used or tried cocaine in the last 12 months?*	Had tried cocaine	If AUCOCNB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried cocaine?*
AUKETAA2	*Have you used or tried ketamine in the last 12 months?*	Had tried ketamine	If AUKETAB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried ketamine?*
AUGHB0A2	*Have you used or tried GHB in the last 12 months?*	Had tried GHB	If AUGHB0B2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried GHB?*
AUSDTVA2	*Have you used or tried sedatives or tranquilizers to get high and NOT for medical purposes in the last 12 months?*	Had tried sedatives or tranquilizers to get high	If AUSDTVB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried sedatives or tranquilizers to get high and NOT for medical purposes?*

Variable	Question	Valid Condition(s): If Respondent	Skip Condition (Variable coded 96 or 996)
AUSLEPA2	*Have you used or tried sleeping medicine from a drugstore to get high and NOT for medical purposes in the last 12 months?*	Had tried sleeping medicine from a drugstore to get high	If AUSLEPB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried sleeping medicine from a drugstore to get high and NOT for medical purposes?*
AUSTIMA2	*Have you used or tried stimulants such as diet pills and stay awake pills or medicine that is usually used to treat ADHD to get high and NOT for medical purposes in the last 12 months?*	Had tried stimulants such as diet pills and stay awake pills or medicine that is usually used to treat ADHD to get high	If AUSTIMB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried stimulants such as diet pills and stay awake pills or medicine that is usually used to treat ADHD to get high and NOT for medical purposes?*
AUPAINA2	*Have you used or tried pain relievers to get high and NOT for medical purposes in the last 12 months?*	Had tried pain relievers to get high	If AUPAINB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried pain relievers to get high and NOT for medical purposes?*
AUDXM0A2	*Have you used or tried dextromethorphan such as cold or cough medicine to get high and NOT for medical purposes in the last 12 months?*	Had tried dextromethorphan such as cold or cough medicine to get high	If AUDXM0B2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried dextromethorphan such as cold or cough medicine to get high and NOT for medical purposes?*
AUSOLVA2	*Have you used or tried glue, gasoline, or other solvents to get high in the last 12 months?*	Had sniffed glue, gasoline or other solvents to get high	If AUSOLVB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried glue, gasoline, or other solvents to get high?*
AUSALVA2	*Have you used or tried Salvia to get high in the last 12 months?*	Had tried Salvia to get high	If AUSALVB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried Salvia to get high?*

Variable	Question	Valid Condition(s): If Respondent	Skip Condition (Variable coded 96 or 996)
AUJMSWA2	*Have you used or tried Jimson weed to get high in the last 12 months?*	Had tried Jimson weed to get high	If AUJMSWB2 = 1 (I have never done this) or 99 (Not Stated) *If you ever used or tried, how old were you when you first used or tried Jimson weed to get high?*
DSUSCEPT	*Susceptible to smoking (See derived variables for items contributing to these variables)*	Had not tried smoking	If SPUFF0A1 = 1 (YES) *Have you ever tried cigarette smoking, even just a few puffs?*
DVAMTSMK	*The average number of whole cigarettes smoked per day in the past week.*	Had smoked a whole cigarette	If SWHOLEA1 = 2 (NO) or 96 (Valid Skip) *Have you ever smoked a whole cigarette?*
DVCIGWK	*Total number of whole cigarettes smoked in the past 7 days prior to the survey.*	Had smoked a whole cigarette	If SWHOLEA1 = 2 (NO) or 96 (Valid Skip) *Have you ever smoked a whole cigarette?*
DVNDSMK	*Number of days on which respondent smoked at least one whole cigarette in the week prior to the survey.*	Had smoked a whole cigarette	If SWHOLEA1 = 2 (NO) or 96 (Valid Skip) *Have you ever smoked a whole cigarette?*
DVAVCIGD	*Average number of whole cigarettes smoked on the days that the respondent smoked.*	Had smoked a whole cigarette	If SWHOLEA1 = 2 (NO) or 96 (Valid Skip) *Have you ever smoked a whole cigarette?*
DVSMKPTN	*Smoking pattern in the last 7 days.*	Had smoked a whole cigarette	If SWHOLEA1 = 2 (NO) or 96 (Valid Skip) *Have you ever smoked a whole cigarette?*

7.5 Weighting

Survey weights are needed to derive population estimates from the survey sample. In a simple random sample, every unit in the population has the same probability of being drawn. The *fraction* of the population that is sampled is the sample size divided by population size. To calculate the weight of each sampled member, one should multiply each member by 1/*fraction*. If the sample size was 100 and the population was 100,000, then the weight of each sampled member would be 1,000. This means that any sampled member's response is taken to represent 1,000 identical responses in the population. Constant sampling fractions do not result for complex survey designs such as used in the YSS. In complex survey designs, the sample data must be multiplied by appropriate weights that reflect the different sampling fractions. This survey weight appears on the

YSS Public Use Microdata file and must be used to derive meaningful population estimates from the survey. Please refer to the section on using survey weights.

The development of the survey weights was accomplished in two stages. In the first stage a weight (W_{1j}) was created to account for the school selection within health region and school strata. A second weight (W_{2jg}) was calculated to adjust for student non-response. Finally, the weights were calibrated to the provincial gender and grade distribution so that the total of the survey weights by gender, grade and province would equal the actual enrolments in those groups. Finally, bootstrap weights (see Stage 5) were generated to attach to the data file.

Stage 1: Calculation of W_{1j}

Thus, within each provincial sampling frame (excluding Quebec), two (or three) health region strata ("low" and "high", and "urban" for Ontario and Alberta) and two school-level strata ("elementary" and "secondary") are defined. Crossing these stratifications yields six strata in Ontario and Alberta and four in each of the other provinces except Quebec. For Quebec elementary schools, two economic strata (underprivileged vs. normal/privileged) were defined within each of 17 health regions. Crossing these stratifications yields 34 strata for Quebec elementary schools. For secondary schools in Quebec, schools were randomly selected using simple random sampling from 13 targeted health regions as strata. Within each stratum, in each province, schools were selected based on simple random sampling.

Stage 1: Calculation of W_{1j}:

Within each stratum, in each province, schools were randomly selected. For school *j*, W_{1j} has been computed as

$$W_{1j} = 1/\pi_{1j}$$

where π_{1j} is the probability of inclusion at stage 1 for school j, and where

$$\pi_{1j} = \ell / L$$

ℓ = Number of selected schools in the given stratum, and

L = Total number of schools in the stratum.

Stage 2: Calculation of W_{2jg}

Calculation of W_{2jg} is different for elementary and secondary schools (except in Quebec). In the elementary school strata, response rates were calculated based on the ratio of number of participating students (by school and by grade) to the number of eligible students (by school and by grade). Within each selected school we computed the response rate for the students by grade.

$$\pi_{2jg} = \frac{n_j(g)}{N_j(g)}$$

where

$n_j(g)$ is the number of participating students in grade *g* in school *j*

$N_j(g)$ is the total number of eligible students in grade *g* in school *j*

Hence $W_{2jg} = 1/\pi_{2jg}$

In the secondary school strata for all provinces (except in Quebec), response rates were calculated based on the ratio of the number of participating students (**by board and by grade**) to the number of eligible students (**by board and by grade**). Within each recruited board (where we have at least one school participating) we computed the response rate for the students by board and by grade.

$$\pi_{2jg} = \frac{n_j(g)}{N_j(g)}$$

where

$n_j(g)$ is the number of students who completed a survey in grade *g* in **board** *j*

$N_j(g)$ is the total number of students in grade *g* in **board** *j*

Hence $W_{2jg} = 1/\pi_{j2g}$

In Quebec, calculations of W_{2jg} are same for both elementary and secondary schools. In elementary school strata, response rates were calculated based on the ratio of number of participating students (by school and by grade) to the number of eligible students (by school and by grade). Within each selected school we computed the response rate for the students by grade.

$$\pi_{2jg} = \frac{n_j(g)}{N_j(g)}$$

where

$n_j(g)$ is the number of participating students in grade *g* in school *j*

$N_j(g)$ is the total number of eligible students in grade *g* in school *j*

Hence $W_{2jg} = 1/\pi_{2jg}$

Stage 3: Un-calibrated Final Weight

The final un-calibrated weight is based on

$$w_{3jg} = (w_{1j} * w_{2jg})$$

Stage 4: Calibration of Survey Weights

The weights described above were then calibrated using school administrative datasets that include the total student enrolment by gender and grade (grades 6 through 12) for each province. Province, grade, and gender calibration were used to adjust the sampling weights so that estimated numbers of students in these domains reproduce known population numbers exactly. Final weight variable was defined as WTPP in the YSS Public Use Microdata file.

Stage 5: Construction of Bootstrap Weights

Statisticians use bootstrap methods to estimate sampling error. The bootstrap weights for each province were constructed separately as follows:

1) Within each stratum (health region smoking rate stratum or economic strata crossed with grade-level stratum), the same number of schools were selected from the sample by simple random sampling (SRS) with replacement as was selected in the original sample design.

2) Then, within each re-sampled school, all eligible students who had consent to participate were selected.

3) The weights for re-selected units were recalculated and adjusted for the re-sampling inference based on the method of Rao and Wu (1988).[8]

4) Finally, the new weights were recalibrated to the provincial enrolment figures using the administrative datasets.

Six thousand (6,000) such bootstrap samples were computed. The average of sets of twelve bootstrap weights were used to create a set of 500 averaged bootstrap weights.

The formula for the weight adjustment is obtained as follows. Let w_{ij} be the smoothed calibrated main weight for student *j* in school *i*.

[8] Rao, J.N.K. & Wu, C.F.J. (1988). Resampling inference with complex survey data. *Journal of the American Statistical Association* 83, 231-241.

Let $\lambda_{1i} = \sqrt{\frac{n_i}{n_i - 1}(1 - \frac{n_i}{N_i})}$ where N_i is the number of schools in a given stratum and n_i is the number of schools actually selected in that stratum.

The bootstrap weight w_{ij}^* would then be given by

$w_{ij}[1 - \lambda_{1i} +$ (number of times school *i* has been resampled)* $(\lambda_{1i})]$.

7.6 Use of Survey Weights

Why should survey weights be used?

There are two reasons why a survey weight variable should be used when performing analyses.

1) **Total population versus sample size**. Users may want results based on population figures instead of estimates based on the sample of individuals included in the study. For example, the YSS survey weight, when used, will produce results based on a population estimate of N, which represents all the students in the 9 participating provinces (grades 6-12) instead of n, which is the total number of students who actually completed the survey. The latter is known as the sample size of the YSS.

2) **Adjusting for sampling method.** The second use of survey weights is to adjust for sampling methods. If every member of a population has an equal probability of being selected in a sample, each case would carry the same survey weight and the survey weight for all individuals would be 1. But in reality, YSS sampling was done in a more complex manner (described in section 4) and each individual who was selected in the survey did not have an equal probability of being selected. To correct for this unequal probability or chance of being selected, we created the survey weight variable. In short, using the survey weight variable permits the user to make generalizations to the population from which the sample was drawn.

Re-basing the survey weights

In some instances, users may want to maintain the sample size rather than the population estimate and ensure that adjustments for sampling methods are retained. For this reason, users need to re-base the survey weights. Re-basing the survey weight can be done as follows:

$$\text{Relative weight} = \frac{WTPP}{\sum WTPP} * \text{(sample size)}$$

7.7 Suppression of Confidential Information

It should be noted that the Public Use Microdata File may differ from the survey master files held at Propel, University of Waterloo. These differences usually are the result of actions taken to protect the anonymity of individual survey respondents. The most common actions are the suppression of file variables, grouping values into wider categories, and coding specific values into the "not stated" category.

Specifically, the following variables have been removed from the Public Use Microdata file:

- school board identifier
- school identifier
- class identifier
- strata identifiers
- postal code
- age

8.0 Data Quality

There are various factors that influence data quality. This section summarizes threats to data quality and steps taken to ameliorate these.

8.1 Response Rates

There were various levels of non-response throughout the 2010/2011 YSS. First, some degree of non-response was noted among school boards and schools. Refer to Table 6 and Table 7 for a listing of response rates at the school board and school level in 2010/2011 YSS.

The second level of response rate is based on individual student consent. The response rate at the student level is derived based on the number of eligible students as provided by school contacts for participating classes. Non-response at the student level can be attributed to several factors. Some parents/guardians refused to allow their child to take part in the survey. Even with parental permission, some students refused to participate or were absent from class on the day of data collection. The final response rates at the student level are summarized in Table 9.

Table 9: Student Level Response Rates by Province, 2010/2011 YSS

Province	Eligible students	Students with active permission	Students with passive permission	Completed questionnaires	Response rate (%) [+]
NL	5850	0	5010	5010	86
PE[++]	12196	4308	5085	9393	77
NS	9654	1919	4321	6240	65
QC[++]	15025	505	12809	13314	89
ON	17500	4470	5347	9817	56
MB	9147	380	7091	7471	82
SK	4613	1344	1940	3284	71
AB	7320	2497	2003	4500	62
BC	9434	697	6834	7531	80
Canada	**90739**	**16120**	**50440**	**66560**	**73**

[+] Based on completed questionnaires (numerator) and eligible students (denominator).
[++] These numbers include all students who filled out the YSS surveys as well as those that completed the surveys for the SHAPES-PEI survey and the EN FORME survey in schools that completed the YSS. The full Prince Edward Island and Quebec sample (rather than just students who completed YSS modules) from schools participating in YSS was included in order to calculate student response rates.

8.2 Survey Errors

The estimates derived from this survey are based on a sample of schools. Somewhat different estimates might be obtained if a complete census had been taken using the same questionnaire, data collection staff, and processing methods as those actually used in the survey. The difference between the estimates obtained from the sample and those resulting from a complete count taken under similar conditions are called the sampling error of the estimate.

Errors which are not related to sampling may occur at almost every phase of a survey. Administrators may misunderstand instructions, respondents may make errors in answering questions, the answers may be incorrectly entered on the questionnaire, and errors may be introduced in the processing and tabulation of the data. These are all examples of 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 were taken to reduce non-sampling errors in the survey. Quality assurance measures were implemented at each step of the data collection and processing cycle to monitor the quality of the data. These measures included 1) the use of protocols that have been validated in previous studies of school-based data collection around youth smoking; 2) detailed instructions for teachers; 3) extensive training of project staff with respect to the survey procedures; 4) procedures to ensure that data capture errors were minimized; and 5) coding and edit quality checks to verify the processing logic.

9.0 Guidelines for Tabulation, Analysis and Release

Please note that this section is adapted from the 2002 Youth Smoking Survey User Guide written by Statistics Canada.[9] It details guidelines for users when tabulating, analyzing, and publishing or otherwise releasing any data derived from the survey data files. With the aid of these guidelines, users of the YSS Public Use Microdata file should be able to produce the same figures as those produced by any statistician and, at the same time, will be able to develop currently unpublished figures in a manner consistent with these established guidelines.

9.1 Rounding Guide

Users are urged to adhere to the following guidelines regarding the rounding of such estimates:

1) 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 preceding digit is incremented by 1.

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

3) Averages, proportions, rates and percentages are to be computed from un-rounded components (i.e., numerators and/or denominators) and then are to be rounded 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.

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

5) Under no circumstances are un-rounded estimates to be published or otherwise released by users. Un-rounded estimates imply greater precision than actually exists.

[9] Stats Canada (2002). Microdata User Guide: Youth Smoking Survey 2002. Accessible at: http://www.statcan.ca/english/sdds/document/4401_D2_T9_V2_E.pdf.

9.2 Sample Weighting Guidelines for Tabulation

The sample design used for the Youth Smoking Survey (YSS) was not self-weighting. When producing simple estimates, including the production of ordinary statistical tables, users must apply the proper sampling weights. If proper weights are not used, the estimates derived from the Public Use Microdata file cannot be considered to be representative of the survey population, and will not correspond to estimates produced by Health Canada.

9.3 Definitions of Types of Estimates: Categorical and Quantitative

Before discussing how the YSS data can be tabulated and analyzed, it is useful to describe the two main types of point estimates of population characteristics which can be generated from the Public Use Microdata file for the YSS.

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 students who ever smoked a whole cigarette or the proportion of smokers who usually buy cigarettes from a friend or someone else are examples of such estimates. An estimate of the number of persons possessing a certain characteristic may also be referred to as an estimate of an aggregate.

Examples of Categorical Questions:

Q: Have you ever smoked a whole cigarette?
R: Yes / No

Q: Where do you usually get your cigarettes?
R: I buy them myself at a store / I buy them from a friend or someone else / I ask someone to buy them for me / etc.

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. They also specifically involve estimates of the form $\hat{X}/\hat{Y}$ where $\hat{X}$ is an estimate of surveyed population quantity total and $\hat{Y}$ is an estimate of the number of persons in the surveyed population contributing to that total quantity.

The only example of a quantitative estimate in the 2010/2011 YSS is the number of whole cigarettes smoked on each of the last seven days. If users want to estimate the average number of whole cigarettes smoked on the days the respondent smoked, then the numerator is the total number of whole cigarettes smoked in the last seven days and the denominator would be the number of days whole cigarettes were smoked in the last seven days.

Tabulation of Categorical Estimates

Estimates of the number of people with a certain characteristic can be obtained from the microdata file by summing the final weights of all records possessing the characteristic(s) 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 estimate a) by estimate b) ($\hat{X}/\hat{Y}$).

Tabulation of Quantitative Estimates

Estimates of totals can be obtained from the YSS Public Use Microdata file by multiplying the value of the variable of interest by the final weight for each record, then summing this quantity over all records of interest. For example, to obtain an estimate of the total number of whole cigarettes smoked in the past seven days prior to the survey by students in grade 9 (secondary III in Quebec) multiply the value reported in the derived variable DVCIGWK (number of whole cigarettes smoked in the past seven days prior to the survey) by the final weight for the record, then sum this value over all records with DVCIGWK < 996.

9.4 Guidelines for Statistical Analysis

Use of Weights for Producing Simple Estimates

The 2010/2011 YSS is based upon a complex sampling design, with stratification, single-stage of selection, and unequal probabilities of selection of respondents.

The calculation of more precise variance estimates requires detailed knowledge of the design of the survey. Such details cannot be given in this Public Use Microdata file since confidentiality must be respected. However, variances that take account for the sample design can be calculated from the bootstrap weights which are provided as a separate data file. Health Canada employed STATA for all analyses of the 2010/2011 YSS. All analyses were conducted using Stata 10[10]. The ***surveyset*** commands were used to account for the complex survey design and variance estimates were derived using balanced repeated replication (BRR) with Fay's method[11]. This procedure creates reliable estimates of the variance for both simple estimates such as estimates of totals, proportions and ratios and more complex analyses such as linear or logistic regression. Another option is to use the Bootvar program available in both SAS and SPSS formats. It is made

[10] StataCorp. 2005. *Stata Statistical Software: Release 9*. College Station, TX: StataCorp LP.

[11] Judkins, D. 1990. Fay's Method for Variance Estimation. *Journal of Official Statistics*, 6(3), 223-239.

up of macros that compute variances for totals, differences between ratios and for linear and logistic regression. The bootstrap program for SAS can be found at http://data.library.ubc.ca/rdc/pdf/0702Bootdoc.pdf and bootstrap program for SPSS can be found at http://prod.library.utoronto.ca/datalib/codebooks/cstdli/gss/gss18/spssbootdoc_eng.pdf along with the documents explaining how to modify and use the program to meet users' needs.

When producing simple estimates including the production of ordinary statistical tables, users must apply the proper sampling weight. There is one method that makes using standard packages of analysis techniques such as linear regression, logistic regression and analysis of variance, more reasonable. This is done by rescaling the weights on the records so that the average weight is one. As a result of using this weight, the results produced by standard packages will take into account the unequal probabilities of selection and thus be more meaningful even if they do not take into account the stratification and clustering of the design of the sample. A rescaled weight can be calculated by dividing the original weight by the average of the original weights for the sampled units contributing to the estimator that one is interested in.

The method described in the above paragraph produces reliable estimates of the coefficients under consideration in the analysis; however, the stratification and clustering of the sample's design are still not taken into account. Consequently, the variance estimates calculated in this way are likely to be under-estimated.

9.5 Coefficient of Variation Release Guidelines

Before releasing and/or publishing any estimate from the 2010/2011 YSS, users should first determine the quality level of the estimate. The quality levels are Acceptable, Marginaland Unacceptable. Data quality is affected by both sampling and non-sampling errors as discussed in Section 8. However for this purpose, the quality level of an estimate will be determined only on the basis of sampling error as reflected by the coefficient of variation (i.e., standard deviation divided by the mean, multiplied by 100) as shown in the table below. Nonetheless, users should be sure to read Section 7 to be more fully aware of the quality characteristics of these data.

First, determine the number of respondents who contributed to the calculation of the estimate. If this number is less than 30, consider the weighted estimate to be of *unacceptable* quality.

For weighted estimates based on sample sizes of 30 or more, users should determine the coefficient of variation of the estimate and follow the guidelines in Table 10. Apply these quality level guidelines to weighted rounded estimates.

All estimates may be released. However, those of *marginal* or *unacceptable* quality level must be accompanied by a statement of warning to caution subsequent users.

Table 10: Quality Level Guidelines for Weighted Estimates

Quality Level of Estimate	Guidelines
Acceptable	Estimates have a sample size of 30 or more, and low coefficients of variation in the range of 0.0% to 16.5%. No warning is required.
Marginal	Estimates have a sample size of 30 or more, and high coefficients of variation in the range of 16.6% to 33.3%. Estimates should be flagged with the letter M (or some similar identifier). They should be accompanied by a warning to caution subsequent users about the high levels of error associated with the estimates.
Unacceptable	Estimates have a sample size of less than 30, or very high coefficients of variation in excess of 33.3%. It is not recommended to release estimates of unacceptable quality. Such estimates should be replaced with the letter U (or some similar identifier) and the following statement: **"Unreleasable due to low sample size."**

Appendices

Appendix A: 2010/2011 Youth Smoking Survey Collaborative Projects

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Project Name: Health Behaviour Survey (HBS)

Contact: Drs. Mark Asbridge & Don Langille
Department of Community Health and Epidemiology
Dalhousie University

Description:
Researchers from the Department of Community Health and Epidemiology at Dalhousie University contracted Propel to implement the HBS alongside the 2010/2011 YSS. The purpose of this survey was to assess injury and sexual risk taking behaviours among Nova Scotia students in grades 9 -12, and to examine associations with experiences of depression and psychological distress.

All sampled secondary schools in Nova Scotia were approached to participate in the collaborative YSS/HBS project. A total of 10 secondary schools (of the 8 targeted) agreed to participate in the YSS project, of which 8 also agreed to participate in the HBS survey. A total of 2,989 students from these 8 secondary schools completed the one-page HBS questionnaire following their completion of the YSS Module B questionnaire.
Funding for the project was provided by AUTO21, a member of the Networks of Centres of Excellence program which is administered and funded by the Natural Sciences and Engineering Research Council, Canadian Institutes of Health Research, Social Sciences and Humanities Research Council, in partnership with Industry Canada and Dalhousie University.

Project Name: Alberta Supplement Project

Contact: Dr. Cam Wild
University of Alberta

Description:
The Alberta Supplement investigated student attitudes toward school policies related to tobacco, cannabis, and alcohol, as well as the receipt and delivery of interpersonal tactics to control the use of these substances. Dr. Cam Wild at the University of Alberta is the lead investigator for the project and can be contacted directly for access to the Alberta Supplement data set.

A total of 555 students in grades 7 through 12 from six secondary schools participating in the 2010/2011 Youth Smoking Survey completed the Alberta Supplement questionnaire, following completion of the YSS Module B questionnaire. These data will be used to describe support for school-based policies and practices aimed at controlling substance

use, as well as the prevalence of substance-related interpersonal social control tactics in the student population.

Project Name: EN FORME

Contact: Dr. Rémi Coderre
Québec en Forme (QEF)

Description:
The 2010/2011 EN FORME /YSS combines QEF's healthy lifestyle for youth initiatives with the 2010/2011 YSS. The data collected from the EN FORME project will allow local groups supported by QEF to draw a portrait of the habits of young people especially in the areas of physical activity, healthy eating and tobacco use.

As a result of this collaboration 138 schools participated in the EN FORME /YSS project. In previous implementations of the YSS without a collaborative Quebec project, approximately 36 schools were targeted. Each grade 6-12 student participating in this collaborative project randomly received a YSS questionnaire or an EN FORME questionnaire. As a result, in elementary schools one-third of grade 6 students received a YSS questionnaire and in secondary schools half of the secondary I to secondary V students received a YSS questionnaire. Grade 5 students only received an EN FORME questionnaire.

At the request of the Quebec Ministry of Education, the EN FORME/YSS project worked in partnership with the Institut statistique du Quebec /Ministère de la santé et des services sociaux's Quebec Health Survey of High School Students project, to ensure school research burden was reduced in the province of Quebec. It was decided that overlapping sampled schools and classes within these schools, would be identified for both surveys to ensure that only one survey would implemented within a participating school and/or class.

The EN FORME project is funded by QEF. QEF is a population-based initiative that emerged from a partnership between the not-for-profit Lucie et André Chagnon Foundation and the Government of Quebec.

Project Name: School Health Action, Planning and Evaluation System – Prince Edward Island (SHAPES-PEI)

Contacts: Dr. Donna Murnaghan
University of Prince Edward Island

Sterling Carruthers
PEI Department of Education and Early Childhood Development

Description:
The 2010/2011 SHAPES-PEI project has been a complementary research project for both the 2008/2009 and 2010/2011 YSS implementations. SHAPES-PEI collects data across four health behaviours (smoking, healthy eating, physical activity and positive mental health). SHAPES-PEI was first implemented in the 2008/2009 school year alongside the 2008/2009 YSS. The 2008/2009 YSS implementation provided baseline data for schools, boards, and the province and the 2010-11 implementation alongside the 2010/2011 YSS aims to provide important comparability data.

As a result of this collaboration, all Island schools with grades 5-12 were approached to participate in the SHAPES/YSS-PEI project. A total of 54 schools and approximately 6645 students participated in the collaborative SHAPES/YSS-PEI project. Without the SHAPES-PEI collaboration, the YSS sample would have only included 22 schools. Each grade 6-12 student participating in this collaborative project randomly received a YSS questionnaire, a SHAPES-PEI healthy eating questionnaire or a SHAPES-PEI physical activity questionnaire. Both modules of the SHAPES-PEI questionnaires also collected data on core smoking behaviours. As a result, one-third of the grades 6-12 student population received a YSS questionnaire. Grade 5 students only received one of two SHAPES-PEI questionnaires.

SHAPES-PEI is funded through a partnership between the Comprehensive School Health Research Group at UPEI and the PEI Department of Education and Early Childhood Development.

Project Name: Healthy School Planner

Contacts: Dr. Steve Manske
Propel Centre for Population Health Impact (Propel)
University of Waterloo

Description:
The Healthy School Planner (HSP) is based on the concept of Comprehensive School Health. Comprehensive School Health is an internationally recognized framework for supporting improvements in students' educational outcomes while addressing school health in a planned, integrated and holistic way. As part of the 2010/2011 YSS, school staff from participating schools who were knowledgeable about tobacco use policies and programs in their school were invited to complete the HSP Tobacco Use Assessment Module. The HSP Tobacco Use Assessment assesses physical environment (e.g., school building and grounds, route to and from school, etc.), social environment through formal (e.g., school policies, rules, or support groups) or informal (e.g., unstructured peer interaction or role models) supports, quality of teaching and learning (both curriculum and informal activities where students gain knowledge and experiences to build the skills to make healthy choices), and community partnerships which provide access to resources and services for support staff, students, and families in the development and implementation of healthy school initiatives. Each participating YSS school was also

encouraged to complete HSP assessments on physical activity and healthy eating. This project was funded by Propel.

A total of 219 schools (51% of participating YSS schools) completed the HSP Tobacco Use Assessment. In addition, 80 schools (18% of participating YSS schools) completed the HSP Physical Activity Assessment and 19 schools (4%) completed the HSP Healthy Eating Assessment.

Appendix B: Youth Smoking Survey Questions by Survey Year

Table A1: Questionnaire questions in all YSS cycles: 21 Items

Question	2010/2011 YSS Variable Name
1. Have you ever smoked 100 or more whole cigarettes in your life?	SHUND0A1
2. Have you ever tried to quit smoking cigarettes?	SEVRQTA1
3. Have you ever tried cigarette smoking, even just a few puffs?	SPUFF0A1
4. Have you ever smoked every day for at least 7 days in a row?	SLAST7A1
5. At any time during the next year do you think you will smoke a cigarette?	SSUSNYA1
6. Do you think in the future you might try smoking cigarettes?	SSUSMTA1
7. Why do you smoke the brand of cigarettes that you do? (Mark all that apply)	SBRNDYC1 to SBRNDYL1
8. What brand of cigarettes do you usually smoke?	SBRNDUA1
9. Do you think it would be difficult or easy for you to get cigarettes if you wanted to try smoking?	SHWHRDA1
10. Where do you usually get your cigarettes?	SGETCGA1
11. Your closest friends are the friends you like to spend the most time with. How many of your closest friends smoke cigarettes?	S5FRNDA1
12. [∅]Have you ever tried any of the following? (Mark all that apply)	SEVTRYA1, SEVTRYB3, SEVTRYB4, SEVTRYK1, SEVTRYC3, SEVTRYL1, SEVTRYG3, SEVTRYH3, SEVTRYN1, SEVTRYJ1
13. Are you... Female? Male?	SEX
14. What language do you speak most often at home?	GLANGUA1
15. About how much money do you usually get each week to spend on yourself or to save? (Remember to include all money from allowances and jobs like babysitting, delivering papers…)	GMONEYA1
16. How old are you today?	AGE
17. What grade are you in?	GRADE
18. On how many of the last 30 days did you smoke one or more cigarettes?	SLST30A1
19. Thinking back over the last 30 days, on the days that you smoked, how many cigarettes did you usually smoke each day?	SLST30B1
20. Have you ever smoked a whole cigarette?	SWHOLEA1

[∅] Additions were made to the 2010/2011 survey to ask about smoking bidis, using nicotine patches, nicotine gum, nicotine lozenges or nicotine inhalers, using a water-pipe to smoke tobacco, and using blunt wraps.

Question	2010/2011 YSS Variable Name
21. How old were you when you smoked your first whole cigarette?	SWHOLEB1

Table A2: Questions in the 2002, 2004/2005, 2006/2007, 2008/2009 and 2010/2011 Cycles of the YSS Surveys: 12 Items

Question	2010/2011 Variable name
1. *Think back over the last 7 days. Find yesterday on the wheel and fill in the number of whole cigarettes you smoked. Then, follow the wheel backwards and fill in the number of whole cigarettes you smoked on each of the last 7 days.	SLAST7A3 to SLAST7H3
2. [×]On average, how many hours a day do you do the following in your free time? …Watch TV or movies	PFREETE1
3. [▽]On average, how many hours a day do you do the following in your free time? …Read for fun	PFREETF1
4. In general, I like the way I am.	OHOWFLA1
5. When I do something, I do it well.	OHOWFLB1
6. I like the way I look.	OHOWFLC1
7. How old were you when you first had a drink of alcohol that is more than a sip?	AEVRETB1
8. How old were you when you first had 5 drinks or more of alcohol on one occasion?	A5DRNKB1
9. How old were you when you first used marijuana or cannabis?	AEVRMJB1
10. This chart asks about your drug use. If you have ever used or tried any of the following drugs, mark the age at which you first used or tried. Then mark if you have used or tried the drug in the last 12 months.	
A. Amphetamines (speed, ice, meth…)	AUAMPHB2, AUAMPHA2
B. MDMA (ecstasy, E, X…)	AUMDMAB2 AUMDMAA2
C. Hallucinogens (LSD, PCP, acid, magic mushrooms, mesc…)	AUHALUB2 AUHALUA2
D. Heroin (smack, junk, crank…)	AUHEROB2, AUHEROA2
E. Cocaine (crack, blow, snow…)	AUCOCNB2, AUCOCNA2

* The wording for this particular item was slightly different in 2006. Respondents of Module B1 were asked to give the number of times they smoked cigarettes in the last 7 days and respondents of Module B2 were asked to give the number of whole cigarettes they smoked in the last 7 days.

[×] The wording in 2010/2011 was different than other years, where the question asked about time spent watching TV or videos. The variable name changed in 2010/2011 to reflect the added questions.

[▽] The wording in 2008/2009 and 2010/2011 was different than other years, in 2008/2009 and 2010/2011 the question asks about the frequency per day whereas in the other years the student is asked about the frequency over all. The variable name changed in 2010/2011to reflect the added questions.

Question	2010/2011 Variable name
11. This chart asks about your drug use. If you have ever used or tried any of the following drugs, mark the age at which you first used or tried. Then mark if you have used or tried the drug in the last 12 months. Medication used to get high and NOT for medical purposes	
A. Stimulants such as diet pills and stay awake pills (uppers, bennies) or medicine that is usually used to treat ADHD such as Ritalin, Concerta, Adderall, Dexedrine	AUSTIMB2, AUSTIMA2
B. Pain relievers such as such as Demerol, Percocet, Percodan, Oxycontin, or any pain reliever with codeine	AUPAINB2, AUPAINA2
12. This chart asks about your drug use. If you have ever used or tried any of the following drugs, mark the age at which you first used or tried. Then mark if you have used or tried the drug in the last 12 months. Other substances used to get high	
A. Glue, gasoline, or other solvents	AUSOLVB2, AUSOLVA2

Table A3 Questions in the 2004/2005, 2006/2007, 2008/2009 and 2010/2011 Cycles of the YSS: 15Items

Question	2010/2011 Variable name
1. Are you a smoker?	SSMKERA1
2. How old were you when you first tried smoking cigarettes, even just a few puffs?	SPUFF0B1
3. If one of your best friends was to offer you a cigarette, would you smoke it?	SSUSFOA1
4. Do any of your brothers or sisters smoke cigarettes?	SSIBLIA1
5. What are the rules about smoking in your home?	SHRULSA1
6. During the past 7 days, on how many days did you ride in a car with someone who was smoking cigarettes?	SINCARA2
7. In the last 12 months, how often did you have a drink of alcohol that was more than just a sip?	ADRINKA1
8. In the last 12 months, how often did you have 5 drinks of alcohol or more on one occasion?	A5DRNKC1
9. In the last 12 months, how often did you use marijuana or cannabis (a joint, pot, weed, hash…)?	AOFTMJA1
10. This chart asks about your drug use. If you have ever used or tried any of the following drugs, mark the age at which you first used or tried. Then mark if you have used or tried the drug in the last 12 months.	
A. DACS (links…)	AUDACSB2, AUDACSA2
11. I feel close to people at my school.	OCONCTA1
12. I feel I am part of my school.	OCONCTB1
13. I am happy to be at my school.	OCONCTC1
14. I feel the teachers at my school treat me fairly.	OCONCTD1
15. I feel safe in my school.	OCONCTE1

Table A4: Questions in the 2006/2007, 2008/2009 and 2010/2011 Cycles of the YSS: 6 Items

Question	2010/2011 Variable Name
1. When you smoke, how often do you share a cigarette with others?	SSHAREA1
2. Do any of your parents, step-parents, or guardians smoke cigarettes?	SGRDANA1
3. [€]In the last 30 days, where did you buy little cigars/cigarillos (plain or flavoured)? (Mark all that apply)	SWRBYCA2 to SWRBYCE2
4. In the last 4 weeks, how many days of school did you miss because of your health?	OMISSHA1
5. In the last 4 weeks, how many classes did you skip when you weren't supposed to?	OSKIP0A1
6. [∅]In the last 30 days, did you use any of the following? (Mark all that apply)	SEVTRYA2, SEVTRYB5, SEVTRYB6, SEVTRYK2, SEVTRYC4, SEVTRYL2, SEVTRYG4, SEVTRYH4, SEVTRYN2, SEVTRYJ2

Table A5: Questions in the 2008/2009 and 2010/2011 Cycle of the YSS: 12 Items

Question	2010/2011 Variable Name
1. [⊗]For the cigarette brand that you indicated, what size cigarette do you usually smoke? (Mark all that apply)	SCGSIZB2 to SCGSIZG2
2. Within the last 6 months, has a store clerk ever suggested a particular brand when you were buying cigarettes?	SCLKSGA1
3. Thinking about the last time you bought cigarettes in the last 12 months, what did you buy?	SBUYCGA1
4. Thinking about the last time you bought cigarettes in the last 12 months, about how much did you pay for each single cigarette, pack, bag, or carton?	SPAYCGA1
5. In the last 30 days, how often did you smoke cigarillos or little cigars (plain or flavoured)?	SSMCGLA1
6. The last time you bought/got cigarillos or little cigars (plain or flavoured), how many did you buy/get?	SCGLNMA1
7. Have you ever used flavoured tobacco products (menthol, cherry, strawberry, vanilla, etc.)?	SEVTRYM1

[€] The wording for this question changed slightly in 2010/2011 to separate the "bought them from a friend/someone else" response option into "bought them from a friend" and "bought them from someone else"

[∅] Additions were made to the 2010/2011 survey to ask about smoking bidis, using nicotine patches, nicotine gum, nicotine lozenges or nicotine inhalers, using a water-pipe to smoke tobacco, and using blunt wraps.

[⊗] The wording for this question in 2010/2011 was different from 2008/2009. In 2010/2011, students were permitted to select more than one response. The variable names changed as a result to reflect the changed question.

Question	2010/2011 Variable Name
8. In your family, you are… (Mark only one)	GCHFAMA1
9. How many students at this school smoke on school property?	SNTSPDA2
10. ◊On average, about how many hours a day do you do the following in your free time?	PFREETA1 to PFREETF1
11. This chart asks about your drug use. If you have ever used or tried any of the following drugs, mark the age at which you first used or tried. Then mark if you have used or tried the drug in the last 12 months. Medication used to get high and NOT for medical purposes	
A. Sedatives or tranquilizers such as Ativan, Xanax, Valium (tranqs, downers, etc.)	AUSDTVB2, AUSDTVA2
12. This chart asks about your drug use. If you have ever used or tried any of the following drugs, mark the age at which you first used or tried. Then mark if you have used or tried the drug in the last 12 months. Other substances used to get high	
A. Salvia (Divine Sage, Magic Mint, Sally D),	AUSALVB2, AUSALVA2

Table A6: Questions in the 2010/2011 Cycle of the YSS: 16 items

Question	2010/2011 Variable Name
1. How would you describe yourself? (Mark all that apply)	GETHNCA1 to GETHNCF1
2. When you first tried smoking cigarettes, were you drinking alcohol at the same time?	SSDRNKA1
3. In the last 12 months, how often did you smoke the following kinds of cigarettes?	SL12KDA1 to SL12KDE1
4. In the last 30 days, have you ever been asked for ID when buying cigarettes in a store?	SLST30D1
5. In the last 30 days, did you use any of the following flavoured tobacco products? (Mark all that apply)	S30DFLA1 to S30DFLG1
6. Getting good grades is important to me.	OCONCTF1
7. Which of the following best describes your marks during the past year?	OMARKSA1
8. On how many of the last 7 days did you eat breakfast?	H7DBRKA1
9. On a usual day, how many servings of fruits and/or vegetables do you eat? (Include fresh, frozen, canned, and cooked items like apple, banana, carrot, salads, and 100% juice. Do not include chips, french fries, or other fried potatoes)	HDFRVEA1
10. At your school, do you participate in intramural or school team sports?	PSPORTC3
11. How do you usually get to and from school?	PTOFRMA2
12. Mark how many minutes of HARD physical activity you did on each of the last 7 days. This includes physical activity during physical education class, lunch, recess, after school, evening, and spare time. HARD physical activities are jogging, team sports, fast dancing, jump-rope and	PHRDMHA1 to PHRDUHA1 and PHRDMMA1 to PHRDUMA1

◊ The variable names changed in 2010/2011 to reflect the added questions. The items "Text or talk on a phone" and "E-mail or instant message" were only included in the 2010/2011 survey.

Question	2010/2011 Variable Name
any other physical activities that increase your heart rate and make you breathe hard and sweat.	
13. In the last 12 months, have you had alcohol mixed or pre-mixed with an energy drink such as Red Bull, Rock Star, Monster, or another brand?	ANRGDKA1
14. This chart asks about your drug use. If you have ever used or tried any of the following drugs, mark the age at which you first used or tried. Then mark if you have used or tried the drug in the last 12 months.	
A) Ketamine (special k, kit-kat…)	AUKETAB2, AUKETAA2
B) GHB (G, liquid X, goop…)	AUGHB0B2, AUGHB0A2
15. This chart asks about your drug use. If you have ever used or tried any of the following drugs, mark the age at which you first used or tried. Then mark if you have used or tried the drug in the last 12 months. Medication used to get high and NOT for medical purposes	
A) Sleeping medicine from a drugstore such as Nytol, Unisom	AUSLEPB2, AUSLEPA2
B) Dextromethorphan such as cold or cough medicine like Robitussin DM, Benylin DM (robos, dex, DXM)	AUDXM0B2, AUDXM0A2
16. This chart asks about your drug use. If you have ever used or tried any of the following drugs, mark the age at which you first used or tried. Then mark if you have used or tried the drug in the last 12 months. Other substances used to get high	
A) Jimson weed (locoweed, stinkweed, mad apple) [this is not marijuana or cannabis]	AUJMSWB2, AUJMSWA2

Appendix C: Differences in Derived Variables between 2008/2009 YSS and 2010/2011 YSS

Two new derived variables were included in 2010/2011: Body Mass Index (BMI) and a categorical variable for Body Mass Index (BMI_ACAT).

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