

International Tobacco Control Policy Evaluation Survey (ITC)

Four Country Project Waves 2-8 Technical Report

September 2011

Suggested Citation: ITC Project. (2011, September). *ITC Four Country Waves 2 to 8 (2003-2011) Technical Report*. University of Waterloo, Waterloo, Ontario, Canada; Medical University of South Carolina, Charleston, South Carolina, United States; VicHealth Centre for Tobacco Control, Carlton, Australia; Cancer Control Victoria, Melbourne, Australia; King's College London, London, United Kingdom; University of Stirling, Stirling, United Kingdom; and the Open University, Buckinghamshire, United Kingdom.

Acknowledgments

This Four Country (4C) Waves 2-8 Technical Report was prepared from documents and other material that the International Tobacco Control Policy Evaluation Project (ITC) Research Team has created since the initiation of the project in July 2002. The compilation of these documents and preparation of the material that accompanies those documents was conducted by Geoffrey T. Fong, Principal Investigator of the ITC Project; Mary Thompson, Co-Investigator and Director of the Data Management and Analysis Team; David Hammond, Co-Investigator on the ITC Project; Christian Boudreau, Associate Director of the Data Management and Analysis Team; Pete Driezen, Senior Analyst; and ITC staff members Ruth Loewen, Tara Elton, Taryn Sendzik, Mary McNally, and Janine Ouimet. Research Assistant Celia Huang put the material together in condensed form and wrote the report. We thank the Co-Investigators from the participating sites across the four countries and the ITC survey firms: Roy Morgan Research in Melbourne, Survey Research and Data Acquisition Resource in Buffalo, Survey Research Centre at the University of Waterloo, and Environics Research Group in Toronto, for their assistance.

Waves 2-8 of the Four Country project have been generously supported by a number of organizations. We thank these organizations for their support:

Canadian Institutes of Health Research (Canada)
 Robert Wood Johnson Foundation (U.S.)
 National Health and Medical Research Council (Australia)
 U.S. National Cancer Institute (U.S.)
 Australia Commonwealth Department of Health and Ageing (Australia)
 Cancer Research U.K. (U.K.)
 Canadian Tobacco Control Research Initiative (Canada)
 Health Canada (Canada)
 American Cancer Society (U.S.)
 Centre for Behavioural Research and Program Evaluation, National Cancer
 Institute of Canada/Canadian Cancer Society (Canada)
 Propel Centre for Population Health Impact (Canadian Cancer Society)
 Ontario Institute for Cancer Research (Canada)

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1.0 Introduction

In the past decade, significant advances have been made in public health policies designed to reduce the health, economic, and societal costs of tobacco use throughout the world. Most notably, the Framework Convention on Tobacco Control (FCTC)—the first-ever international public health treaty—was adopted in May 2003 by all 192 member states of the World Health Organization, representing 95% of the world's population. The FCTC will require signatories to implement a range of tobacco control policies over the coming years. In this context, it is critical to monitor and evaluate the implementation of these key health policies.

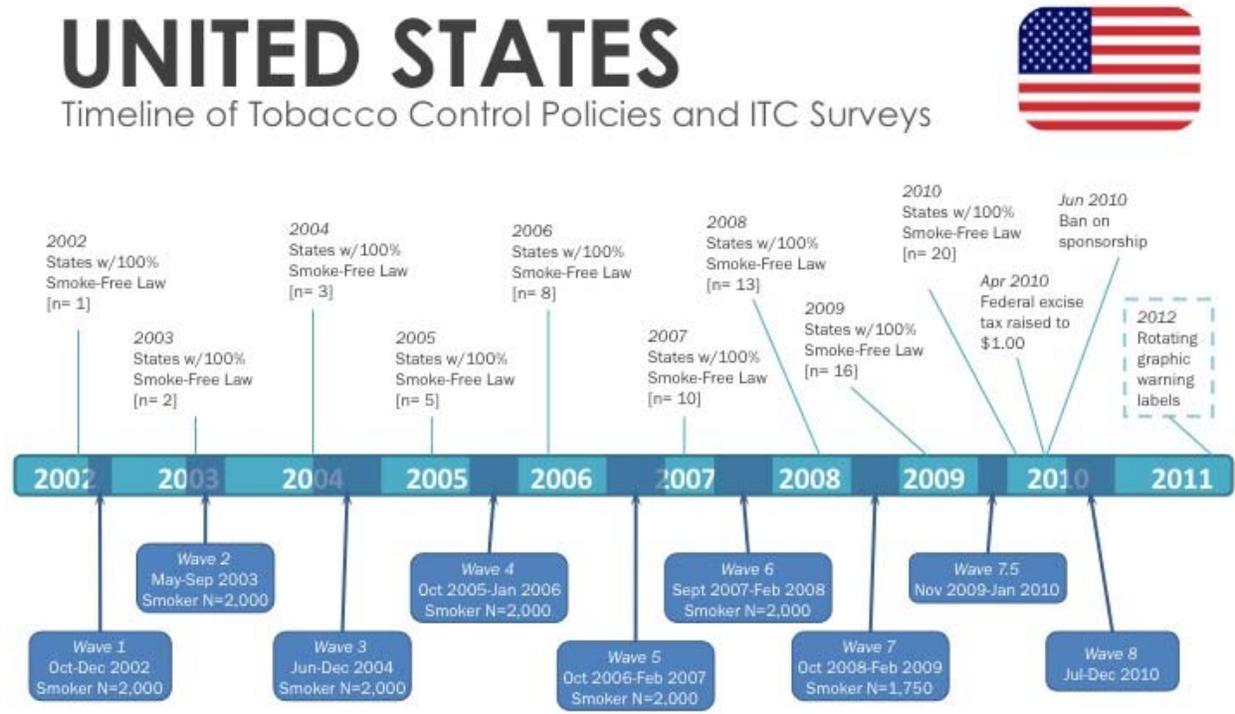
The International Tobacco Control Policy Evaluation Survey (ITC) Four Country project is a prospective cohort study designed to evaluate the psychosocial and behavioural impact of key national-level tobacco control policies enacted over a period of nine years (2002-2011), in at least one of four countries: the United States, Canada, the United Kingdom, and Australia. Over 2,000 adult smokers were recruited by probability sampling methods in each of the four countries and have completed the ITC survey at approximately annual intervals for a period of nine years. All aspects of the study protocol and survey measures are standardized across the four countries.

This report provides a methodological background and key statistical indicators for Waves 2-8 of the ITC Four Country project. In all four countries, Wave 2 was conducted between May 16 and September 28, 2003; Wave 3 was conducted between June 3 and December 27, 2004; Wave 4 was conducted between October 10, 2005 and January 31, 2006; Wave 5 was conducted between October 11, 2006 and February 17, 2007; Wave 6 was conducted between September 21, 2007 and February 12, 2008, Wave 7 was conducted between October 25, 2008 and July 28, 2009, and Wave 8 was conducted between July 13, 2010 and (expected) May 2011. Wave 7.5 was conducted between November 2, 2009 and January 10, 2010, in the United States only.

This report provides information on changes following Wave 1 in the sampling methods, survey protocol and administration, as well as survey outcome rates, measures of representativeness, and guidelines for data analysis for Waves 2-8 data. The information on Wave 1 can be found in the ITC Four Country Wave 1 Technical Report (2004).

The tobacco control policy charts from Wave 1 to Wave 8 for the four countries are shown on the next pages:

Figure 1. Policy Chart for the United States

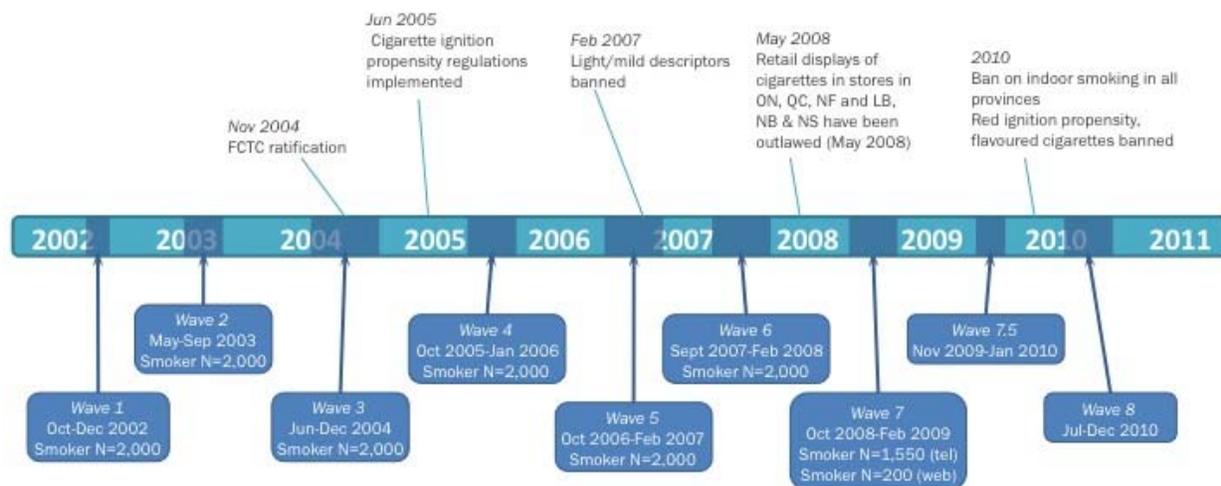


Survey Mode: Telephone (CATI), Web Administered
Respondent Types: Smoker

Figure 2. Policy Chart for Canada

CANADA

Timeline of Tobacco Control Policies and ITC Surveys



Survey Mode: Telephone (CATI), Web Administered
Respondent Types: Smoker

Figure 3. Policy Chart for the United Kingdom

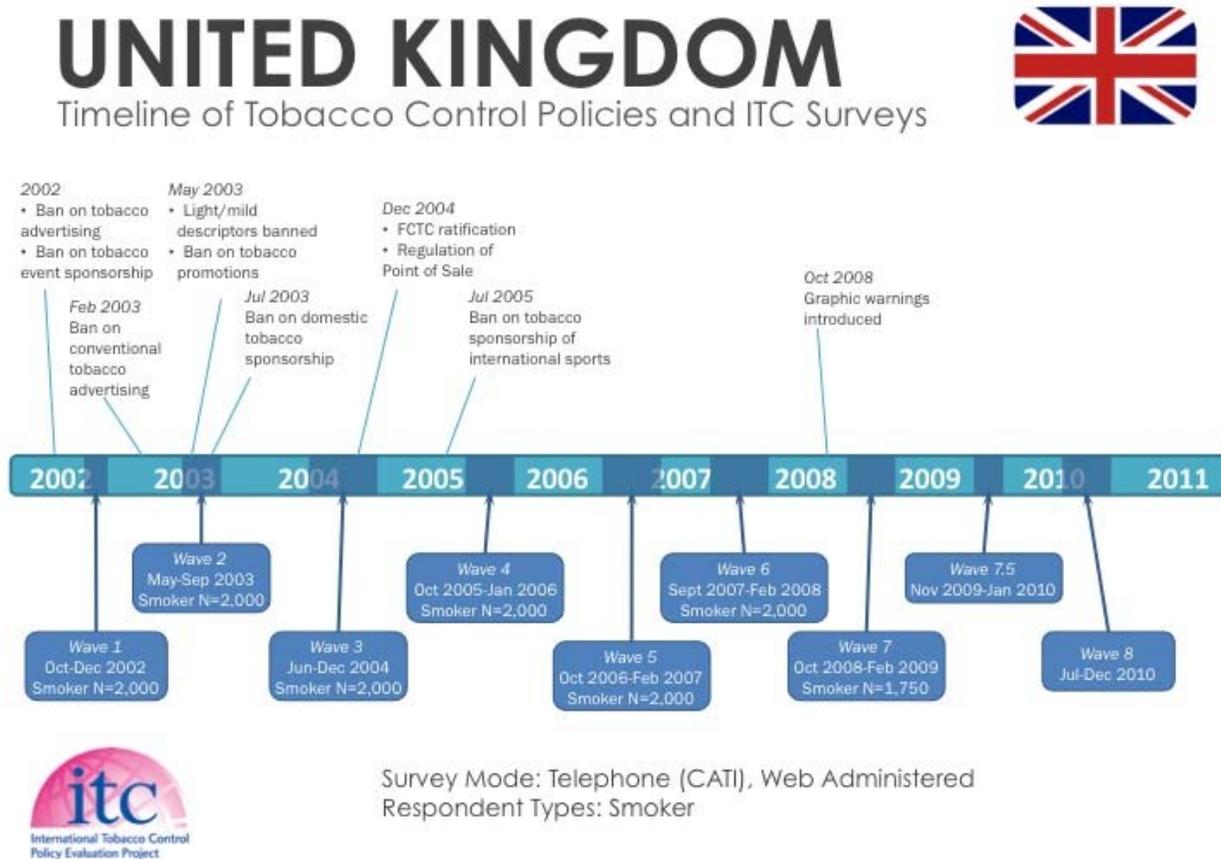
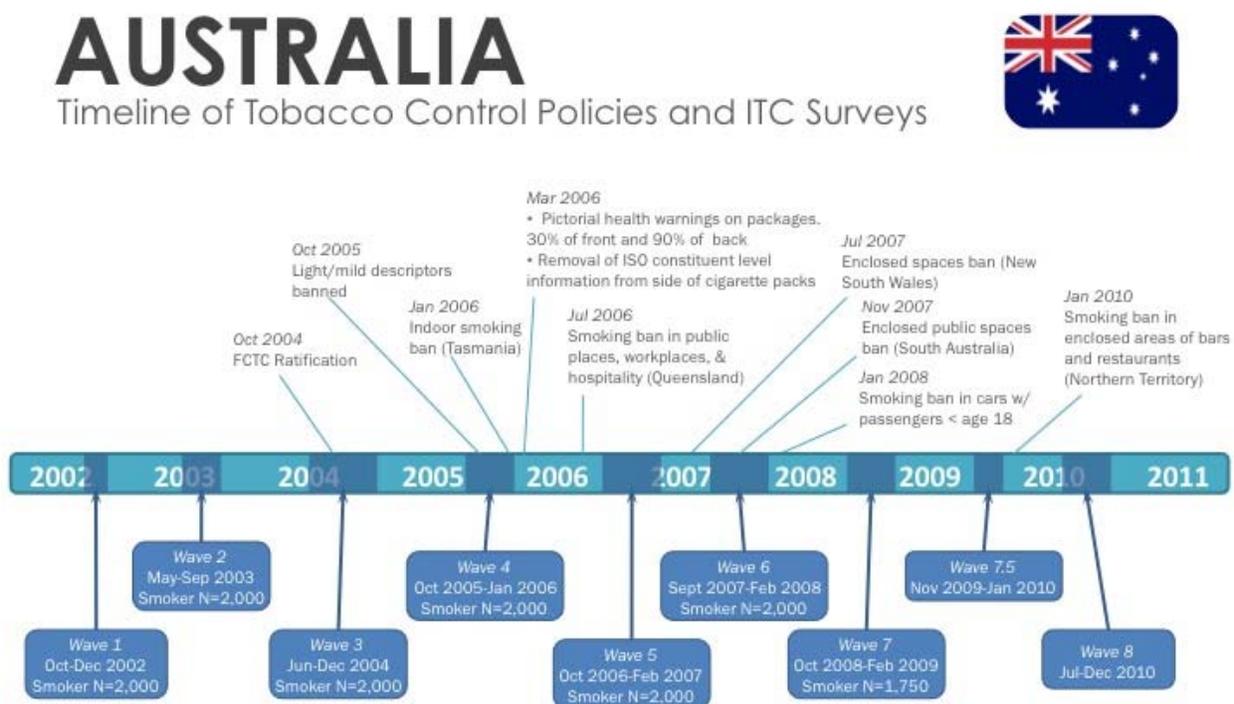


Figure 4. Policy Chart for Australia



Survey Mode: Telephone (CATI), Web Administered
Respondent Types: Smoker

2.0 Sub-studies

2.1 Biomarker Pilot at Wave 5

Wave 5 (W5) of the ITC 4-Country survey included a biomarker pilot study to: 1) assess the feasibility of collecting biological data from cohort participants in the ITC study, through the mail and in the home; 2) examine whether participants are representative of the population under consideration; and 3) evaluate the impact of this type of data collection on subsequent participation in a follow up survey.

Participants were asked to provide a saliva sample and five cigarette butts from cigarettes smoked on a single day, using standardized procedures. Sample collection kits were mailed to a random sample of 400 daily cigarette smokers who were involved in the 2006 annual ITC-4 country (UK, USA, Canada, and Australia) telephone survey and agreed to participate in sample collection.

A more detailed report on this study can be found in Hyland et al. (2005).

The results from this biomarker study were used to inform the supplemental data collection sub-study in Wave 8.

2.2 Web Pilot at Wave 7

Wave 7 (W7) of the ITC 4-Country survey included a nested pilot study to evaluate whether an online version of the survey would be a viable option for further waves in the ITC 4-Country survey. More specifically, the study was to determine the amount of cost savings that could be achieved if some of the cohort participants completed the survey on-line, and to determine whether some of the people could be reached that might otherwise be lost.

738 of the W7 Re-contact participants were mailed a letter requesting that they completed an online version of the survey (with identical content to the telephone survey). These participants were randomly chosen, 200 per country. (Ultimately, fewer were invited in Canada because no French version was administered.) If a participant failed to be contacted, or to complete the online survey (following the initial mailed request and one additional mailed or emailed reminder), they were put back into the telephone-administered group, and were phoned for the survey as in previous waves.

For the new online survey letters, the research team opted to retain the focus of the letter on the protocol revision to offer the survey online, and chose not to distract or confuse by describing the sample size change in detail (as there were no direct implications anticipated as a result of the sample size change for any given study participant).

A new Online Survey Re-contact Letter was used. Participants who did not respond to the initial request to complete the online survey were sent a 3-day, 5-day, 7-day and a

14-day Online Survey Reminder Email, if they had previously provided an email address. If no email address was available, then non-respondents were sent a new 14-day Online Survey Reminder Letter.

Roy Morgan Research (RMR) erroneously telephoned 65 of 400 respondents who were part of the online-survey arm of the study sample. To fix the error, the telephoned respondents were moved into the telephone-survey sample, and 65 respondents from the original telephone-survey sample who had not yet been contacted, were moved into the online-survey sample.

The Survey Research and Data Acquisition Resource (SRDAR) at Roswell Park Cancer Institute in Buffalo, USA, conducted the online survey field work for all four countries. They found that their software restricted the number of characters included in the Online Survey Reminder Email that would be sent to respondents who had been invited but had not yet completed the online survey. Thus, the Online Survey Reminder Email was shortened. Also, the software would not allow including an attached Online Survey Reminder Letter with the email (as originally planned), due to the software's restrictions.

The English online survey was launched on January 27, 2009. At the time of the English online survey launch, the research team re-evaluated the timeline and resources required for the French online survey in light of lessons learned. After careful consideration of the resource and time expenditures compared to the information which would be gained from the 47 potential French online survey participants, project investigators decided to forgo the French online survey portion of the pilot study for Wave 7, in favour of offering this in the future.

Thus altogether 738 recontact respondents were invited to respond by web. As a result, 174 did respond by web; another 183 did not, but later responded by phone, for a total of 357 or 48.4%. This can be compared with recontact retention rates of 73% (UK), 76% (Australia), 76.3% (English Canada), 71.5% (French Canada), 67.7% (US) otherwise.

The following table shows the percentages of web survey uptake in the four countries.

Table 1. Web Survey Uptake					
	Canada	U.S.	U.K.	Australia	Total
Completed Web Surveys	52	41	22	59	174
Total invited	150	196	196	196	738
Percent Completed	35%	21%	11%	30%	24%

No explanation was found for the low uptake rate in the UK. It was speculated that this phenomenon and the lower retention rates for web invitees could be avoided in future waves with increased attention to making the web experience smooth and choosing between modes easy for the respondents.

Thus it was decided that the web survey option would be offered to all respondents in Wave 8.

2.3 Sub-studies at Wave 8

2.3.1 Web Experience

A nested sub-study was conducted in Wave 8 to assess respondents' experience with the web survey compared to earlier experience with the telephone interview survey. Some respondents were offered an additional \$10 incentive for completing the web survey along with 5 extra questions.

Respondents in the cohort had been randomized to the 'Bonus \$10' Arm (stratified by country, age, sex, and presence of email address). Respondents in the 'Bonus \$10' Arm received a slightly modified invitation letter (and any follow up correspondence) which invited the respondent to complete the web survey along with 5 extra questions, for which the respondent was subsequently provided with a token of appreciation of \$10 (or £6 in the UK), in addition to the regular study incentive of \$15.

More detailed information can be found in the ITC 4C Wave 8 Re-contact Web Survey Final Technical Report (2011).

2.3.2 Supplemental Data Collection

The supplemental data collection sub-study in Wave 8 was designed to examine the connection between smoking behaviours, nicotine metabolism, and cigarette characteristics. This sub-study was led by Roswell Park Cancer Institute in the US, and included Wave 8 recontact respondents who resided in the US and the UK, who smoked five or more cigarettes per day, who were 18 years of age or older, and who smoked exclusively or mostly factory-made cigarettes. Respondents in this sub-study received \$25 USD (or equivalent) as a token of appreciation for completing the supplemental data collection. All eligible respondents were invited to provide the following via a mailed sample collection kit: saliva sample, 5 smoked cigarette butts, and a full unopened pack of the respondent's cigarettes.

3.0 Study Protocol

For Waves 2 to 8, recontact and replenishment surveys were included in each wave.

3.1 Cohort Recontact

Each respondent who completed the survey for the previous wave was mailed an invitation to participate in the next wave. For Waves 2-6, the mailed invitations invited the respondent to participate by telephone.

The thank-you letters experiment was conducted to see whether it increased retention from Wave 5 to Wave 6 among those receiving the letters vs. those not receiving the letters. Using everyone participating at Wave 5, respondents were randomly selected to receive the thank-you letters within country, stratifying by cohort. Half the sample received the thank-you letters. Based on the data analyses, the letters did not increase retention rates.

For Wave 6, RMR developed groups for “Easy-to-Reach Re-contact” and “Hard-to-Reach Re-contact” based on the number of calls made to contact a respondent and complete an interview at Wave 5:

- Easy-to-Reach respondents required 1 to 19 calls to complete an interview while Hard-to-Reach respondents required 20 calls or more
- Two different versions of letters were created for Easy-to-Reach and Hard-to-Reach respondents. Hard-to-Reach respondents were asked the best number, best day and time to call
- Letters were sent out to Hard-to-Reach respondents before Easy-to-Reach respondents in September 2007
- Easy-to-Reach respondents were grouped into 4 groups based on the time of year they were contacted at Wave 5, as follows:

Table 2. Wave 5 Survey Dates by Ease-to-Reach Group	
Group	Wave 5 Survey Dates
Easy 1	2006-10-11 – 2006-10-31
Easy 2	2006-11-01 – 2006-11-15
Easy 3	2006-11-16 – 2007-01-09
Easy 4	2007-01-10 – 2007-01-29

- Letters were sent out to Easy-to-Reach respondents so that all respondents

received a call for Wave 6 at approximately the same time of year as Wave 5

- All letters were sent in September 2007 for Wave 6. Letters were sent so that the Easy 1 group was sent first, followed by Easy 2, Easy 3 and Easy 4

For Wave 7, web pilot, respondents with an email address provided at the Wave 6 survey were sent an email invitation, mailed invitation letter, cheque, and reminder emails at approximately 3, 5, 7 and 14 days after the original invitation. After 21 days, a list of those who had not completed the web survey were placed back into the recontact sample and called to complete the telephone survey.

For Wave 7.5, the research team asked 915 eligible individuals from the United States recontact cohort to complete a shortened version of the 4C telephone interview.

For Wave 8, email invitations with a direct link to the web survey were sent to all respondents who provided an email address at the Wave 7 survey, unless the respondents strongly refused at Wave 7.5. They received the email invitation in addition to their regular mailed invitation plus cheque. ITC 4C data files included email addresses for approximately 38% of the cohort. The SRC sent email reminders at approximately 3, 5, 7, and 14 days after the original invitation to those respondents who had provided email addresses.

After 21 days, respondents who had not initially completed the web survey were then routed into the telephone queue. Respondents that specifically provided a verbal commitment (while on the phone with an interviewer) to complete the web survey, were considered to be in "Round 2" of the web survey. Respondents in Round 2 of the Web Survey were provided with 13 days to complete the web survey. The Survey Research Centre (SRC) again invited these respondents by email to participate in the web survey and if necessary, subsequently sent email reminders approximately 3, 5, and 7 days later. If they had not completed the survey by the 14th day, then they were re-routed back into the telephone calling queue.

3.2 Cohort Replenishment

Once a respondent was included in the cohort, every effort was made to track and recontact him/her at subsequent waves. At subsequent waves, in order to ensure that the number of completed surveys at each wave reached a certain target in each country, respondents lost to attrition were replaced. The target was 2000 in each country in Waves 2 through 6, 1750 in each country in Wave 7, and 1500 in Canada, the US and Australia in Wave 8. (Replenishment was not carried out in the UK in Wave 8.) The number of new recruits necessary to replenish lost panel members was estimated after every week of the recontact phases of Waves 2 and beyond. The rate of attrition was used to guide the number of potential replenishment respondents that would be recruited starting at Week 3 of the survey period. Replenishment needs were reviewed and updated every week until the end of the survey period. Sampling

procedures and calling protocol for replenishment at subsequent waves were identical to those at Wave 1 Recruitment.

Concurrently, analyses from continuing and replenished respondents were conducted to assess the influence of “time-in-sample” on the outcome variables. Panel attrition at each wave was modeled as depending on age, gender, education, and health status from previous wave(s). This enabled the construction of attrition weights to adjust for respondents who had dropped out.

At recruitment into the study at Waves 2-8, all respondents were contacted by telephone twice. At the first contact, the Recruitment Survey was conducted to screen for eligibility and ascertain consent. This Recruitment Survey lasted an average of 9-13 minutes. During the recruitment, qualifying respondents (those at least 18 years old who had smoked at least 100 cigarettes and were currently smoking at least once a month) were asked to participate in a 35-minute survey on smoking being conducted by an international group of universities and research institutions in four countries. Respondents were told they would receive a small payment to thank them for their time and were assured that their responses would be kept strictly confidential. Where necessary, additional information was provided on the study, the survey firm, and the research institutions. Participants were provided contact information in case they had concerns about ethics or privacy. Finally, respondents were told that they would be contacted in approximately 6 months time to complete a second 35-minute survey, for which they would receive a second payment.

For both recontact and replenishment, a new protocol for conversion of respondents was introduced in Wave 4 because the non-contact rates and non-response rates were strikingly greater in North America than they had been in previous waves. The protocol was enabled when: 1) the eligibility status of potential participant was undetermined due to broken contact (line disconnection); 2) when the call was a first contact with a potential participant who had indicated that the time of this call was inconvenient and that the refusal was not directed against the survey, or if the participant had research questions and would like some time to think about participation; or 3) when a longitudinal participant seemed to indicate that the timing of this call was inconvenient and that the refusal was not directed against the survey. A participant’s refusal which met one of the three categories specified above was classified as a “soft” refusal, and an attempt to re-contact the participant at a later point within the week was made. However, any direct request to be removed from the survey was coded as a “hard refusal” and resulted in the removal of the participant from the study.

3.3 Compensation

3.3.1 Compensation: Recontact

For Waves 2-7, a compensation letter, containing the compensation, was mailed to participants so that it would arrive before participants were called to complete the Main

Survey, which lasted an average of 35-40 minutes. For Wave 8, the compensation letter was mailed the day before the on-line survey was launched.

The amount of compensation was roughly standardized across each of the four countries: for Waves 2-6 a cheque for \$10 U.S., \$15 CDN, \$15 AUS or a £7 voucher for Boots (UK) and for Waves 7-8 a cheque for \$15 (Canada, US, Australia) or £10 (UK). The compensation letter also included information about the ITC research team and provided contact information for two individuals: (1) the Co-Investigator in the participant's country, and (2) the person to whom concerns about ethics/privacy should be addressed.

In addition, in Wave 8 half of the cohort was randomized (stratified by country, age, sex, and presence of email address) to receive a modified letter which offered an additional \$10 (or £7 in the UK) for completing the web survey including some extra questions assessing the 'web experience' compared to the telephone interview experience from previous waves.

3.3.2 Compensation: Replenishment

For Waves 2-7, the compensation letter described above, containing the compensation, was mailed immediately after the recruitment call, so that it would arrive before participants were called back to complete the Main Survey, which lasted an average of 35-40 minutes. For Wave 8, replenishment of the cohort occurred only in Canada, the United States and Australia due to cost constraints.

The amount of compensation was roughly standardized across each of the four countries: for Waves 2-6 a cheque for \$10 U.S., \$15 CDN, \$15 AUS or £7 (UK) and for Wave 7-8 a cheque for \$15 (Canada, US, Australia) or £10 (UK).

3.4 Calling Protocol

As far as possible, previous wave respondents in the telephone queue were initially called at a similar contact time as when the last interview was administered. Respondents were called twice a day for 3 consecutive days for first 2 weeks (i.e. with up to 12 attempts). If the call went to the answering machine, a message was left on the 1st and 6th calls of each of the 2 weeks. If another member of household answered, the interviewer confirmed the location of the respondent, left a message and asked for the best time to reach the respondent.

3.5 Web Protocol

For Wave 8, each respondent who completed the survey in Wave 7 was mailed an invitation to participate in Wave 8. The mailed invitations invited the respondent to participate on-line. The email invitations were sent to respondents for whom the 4C cohort data files included a valid email address. They received an email invitation in addition to their regular mailed invitation. For the English web survey, the reminder

emails were sent to respondents on Days 3, 8, 10 and 15. The web non-completes were routed into the telephone queue after Day 21. For the French web survey, the reminder emails were sent on Day 4, 8, and 13, and the web non-completes to the telephone queue from Days 18 to 25.

4.0 Survey Measures

4.1 Survey Development Process

The survey development process begins with a series of teleconferences reviewing the questionnaire of the previous wave and dropped questions from earlier waves, and considering suggestions for new lines of questioning.

The survey development process for Wave 8 is shown in the table below, as an example:

Table 3. Wave 8 Survey Development Process		
	Date Started	Date Completed
Teleconferences	Aug 24, 2009	Nov 5, 2009
CH Section content	Dec 1, 2009	Mar 5, 2010
Web non-response content	Nov 9, 2009	Mar 3, 2010
FDA content discussions	Jan 5, 2010	Mar 3, 2010
SMG processing - FDA content	Feb 22, 2010	Apr 8, 2010
Biomarkers content	Jan 13, 2010	May 6, 2010
SMG processing - biomarkers content	Jan 13, 2010	May 6, 2010
BONUS Web Experience content	Feb 8, 2010	Mar 20, 2010
SMG processing - BONUS Web content	Feb 8, 2010	Apr 7, 2010
Brand list coding/updating	Mar 8, 2010	Apr 30, 2010
W7.5 Sample - alternate LSD discussion	Apr 19, 2010	May 3, 2010
Sample - Status discussion	Apr 2010	May 2010
SMG programming - W7.5 sample revisions	May 2010	July 2010

4.2 Survey Content

4.2.1 Wave 7.5

For Wave 7.5, new questions were added to the survey to evaluate the implications of passing the bill to allow Food and Drug Administration (FDA) to regulate tobacco products in the United States. The Wave 7.5 Survey was similar to other ITC 4-C surveys, but was shorter in length (approximately 30 minutes long). The survey was administered by phone and only in the United States. The new FDA questions are below:

Ask all.

If the government was to regulate tobacco products (for example, put in place rules to make them less harmful) would this suggest to you that tobacco products might be even more harmful than you think they are?

- 1 Yes
- 2 No
- 7 Not applicable
- 8 Refused
- 9 Don't know

Ask all.

As far as you know, has the government put in place rules that are designed to make cigarettes less harmful?

- 1 Yes
- 2 No
- 7 Not applicable
- 8 Refused
- 9 Don't know

Ask if FD012=1.

FR309v=1-3: Do you think these changes will reduce your risk of getting a smoking-related disease if you continue not to smoke?

FR309v=4-6: Do you think these changes will reduce the risk of getting a smoking-related disease for those that continue to smoke?

Ask if FD012=2.

FR309v=1-3: Do you think they will be able to put in place such rules in time for it to reduce your risk of getting a smoking-related disease if you continue to smoke?

FR309v=4-6: Do you think they will be able to put in place such rules in time for it to reduce the risk of getting a smoking-related disease for those that continue to smoke?

Ask all.

FR309v=1-3: Do you think that such rules could make smoking less harmful for you?

FR309v=4-6: Do you think that such rules could make smoking less harmful?

- 1 Yes
- 2 No
- 7 Not applicable
- 8 Refused
- 9 Don't know

Ask if FD013=1.

How much?

- 1 A lot less harmful
- 2 Somewhat less harmful
- 3 A little less harmful

Ask all.

In 2009, the President signed a law that gave the US Food and Drug Administration (FDA) power to regulate tobacco products, which will be phased in over the coming months. Have you heard of this law before?

- 1 Yes
- 2 No
- 7 Not applicable
- 8 Refused
- 9 Don't know

4.2.2 Wave 8

For Wave 8, new sections were added on cessation help, the FDA questions and the web bonus questions for web experience.

Example new questions in the cessation help section:

Ask if CH811=1.

The last time you received such advice, did you bring up the topic of quitting or did the doctor/ health professional?

- 1 Respondent/ I brought it up
- 2 Doctor or health professional brought it up
- 7 Not applicable
- 8 Refused
- 9 Don't know

Ask if CH811=1 and CH909<>1.

On any visit to the doctor or other health professional since [LSD], did you receive SUBSTANTIAL advice on HOW to quit or HOW to stay quit? (If necessary, add: This means the doctor did more than just recommend that you quit.)

- 1 Yes, got substantial advice
- 2 No, did not get substantial advice
- 7 Not applicable
- 8 Refused
- 9 Don't know

The web bonus questions for web experience are:

For online survey only:

Thank you! You have completed the ITC Survey for this wave.

As you may recall from your invitation, we would like your feedback about the on-line survey that you have just completed. We now invite you to complete **five BONUS questions about your on-line survey experience**, to tell us how we can improve the survey in the future. If you choose to answer the extra five questions, you will be sent an **ADDITIONAL cheque for [\$10 (CA, US, AU)/ £7 (UK)]** in the mail, as a

token of appreciation.

If you would like to complete the five bonus questions and receive [\$10 (CA, US, AU)/ £7 (UK)], please click "Next".

If you do NOT want to complete the five bonus questions, please choose "Submit". Once you choose "Submit", your survey responses will be submitted, and your participation in the survey will be finished for this wave.

If response=Next, go to AI651.

If response=Submit, end survey.

For online survey only:

How easy to use or difficult to use did you find the on-line survey?

The on-line survey was . . .

- 1 Very easy to use
- 2 Somewhat easy to use
- 3 Somewhat difficult to use
- 4 Very difficult to use
- 7 Not applicable
- 8 Refused
- 9 Don't know

If response=3 or 4, go to AI652o.

Otherwise, go to AI653.

Ask if AI651=3 or 4.

What was the main difficulty you encountered?

For online survey only:

How convenient did you find the the on-line survey, compared to being interviewed by telephone?

The on-line survey was . . .

- 1 Much more convenient than telephone
- 2 Somewhat more convenient than telephone
- 3 About as convenient as telephone
- 4 Somewhat less convenient than telephone
- 5 Much less convenient than telephone
- 7 Not applicable
- 8 Refused
- 9 Don't know

For online survey only:

Thinking about your experience participating in the ITC Four-Country Survey, please select the option that fits best with that experience.

Are you more likely to express your true opinion in a telephone interview, or when doing the survey on-line?

Compared with the telephone survey, on the on-line survey I am . . .

- 1 A lot more likely to express my true opinion
- 2 A little more likely to express my true opinion
- 3 Equally likely to express my true opinion
- 4 A little less likely to express my true opinion
- 5 A lot less likely to express my true opinion
- 7 Not applicable
- 8 Refused
- 9 Don't know

For online survey only:

Overall, for a survey like the ITC Four-Country Survey, if you were given the choice of having a telephone interview or doing an on-line survey, which would you prefer?

- 1 On-line survey
- 2 Telephone survey
- 3 Either is fine
- 7 Not applicable
- 8 Refused
- 9 Don't know

For online survey only:

AI655=1: Why do you prefer on-line survey?

AI655=2: Why do you prefer telephone survey?

AI655=3: What do you like about the on-line survey?

For online survey only:

Optional comment box

How would you improve the on-line survey?

5.0 Quality Control and Uniformity

5.1 Survey Firms

5.1.1 Wave 2

The survey was conducted in Canada and the U.S. by Environics Research Group and in the U.K. and Australia by RMR.

5.1.2 Wave 3 to 6

For Waves 3 to 6, the survey was conducted in all four countries by RMR.

5.1.3 Wave 7 to 8

For Waves 7 and 8, the telephone interviewing was conducted in Canada and the U.S. by SRDAR and in the U.K. and Australia by RMR. For Wave 7, SRDAR conducted the web pilot for all four countries. For Wave 8, SRC at the University of Waterloo conducted the web survey for all four countries.

5.2 Interviewer Training, Supervision and Call Monitoring

5.2.1 Wave 8

For Wave 8, a great deal of communication took place between the telephone survey firms (SRDAR and RMR) and web survey firm (SRC) involved in the Four Country Survey to coordinate the two interviewing methods used. During the initial primarily web period (Day 1 to 21) of fieldwork, and during the telephone and web period (Day 22 of fieldwork onwards),

More information can be found in ITC Four Country Wave 8 Survey Fieldwork Protocol (2010).

6.0 Summary of Key Statistics

6.1 Survey Outcome Statistics for Telephone Surveys

All call attempts were assigned an American Association for Public Opinion Research (AAPOR) disposition code. A list of final disposition codes and their definitions are provided in Appendix C, using Wave 7 as an example. Table 2 to 7 present survey statistics for new or replenishment for each of the four countries from Wave 2 to 7. The Wave 8 statistics are being finalized.

Table 4. Wave 2 Survey Statistics

	Canada	U.S.	U.K.	Australia
Recruitment Sample Size (2039)	603	850	295	291
Cooperation Rate	86.6%	88.6%	73.9%	79.3%
Response Rate (AAPOR#4)	unavailable	unavailable	25.8%	36.7%
Main Survey Sample Size (1714)	517	684	255	258
Main Survey Follow-Up Rate	85.7%	80.5%	86.4%	88.7%

Table 5. Wave 3 Survey Statistics

	Canada	U.S.	U.K.	Australia
Recruitment Sample Size (3205)	655	1282	682	586
Cooperation Rate	78.8%	74.1%	71.6%	79.2%
Response Rate (AAPOR#4)	50.0%	34.9%	41.6%	44.2%
Main Survey Sample Size (2552)	545	889	586	532
Main Survey Follow-Up Rate	83.2%	69.3%	85.9%	90.8%

Table 6. Wave 4 Survey Statistics

	Canada	U.S.	U.K.	Australia
Recruitment Sample Size (2716)	630	1013	648	425
Cooperation Rate	79.4%	74.9%	78.7%	79.9%
Response Rate (AAPOR#4)	29.4%	23.4%	21.4%	39.5%
Main Survey Sample Size (2126)	519	742	503	362
Main Survey Follow-Up Rate	82.4%	73.2%	77.6%	85.2%

Table 7. Wave 5 Survey Statistics

	Canada	U.S.	U.K.	Australia
Recruitment Sample Size (3714)	770	1108	931	905
Cooperation Rate	75.1%	71.9%	87.3%	84.9%
Response Rate (AAPOR#4)	27.3%	20.7%	12.9%	45.3%
Main Survey Sample Size (2638)	594	745	613	686
Main Survey Follow-Up Rate	77.1%	67.2%	65.8%	75.8%

Table 8. Wave 6 Survey Statistics

	Canada	U.S.	U.K.	Australia
Recruitment Sample Size (3237)	765	1077	751	644
Cooperation Rate	79.9%	73.9%	74.6%	79.6%
Response Rate (AAPOR#4)	26.7%	22.3%	15.4%	29.1%
Main Survey Sample Size (2329)	556	711	523	539
Main Survey Follow-Up Rate	72.7%	66.0%	69.6%	83.7%

Table 9. Wave 7 Survey Statistics

	Canada	U.S.	U.K.	Australia
Recruitment Sample Size (1508)	385	481	487	155
Cooperation Rate	81.1%	90.8%	82.1%	80.7%
Response Rate (AAPOR#4)	29.0%	29.7%	32.6%	30.2%
Main Survey Sample Size (1196)	320	382	370	124
Main Survey Follow-Up Rate	83.1%	79.4%	76.0%	80.0%

Table 10. Wave 8 Survey Statistics

	Canada	U.S.	U.K.	Australia
Recruitment Sample Size (1018)	248	507	N/A	263
Cooperation Rate	71.3%	90.1%	N/A	81.2%
Response Rate (AAPOR#4)	29.3%	31.0%	N/A	27.6%
Main Survey Sample Size (804)	207	376	N/A	221
Main Survey Follow-Up Rate	83.5%	74.2%	N/A	84.0%

6.2 Survey Weights

6.2.1 Wave 2

For Wave 2, the following sets of weights are available:

1. Wave 1 – Wave 2 longitudinal weights. For longitudinal or cohort analyses based on respondents who completed both the Wave 1 and 2 surveys, the population being represented is usually the Wave 1 population. Thus typically weights wtm12 should be used; these are the Wave 1 weights wtm1 adjusted for attrition within geographic strata and re-calibrated to the Wave 1 prevalence numbers. The variable for these weights is bDE921v.

2. Wave 2 new respondent weights. For Wave 2 cross-sectional analyses involving new Wave 2 respondents only, recruitment weights wtr2 or main survey weights wtp2 should be used; these are calibrated to prevalence numbers at the time of Wave 2. The variables for these weights are bDE911v (recruitment) and bDE915v (for main survey).

3. Wave 2 main survey cross-sectional weights. For cross-sectional analyses involving all of Wave 2 respondents, weights wtm2 have been constructed; like the wtp2 weights above, these weights are calibrated to assumed prevalence numbers at the time of Wave 2. The weights are scaled so that within each country the sum of the wtm2 over continuing respondents is equal to the number of continuing respondents, and the sum of the wtm2 over new respondents is equal to the number of new respondents. (Thus the overall sum of these weights is the sample size, not an estimate of the population size.) The variable for these weights is bDE919v.

6.2.2 Wave 3

For Wave 3, the following sets of weights are available:

1. Wave 1 – Wave 2 – Wave 3 longitudinal weights. For longitudinal or cohort analyses based on respondents who completed the Waves 1, 2 and 3 surveys, the

population being represented is usually the Wave 1 population. Thus typically weights wtm123 should be used; these are the Wave 1-Wave 2 longitudinal weights wtm12 adjusted for attrition within geographic strata and re-calibrated to the Wave 1 prevalence numbers. The variable for these weights is cDE921v.

2. Wave 2 – Wave 3 longitudinal weights. For longitudinal or cohort analyses based on respondents who completed both the Wave 2 and Wave 3 surveys, the population being represented is usually the Wave 2 population. Thus typically weights wtm23 should be used; these are the Wave 2 weights wtm2 adjusted for attrition within geographic strata and re-calibrated to the Wave 2 prevalence numbers. The variable for these weights is cDE923v.

3. Wave 3 new respondent weights. For Wave 3 cross-sectional analyses involving new Wave 3 respondents only, recruitment weights wtr3 or main survey weights wtp3 should be used; these are calibrated to prevalence numbers at the time of Wave 3. The variable s for these weights are cDE911v (recruitment) and cDE915v (for main survey).

4. Wave 3 main survey cross-sectional weights. For cross-sectional analyses involving all of Wave 3 respondents, weights wtm3 have been constructed; like the wtp3 weights above, these weights are calibrated to assumed prevalence numbers at the time of Wave 3. The weights are scaled so that within each country the sum of the wtm3 over continuing respondents is equal to the number of continuing respondents, and the sum of the wtm3 over new respondents is equal to the number of new respondents. (Thus the overall sum of these weights is the Wave 3 sample size, not an estimate of the population size.) The variable for these weights is cDE919v.

Note that at each wave the longitudinal sample is a little less representative of its original population because of attrition, and the weights become correspondingly a little more variable. However, the coefficients of variation of the cross-sectional weights at Waves 1, 2 and 3 remained reasonable at around 0.46, 0.53 and 0.63 respectively.

Respondents who move out of their countries between waves are dropped out of the sample. However, respondents who move from one geographic stratum to the other within a country are retained. No such movers were noted between Waves 1 and 2. However, there were several between Waves 2 and 3. For longitudinal weights, a mover was associated with the stratum in which he/she resided before the move. However, for cross-sectional weights, a mover was associated with the new stratum. The preliminary weight before adjustment was then no longer the weight from the previous wave, but the average of weights in the new stratum in the previous wave, with the same calibration class as the respondent. Thus, for example, a respondent in age-sex group *g* moving from stratum *x* to stratum *y* between Waves 2 and 3 would need a new preliminary weight as input to the construction of the Wave 3 cross-sectional weight. The new preliminary weight was the average Wave 2 cross-sectional weight for respondents in stratum *y* and age-sex group *g*. (In the United States, *g* represented an age-sex-ethnicity group.)

6.2.3 Wave 4

For Wave 4, the following sets of weights are available:

1. Wave 1 – Wave 2 – Wave 3 – Wave 4 longitudinal weights. For longitudinal or cohort analyses based on respondents who completed the Waves 1, 2, 3 and 4 surveys, the population being represented is usually the Wave 1 population. Thus typically weights wtm1234 should be used; these are the Wave 1-Wave 2-Wave 3 longitudinal weights wtm123 cDE921v) adjusted for attrition within geographic strata and re-calibrated to the Wave 1 prevalence numbers. The variable for these weights is dDE921v.

2. Wave 2 – Wave 3 – Wave 4 longitudinal weights. For longitudinal or cohort analyses based on respondents who completed the Waves 2, 3 and 4 surveys, the population being represented is usually the Wave 2 population. Thus typically weights wtm234 should be used; these are the Wave 2-Wave 3 longitudinal weights wtm23(cDE923v) adjusted for attrition within geographic strata and re-calibrated to the Wave 2 prevalence numbers. The variable for these weights is dDE923v.

3. Wave 3 – Wave 4 longitudinal weights. For longitudinal or cohort analyses based on respondents who completed both the Wave 3 and Wave 4 surveys, the population being represented is usually the Wave 3 population. Thus typically weights wtm34 should be used; these are the Wave 3 weights wtm3 (cDE919v) adjusted for attrition within geographic strata and re-calibrated to the Wave 3 prevalence numbers. The variable for these weights is dDE925v.

4. Wave 4 new respondent weights. For Wave 4 cross-sectional analyses involving new Wave 4 respondents only, recruitment weights wtr4 or main survey weights wtp4 should be used (See Initial recruitment weights at Wave 1); these are calibrated to prevalence numbers at the time of Wave 4 respectively. The variable s for these weights are dDE911v (recruitment) and dDE915v (for main survey).

5. Wave 4 main survey cross-sectional weights. For cross-sectional analyses involving all of Wave 4 respondents, weights wtx4 have been constructed. For continuing respondents, cDE919v is used as the initial weight, then calibrated to assumed prevalence numbers at the time of Wave 4, yielding cross-sectional weights for M3/P3-M4 continuers (dDE917v) ; For new respondents, dDE915v is used as the initial weight, being calibrated to assumed prevalence numbers at the time of Wave 4 already. These weights are scaled so that within each country the sum of the wtx4 over continuing respondents is equal to the number of continuing respondents, and the sum of the wtx4 over new respondents is equal to the number of new respondents. (Thus the overall sum of these weights is the Wave 4 sample size, not an estimate of the population size.) The variable for these weights is dDE919v.

The country coefficients of variation of the Wave 4 cross-sectional weights range between 0.5 and 0.7; however, the CVs of the Wave 4 longitudinal weights are higher, and as high as 0.85 in the UK. This increased variability seems due to differential

attrition by age group, since the age-specific coefficients of variation are around 0.4 to 0.5.

Movers between Wave 3 and Wave 4 were treated in the same manner as were movers between Wave 2 and Wave 3.

6.2.4 Wave 5-8

R code of the core functions for computing the weights:

```
psa.wt <- function(data, name.weights, names.factors, targets, name.totals,
                   names.factors2=names.factors, summary=T, tolerance=1e-6)
{
# DESCRIPTION:
# Returns a vector of post-stratified adjusted (PSA) sampling weights
#
# Author: C. Boudreau
# Last updated/version: Feb. 19, 2010
#
# ARGUMENTS:
# data = data frame of respondents
# name.weights = name of the column of `data` containing the weights to be
#               calibrated/benchmarked
# names.factors = vector with the name(s) of the column(s) of `data`
#               containing the factor(s) defining the post-stratified cells;
#               if more than 1 column is given, their interaction is used for
#               creating the post-stratification cells
# targets = data frame of target population totals
# name.totals = name of the column of `targets` containing the target population
totals
#               or benchmarked figures, these can be expressed as actual totals or as
#               proportions (in which case must sum to 1)
# names.factors2 = same as `names.factors`, but for `targets`
# summary = logical, if true summary figures are displayed
# tolerance = tolerance for detecting that the sum of weights is not equal to
#             target total in one or more cells
#
# REFERENCE:
# Levy, P.S. & Lemeshow, S. (2008), Sampling of Populations: Methods and Applications,
# 4th edn, Wiley -- section 16.3.3

# call matching & input verifications
call <- match.call()
if (!is.data.frame(data)) stop("", deparse(call[[2]]), "' must be a data.frame")
if (!is.data.frame(targets)) stop("", deparse(call[[5]]), "' must be a data.frame")

if (typeof(call[[3]]=="symbol") weights <- deparse(call[[3]]) else weights <-
call[[3]]
if (!is.vector(weights, mode="character") | length(weights) != 1)
stop("", call[3], "' must be a character string")

if (typeof(call[[6]]=="symbol") totals <- deparse(call[[6]]) else totals <- call[[6]]
if (!is.vector(totals, mode="character") | length(totals) != 1)
stop("", call[6], "' must be a character string")
prop <- all(targets[, totals] <= 1) # are the target figures given as proportions
if (!prop && !all(targets[, totals] > 1))
stop("Values in column '", call[6], "' of '", deparse(call[[5]]),
"' must be either all > 1 or all <= 1")
if (prop && sum(targets[, totals])!=1)
stop("If the target figures are given as proportions, they must sum to 1")
```

```

if (!is.vector(names.factors, mode="character"))
  stop("'", call[4], " must be a character string or a vector of character strings")

if (!is.logical(summary)) stop("'summary' must be TRUE or FALSE")
if (!is.numeric(tolerance) | length(tolerance)!=1 || tolerance <= 0)
  stop("'tolerance' must be a positive scalar")

# additional input verifications
tmp <- match(c(weights, names.factors), names(data))
if (any(is.na(tmp)))
  stop("'", weights, "' and/or '", deparse(call[[4]]), "' are not valid columns of '",
        deparse(call[[2]]), "'")
tmp <- match(c(totals, names.factors2), names(targets))
if (any(is.na(tmp)))
  {
  if (all(names.factors2==names.factors))
    stop("'", totals, "' and/or '", deparse(call[[4]]),
          "' are not valid columns of '", deparse(call[[5]]), "'")
  else
    stop("'", totals, "' and/or '", deparse(call[[7]]),
          "' are not valid columns of '", deparse(call[[5]]), "'")
  }

# creating & further input verifications
data$cell <- interaction(data[ , names.factors], drop=T)
targets$cell <- interaction(targets[ , names.factors2], drop=T)
tmp <- match(as.character(unique(data$cell)), as.character(targets$cell))
tmp <- c(tmp, match(as.character(targets$cell), as.character(unique(data$cell))))
if (length(targets$cell) != length(unique(data$cell)))
  stop("# of post-stratified cells in '", deparse(call[[2]]), "' = ",
        length(unique(data$cell)), ", whereas # of post-stratified cells in '",
        deparse(call[[5]]), "' = ", length(targets$cell), "; these #'s must be equal")
if (any(is.na(tmp))) stop("names of post-stratified cells in '", deparse(call[[2]]),
                          "' and '", deparse(call[[5]]), "' don't match")

# checking for missing values (this function doesn't support missing values)
if (any(is.na(data[ , c(weights, names.factors)])))
  stop("one or more missing values in columns '", names.factors, "' and/or '",
        weights, "' of '", deparse(call[[2]]), "'")
if (any(is.na(targets[ , c(totals, names.factors2)])))
  stop("one or more missing values in columns '", names.factors2, "' and/or '",
        totals, "' of '", deparse(call[[5]]), "'")

# summing weights in each cell
tmp <- split(data[ , weights], data$cell)
tmp <- sapply(tmp, sum)

# ensuring that tmp and targets are in the same order
tmp <- tmp[order(names(tmp))]
targets <- targets[order(as.character(targets$cell)), ]

# computing the inflating/deflating factor for each cell
factors <- targets[ , totals] / tmp

# multiplying the weight by the above inflating/deflating factors
data$output <- NULL # initialization
for (i in 1:length(factors))
  {
  tmp <- data$cell == names(factors)[i]
  data$output[tmp] <- data[tmp, weights] * factors[i]
  }

```

```

# checks
if (any(is.na(data$output))) stop("One or more weights with missing value")
if (any(data$output<=0)) stop("One or more weights equal to or less than 0")
tmp <- sapply(split(data$output, data$cell), sum)
tmp <- tmp[order(names(tmp))] # ensuring tmp is in the right order
if (any(abs(tmp - targets[ , totals]) > tolerance)) # one could use all.equal instead
  warning("Sum of weights not equal to target total in one or more cells")
if (any(table(data$cell) < 10))
  warning("One or more cells with observed frequency < 10")

# if target figures are proportions, the weights are rescaled to have a mean = 1
if (prop)
{
  print(call)
  data$output <- data$output / mean(data$output)
  cat("\n"); cat("*** Note: the supplied population target figures are proportions,
\n")
  cat("\t and weights have been rescaled to have mean = 1 \n")
}

# summary figures
if (summary)
{
  tmp2 <- sqrt(apply(data[ , c(weights, "output")], 2, var)) /
    mean(data[ , c(weights, "output")])
  if (!prop) print(call)
  cat("\n"); cat("*** Summary: \n")
  cat("  - no weights with missing value \n")
  cat("  - no weights equal to or less than 0 \n")
  cat("  - cv of the weights before calibration = ", tmp2[1], "\n", sep="")
  cat("  - cv of the weights after calibration = ", tmp2[2], "\n", sep="")
  if (any(abs(tmp - targets[ , totals]) > 0.0001))
  {cat("  - WARNING: sum of weights NOT equal to target total in \n")
    cat("    one or more of the", length(factors), "cells; i.e., \n")}
  else cat("  - sum of weights equal to target total in all", length(factors),
    "cells; i.e., \n")
  cat("\t\t max( |sum of weights - target| ) =", max(abs(tmp - targets[ , totals])),
\n")
  if (any(table(data$cell) < 10))
    cat("  - one or more cells with observed frequency < 10:")
  else cat("  - all observed cell frequencies greater than or equal to 10:")
  print(table(data$cell)); cat("\n")
}

# output
data$output
}

rescale.wt <- function(data, name.weights, summary=T)
{
# DESCRIPTION:
# Returns a vector of rescaled sampling weights
#
# Author: C. Boudreau
# Last updated/version: Jun. 5, 2009
#
# ARGUMENTS:
# data = data frame
# name.weights = name of the column of `data` containing the weights to rescale
# summary = logical, if true summary figures are displayed

# call matching & input verifications

```

```

call <- match.call()
print(call)

if (!is.data.frame(data)) stop("'", deparse(call[[2]]), "' must be a data.frame")
if (typeof(call[[3]])=="symbol") weights <- deparse(call[[3]]) else weights <-
call[[3]]
if (!is.vector(weights, mode="character") | length(weights) != 1)
  stop("'", call[3], "' must be a character string")
tmp <- match(weights, names(data))
if (is.na(tmp)) stop("'", weights, "' is not valid column of '", deparse(call[[2]]),
"'")
if (!is.logical(summary)) stop("'summary' must be TRUE or FALSE")

# checking for missing values (this function doesn't support missing values)
if ( any(is.na(data[ , weights])) )
  stop("one or more missing values in column `", weights, "` of `data`")

# re-scaling the weights
output <- data[ , weights] * length(data[ , weights]) / sum(data[ , weights])

# checks
error <- 0.0001
if (any(is.na(output))) stop("one or more weights with missing value")
if (any(output<=0)) stop("one or more weights equal to or less than 0")
if (abs(mean(output) - 1) > error) stop("mean of rescaled weights != 1")
if (abs(sum(output) - length(data[ , weights])) > error)
  stop("sum of rescaled weights != sample size = ", length(data[ , weights]))
tmp <- sqrt(var(output)/mean(output) - sqrt(var(data[ , weights])/mean(data[ ,
weights]))
if (abs(tmp) > error)
  stop("coefficients of variation before and after rescaling not equal")

# summary figures
if (summary)
  {cat("*** Summary: \n")
  cat("      mean of weights before rescaling =", mean(data[ , weights]), "\n")
  cat("      mean of weights after rescaling =", mean(output), "\n")
  cat("      sum of weights before rescaling =", sum(data[ , weights]), "\n")
  cat("      sum of weights after rescaling =", sum(output), "\n")}

# output
output
}

```

As an example, the R code for computing the wave 7 weights for the United States is given below.

```

# Creating the dataset of respondents:
# =====

# renaming/recoding some variables
inputUS.dat$sex <- as.character(inputUS.dat$sex)
inputUS.dat$nb.smokers <- inputUS.dat$BI327
inputUS.dat$nb.smokers[is.na(inputUS.dat$nb.smokers)] <- 1 # these are smokers living
alone
inputUS.dat$ethnic <- ifelse(inputUS.dat$ethnic=="white", "white", "non-white")
inputUS.dat$ethnic[is.na(inputUS.dat$ethnic)] <- "non-white"

# creating the ageGrp variable
inputUS.dat$ageGrp <- cut(inputUS.dat$age, c(18, 34, 47, 100), right=F)

# creating strata.cur = strata of current residence

```

```

inputUS.dat$strata.cur <- as.character(inputUS.dat$gStrata)

# creating strata.ori = strata at the time of recruitment
inputUS.dat$strata.ori <- inputUS.dat$strata.cur

tmp <- grep("^in(M1|P[2-6])", names(inputUS.dat), value=T)
tmp <- inputUS.dat[inputUS.dat$moved!=0, tmp]
tmp2 <- grep("[a-f]Strata", names(inputUS.dat), value=T)
tmp2 <- inputUS.dat[inputUS.dat$moved!=0, tmp2]

inputUS.dat$nb.phones <- ifelse(inputUS.dat$inR7==1, ifelse(inputUS.dat$DE711==1,
  inputUS.dat$DE716 + 1, 1), NA)
inputUS.dat$nb.phones[inputUS.dat$DE711==1 & is.na(inputUS.dat$DE716)] <- 2

# creating a blank output dataset (with uniqid, country and cohort)
outputUS.dat <- inputUS.dat[ , 1:3]

# Waves 1-7 and waves 2-7 longitudinal weights:
# =====

# These weights are no longer computed as too few cohorts 1 & 2 respondents are
# still present at wave 7

# Computing the waves 3-7 longitudinal weights:
# =====

# start with variable fDE925v = longitudinal weight for M3/P3-M4-M5-M6 continuers
tmpUS.dat <- inputUS.dat[!is.na(inputUS.dat$DE925v) & inputUS.dat$inM7==1, ]
tmpUS.dat$wts.start <- tmpUS.dat$DE925v

# Step 1: per stratum ratio adjustment
# -----

tmpUS.dat$wts.tmp <- psa.wt(tmpUS.dat, "wts.start", "strata.ori",
  totalsUS_w34.dat, "nb.adults", "strata")

# Step 2: calibration to smoking prevalence per sex/age/ethnic groups:
# -----

# collapsing all age groups for non-white
tmpUS.dat$ageGrp <- as.character(tmpUS.dat$ageGrp)
tmp <- tmpUS.dat$ethnic=="non-white"
tmpUS.dat$ageGrp[tmp] <- "[18,100]"

tmpUS.dat$wts.tmp <- psa.wt(tmpUS.dat, "wts.tmp", c("sex", "ethnic", "ageGrp"),
  targetsUS_w345.dat, "nb.smokers")

# Step 3: rescaling:
# -----

tmpUS.dat$wts.3to7 <- rescale.wt(tmpUS.dat, wts.tmp)

# Merging:
# -----

outputUS.dat <- merge(outputUS.dat, tmpUS.dat[ , c("uniqid","wts.3to7")], all.x=T)

# checks
> dim(inputUS.dat)[1] == dim(outputUS.dat)[1]
[1] TRUE
> sum(!is.na(outputUS.dat[, dim(outputUS.dat)[2]])) == dim(tmpUS.dat)[1]
[1] TRUE

```

```

# Computing the waves 4-7 longitudinal weights:
# =====

# Omit code for computing the waves 4-6 longitudinal weights and the waves 5-6
longitudinal weights because similar to above

# Computing the waves 5-7 longitudinal weights:
# =====

# Computing the waves 6-7 longitudinal weights:
# =====

# Computing the wave 7 recruitment cross-sectional weights:
# =====

tmpUS.dat <- inputUS.dat[inputUS.dat$inR7==1, ]

# Step 1: adjustment for the number of phone lines and of smokers in household:
# -----

# adjustment for the number of phone lines
tmpUS.dat$wts.start <- ifelse(tmpUS.dat$nb.phones >= 2, 1/2, 1)

# adjustment for the number of smokers in household
tmp <- ifelse(tmpUS.dat$nb.smokers >= 2, 2, 1)
tmpUS.dat$wts.start <- tmpUS.dat$wts.start * tmp

# Step 2: per stratum ratio adjustment
# -----

tmpUS.dat$wts.tmp <- psa.wt(tmpUS.dat, "wts.start", "strata.cur",
                           totalsUS_w7.dat, "nb.adults", "strata")

# Step 3: calibration to smoking prevalence per sex/age/ethnic groups:
# -----

# collapsing all age groups for non-white
tmpUS.dat$ageGrp <- as.character(tmpUS.dat$ageGrp)
tmp <- tmpUS.dat$ethnic=="non-white"
tmpUS.dat$ageGrp[tmp] <- "[18,100]"

tmpUS.dat$wts.tmp <- psa.wt(tmpUS.dat, "wts.tmp", c("sex", "ethnic", "ageGrp"),
                           targetsUS_w7.dat, "nb.smokers")

# Step 4: rescaling:
# -----

tmpUS.dat$wts.R7 <- rescale.wt(tmpUS.dat, wts.tmp)

# Merging:
# -----

outputUS.dat <- merge(outputUS.dat, tmpUS.dat[ , c("uniqid","wts.R7")], all.x=T)

# Computing the wave 7 replenishment cross-sectional weights:
# =====

# Omit code for computing the waves 4-6 longitudinal weights and the waves 5-6
longitudinal weights because similar to above

# Computing the wave 7 main survey cross-sectional weights:
# =====

```



```
# Step 4: rescaling:
# -----

tmpUS.dat$wts.M7 <- rescale.wt(tmpUS.dat, wts.tmp)

# Merging:
# -----

outputUS.dat <- merge(outputUS.dat, tmpUS.dat[, c("unqid", "wts.M7")], all.x=T)
```

Appendix A. Sampling Specifications

Wave 7 sampling specifications used by SRDAR are shown below as an example.

Description	Specification
Source of samples	<ul style="list-style-type: none"> ▪ Random Digit Dialing (RDD) by Survey Sampling International (SSI¹)
Sampling frame	<ul style="list-style-type: none"> • Phone directories used to produce cleaned-up database of working blocks for all countries.
Organization of numbers called from stock	<ul style="list-style-type: none"> • Canada: stratified by province x community size • US: stratified by the dimensions used by SSI: four categories of counties (A - largest metropolitan areas; B - those not in A but in metropolitan areas with more than 85,000 households; C - those not in A or B that have more than 20,000 households; D - the remainder) within region • Notes: <p style="margin-left: 40px;">Respondent sample will be allocated proportionally to stratum sizes based on census data. In both countries, numbers to be called will be obtained from sample which will be stratified and the order of numbers randomized within strata</p>
Assumed number of calls needed per recruitment	<ul style="list-style-type: none"> • 150 (i.e., approximately equal to the reciprocal of working phone rate x incidence rate x cooperation rate).
Cell phones	<ul style="list-style-type: none"> • Not to be called for survey interviews. • Note: Cell phones will not be present in the SSI samples

¹ Sample from ASDE was added later.

Description	Specification
Selection of respondent within household	<ul style="list-style-type: none"> • Adult (18 years old or older) smoker with next birthday at time of call will be interviewed: current smokers who are either daily or occasional smokers and who have smoked at least 100 cigarettes in their life. • If the identified smoker with the next birthday refuses to be interviewed, the household will be eliminated from the sample and no other household member will be recruited.
Retention in subsequent waves as a function of smoking status	<ul style="list-style-type: none"> • All respondents are retained in consecutive waves; regardless of their new smoking status.
Respondents reporting having quit	<ul style="list-style-type: none"> • Administer the main survey with appropriate routing for quitters, and re-contact at all future waves. • Note: Procedures for handling reported quitters (either when re-contacted or if reported on toll-free numbers) will follow those for Waves 1-6.
Protocol for replenishment of sample at Wave 7	<ul style="list-style-type: none"> • Estimating number of new recruits necessary for the replenishment of cohort members lost between Waves 6 and 7. • Note: Total sample size has decreased by 250 respondents from last wave (to n=1,750 per country) therefore replenishment estimate will be reduced accordingly.
Sampling procedures for replenishment of sample at Wave 7	<ul style="list-style-type: none"> • Identical to the procedures used in Wave 1 for each country.

Appendix B. Recontact and Replenishment Contact Protocol

Wave 7 protocol used by SRDAR is shown below as an example.

Recontact Protocol

1. Recontact Survey (continuing respondents, not selected for web pilot survey):
 - As far as possible, respondents will be initially called at a similar contact time as when the last interview was administer
 - Call 2 twice a day for 3 consecutive days for first 2 weeks (i.e. up to 12 attempts).
 - If answering machine: leave message on 1st and 6th calls of each of the 2 weeks.
 - If other member of household answers: confirm location of respondent, leave message and ask for the best time to reach respondent.

2. Recontact Survey for Web Pilot (continuing respondents selected for web survey):
 - 200 continuing respondents will be taken out of the Re Contact sample and invited to participate in an on-line version of the Wave 7 survey.
 - These respondents will each be mailed an invitation letter along with an incentive check (US respondents mailed by SRDAR; Canadian respondents mailed by UW; UK and Australian respondents mailed by RMR)
 - Those who have provided an email address at the Wave 6 survey will also be sent an email invitation to participate in the on-line survey.
 - Reminder notices will be sent to the Web-Survey sample. SRDAR will send email reminders at approximately 3,5, 7 and 14 days after the original invitation to those respondents who have provided email addresses . SRDAR will send a mailed reminder at 14 days to those in the US without an email address. UW will send a mailed reminder at 14 days to those in Canada, and RMR will send a mailed reminder at 14 days to those in Australia and UK.
 - After 21 days, a list of those who have not completed the Web survey will be sent to UW and RMR, and each of these will be placed back into the Re Contact sample and called to complete the telephone survey.

Replenishment Contact Protocol

1. CATI software:
 - Sawtooth, Sensus.

2. Assignment of phone numbers to interviewers:
 - Random
3. Appointments for Replenishment survey call:
 - Approximately two weeks after recruitment call, so as to allow sufficient time for compensation letter to arrive. However, the priority is to accommodate respondents. Hence, appointments can be scheduled with less than the two weeks waiting period, if so desired by the respondent. In such cases, the respondent will be informed that he/she might not receive the compensation by that time.
 - If the respondent misses the appointment time and there is no one else in the household to pick up the call, call attempts will be made later in the same day twice, first within an hour and again later, and then twice a day for the next 3 consecutive days. If an answering machine picks up the call; a message will be left.
 - If the respondent misses the appointment and a household member answers, a message will be left and the household member will be asked for the best time to reach the respondent. Call attempts will be made at the time indicated and if respondent is still not reached, call attempts will be made in the next 2 days.
4. Call patterns — times of day:
 - To avoid call-scheduling bias, recruitment calls should be conducted at various times of the day and on different days of the week.
5. Telephone answering device:
 - Interviewers should not leave any message (not even a limited one) when recruiting new respondents, as per procedure used in Waves 1-6.
6. Call forwarding:
 - If automatically forwarded to alternative phone number: proceed as usual.
 - If forwarded to message service: proceed as for answering device (above).
7. Changed phone number:
 - At recruitment: discard phone number, because the location of the respondent may have changed.
 - At subsequent waves: make note of new phone number, and pursue as usual. Once an individual is in the panel, he/she will be followed to the best of our ability.
8. Interviewers training and monitoring:

- Detailed training procedures have been provided to SRDAR prior to Wave 7 by Roy Morgan Research (RMR) with the intention that SRDAR and RMR will have identical training protocols to provide consistency with the interviews across the four countries.
9. Respondent is seriously ill or has passed away:
- Interviewers will use discretion and tact, per their usual procedures.
10. Respondent has a close family member who has been diagnosed with smoking-related disease:
- Interviewers will use discretion and tact, per their usual procedures.
 - Note: the survey script allows for the respondent to participate if she/he still desires to.
11. Respondent shows psychological distress:
- Interviewers will use discretion and tact, per their usual procedures. Interviewers will discern whether the respondent can participate in the survey at that time or at another time.
12. Respondent asks about treatment options:
- Interviewer will not provide information about treatment options.
 - Note: (1) our interviewers are not trained health professionals, and thus do not have formal expertise in treatment for nicotine addiction; (2) providing treatment options would affect the behaviour of our panel, thereby potentially confounding our ability to evaluate national-level tobacco control policies; (3) this is not a clinical study, and offering/recommending treatment options would change the nature of the study.
13. Refusal conversion:
- Per our script. However, stronger conversion attempts should be made for cohort respondents (e.g., appeal to science and prior commitment).
14. Same interviewer at various calls
- Yes, if possible, but priority should be to call on the specified day and time requested by respondent.
15. Number of call attempts (Newly recruited respondents – Recruitment survey):
- If phone rings, but no answer and no answering machine or voicemail: a total of 5 call attempts will be made.
 - If phone rings and no answer, but there is an answering machine/voicemail: a total of 7 call attempts will be made. Interviewer should listen to message and discard if it sounds like a business.

- If phone is constantly busy: a total of 7 call attempts will be made.
- If a non-adult (i.e., younger than 18) answers and there is no adult home: a total of 7 call attempts will be made.
- Note: first case could include non eligible numbers; others indicate a true working number.

16. Number of call attempts (Newly recruited respondents – Replenishment survey):

- If respondent missed appointment and answering machine: leave message and call back twice a day for the next 3 days.
- If respondent missed appointment time and no answering machine: call back later in the same day twice (first within an hour, and again later), and then call back twice a day for the next 3 days.
- If respondent missed appointment time and other member of household answers: leave message and ask for the best time to reach respondent. Call at that time, and if no answer once more over the next couple days.

Appendix C. Disposition Codes and Computed Rates by Country

Canada

Disposition codes				Summary of disposition codes			
DMC	AAPOR	Freq.	%	AAPOR Code	Description	Freq.	%
CS 00	4.30	1,831	11.7%	N/A	Total sample with final disposition	15,665	100.0%
CS 01	4.20	792	5.1%	1.0	Interview	385	2.5%
CS 02	4.40			1.1	Complete interview (I)	385	2.5%
CS 03	4.50	977	6.2%	1.2	Partial interview (P)	0	0.0%
CS 04	4.42	39	0.2%	2.0	Eligible (but not-interviewed)	238	1.5%
CS 08	2.12	20	0.1%	2.10	Refusal & break-off (R)	90	0.6%
CS 09	1.1	385	2.5%	2.11	Refusal	70	0.4%
CS 10	2.21	1	0.0%	2.12	Break-off (BO)	20	0.1%
CS 11	2.21	15	0.1%	2.20	Non-contact (NC)	115	0.7%
CS 12	2.21	96	0.6%	2.30	Other (O)	33	0.2%
CS 13	2.21	3	0.0%	3.0	Unknown eligibility (not-interviewed)	6,880	43.9%
CS 18	3.212*	82	0.5%	3.10	Unknown if housing unit (UH)	2,079	13.3%
CS 19	4.70	50	0.3%	3.21	Housing Unit, but no screener completed (NS)	4,801	30.6%
CS 20	4.70	3,574	22.8%	3.211*	NS, but known that adult smoker in household (NS1)	131	0.8%
CS 21	4.70	886	5.7%	3.212*	NS, but unknown if adult smoker in household (NS2)	4,670	29.8%
CS 22	3.211*	0	0.0%	4.0	Not Eligible	8,160	52.1%
CS 24	4.70	0	0.0%		Multiple AAPOR codes (see corresponding colour in column C)	3,639	23.2%
CS 27	3.211*	5	0.0%	4.70	No eligible respondent (NR)	4,521	28.9%
CS 28	3.211*	0	0.0%				
CS 30	3.211*	9	0.1%				
CS 31	3.211*	0	0.0%				
CS 32	4.70	3	0.0%				

CS 33	4.70	7	0.0%
CS 34	4.70	1	0.0%
CS 35	2.11	70	0.4%
CS 40	3.13	1,858	11.9%
CS 41	3.12	115	0.7%
CS 42	3.14	106	0.7%
CS 43	3.212*	50	0.3%
CS 44	3.10	0	0.0%
CS 80	3.212*	2,887	18.4%
CS 81	3.211*	117	0.7%
CS 82	3.212*	1,523	9.7%
CS 83	1.2	2	0.0%
CS 84	1.2	0	0.0%
CS 85	1.2	0	0.0%
CS 90	3.212*	114	0.7%
CS 91	3.212*	14	0.1%
CS 92	3.212*	0	0.0%
CS 93	2.33	2	0.0%
CS 94	2.32	7	0.0%
CS 95	2.35	24	0.2%

Total: 15,665 100%

* AAPOR code created by DMC

Revised number of non-contacts (by accounting that some were not eligible)	
e1 x (CS10 + CS11)	2
e2 x (CS12 + CS13) = e2 x (NC - CS10 - CS11)	96
Revised non-contact (revNC)	98

Computed rates from disposition codes	
Eligibility rate (overall) e1 = (I + P + R)/(I + P + R + NR)	9.5%
Eligibility rate (after completion of screener) e2 = 1 - (CS32 + CS33 + CS34)/(I + P + BO)	97.3%
Estimated proportion of household (vs. commercial) phone numbers e3 = 1 - (4.42* + 4.50*)/(I + P + R + NC + O + UH + NS + NR + 4.42* + 4.50*)	92.2%
Cooperation rate (AAPOR COOP4) COOP4 = (I + P)/(I + P + R)	81.1%
Response rate (AAPOR RR4) RR4 = (I + P)/(I + P + R + revNC + O + (e1 x NS2 + e2 x NS1 + e1 x e3 x UH))	28.3%
Response rate (excluding Other = 2.30*) RR4 = (I + P)/(I + P + R + revNC + (e1 x NS2 + e2 x NS1 + e1 x e3 x UH))	29.0%
Refusal rate (AAPOR3) REF3 = R/(I + P + R + revNC + O + (e1 x NS2 + e2 x NS1 + e1 x e3 x UH))	6.6%
Non-contact rate (1 - AAPOR CON2) 1 - CON2 = 1 - (I + P + R + O)/(I + P + R + revNC + O + (e1 x NS2 + e2 x NS1 + e1 x e3 x UH))	62.6%

* These are AAPOR codes 2.30, 4.42 and 4.50; not numbers.

For more information on AAPOR consult <http://www.aapor.org>

United States

Disposition codes			
DMC	AAPOR	Freq.	%
CS 00	4.30	4,530	17.6%
CS 01	4.20	1,106	4.3%
CS 02	4.40		
CS 03	4.50	1,561	6.1%
CS 04	4.42	39	0.2%
CS 08	2.12	4	0.0%
CS 09	1.1	481	1.9%
CS 10	2.21	2	0.0%
CS 11	2.21	38	0.1%
CS 12	2.21	0	0.0%
CS 13	2.21	3	0.0%
CS 18	3.212*	81	0.3%
CS 19	4.70	38	0.1%
CS 20	4.70	4,751	18.5%
CS 21	4.70	1,264	4.9%
CS 22	3.211*	0	0.0%
CS 24	4.70	0	0.0%
CS 27	3.211*	2	0.0%
CS 28	3.211*	0	0.0%
CS 30	3.211*	5	0.0%
CS 31	3.211*	0	0.0%
CS 32	4.70	4	0.0%
CS 33	4.70	7	0.0%
CS 34	4.70	8	0.0%
CS 35	2.11	45	0.2%

Summary of disposition codes			
AAPOR Code	Description	Freq.	%
N/A	Total sample with final disposition	25,723	100.0%
1.0	Interview	481	1.9%
1.1	Complete interview (I)	481	1.9%
1.2	Partial interview (P)	0	0.0%
2.0	Eligible (but not-interviewed)	129	0.5%
2.10	Refusal & break-off (R)	49	0.2%
2.11	Refusal	45	0.2%
2.12	Break-off (BO)	4	0.0%
2.20	Non-contact (NC)	43	0.2%
2.30	Other (O)	37	0.1%
3.0	Unknown eligibility (not-interviewed)	11,804	45.9%
3.10	Unknown if housing unit (UH)	5,071	19.7%
3.21	Housing Unit, but no screener completed (NS)	6,733	26.2%
3.211*	NS, but known that adult smoker in household (NS1)	189	0.7%
3.212*	NS, but unknown if adult smoker in household (NS2)	6,544	25.4%
4.0	Not Eligible	13,308	51.7%
	Multiple AAPOR codes (see corresponding colour in column C)	7,236	28.1%
4.70	No eligible respondent (NR)	6,072	23.6%

* AAPOR code created by DMC

CS 40	3.13	4,367	17.0%
CS 41	3.12	181	0.7%
CS 42	3.14	523	2.0%
CS 43	3.212*	161	0.6%
CS 44	3.10	0	0.0%
CS 80	3.212*	4,354	16.9%
CS 81	3.211*	182	0.7%
CS 82	3.212*	1,543	6.0%
CS 83	1.2	1	0.0%
CS 84	1.2	0	0.0%
CS 85	1.2	0	0.0%
CS 90	3.212*	377	1.5%
CS 91	3.212*	28	0.1%
CS 92	3.212*	0	0.0%
CS 93	2.33	4	0.0%
CS 94	2.32	10	0.0%
CS 95	2.35	23	0.1%
Total:		25,723	100%

Revised number of non-contacts (by accounting that some were not eligible)	
$e1 \times (CS10 + CS11)$	3
$e2 \times (CS12 + CS13) = e2 \times (NC - CS10 - CS11)$	3
Revised non-contact (revNC)	6

Computed rates from disposition codes	
Eligibility rate (overall) $e1 = (I + P + R)/(I + P + R + NR)$	8.0%
Eligibility rate (after completion of screener) $e2 = 1 - (CS32 + CS33 + CS34)/(I + P + BO)$	96.1%
Estimated proportion of household (vs. commercial) phone numbers $e3 = 1 - (4.42* + 4.50*)/(I + P + R + NC + O + UH + NS + NR + 4.42* + 4.50*)$	92.0%
Cooperation rate (AAPOR COOP4) $COOP4 = (I + P)/(I + P + R)$	90.8%
Response rate (AAPOR RR4) $RR4 = (I + P)/(I + P + R + revNC + O + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	29.1%
Response rate (excluding Other = 2.30*) $RR4 = (I + P)/(I + P + R + revNC + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	29.7%
Refusal rate (AAPOR3) $REF3 = R/(I + P + R + revNC + O + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	3.0%
Non-contact rate (1 - AAPOR CON2) $1 - CON2 = 1 - (I + P + R + O)/(I + P + R + revNC + O + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	65.7%

* These are AAPOR codes 2.30, 4.42 and 4.50; not numbers.

For more information on AAPOR consult <http://www.aapor.org>

United Kingdom

Disposition codes			
DMC	AAPOR	Freq.	%
CS 00	4.30	17,905	35.8%
CS 01	4.20	1,182	2.4%
CS 02	4.40		0.0%
CS 03	4.50	868	1.7%
CS 04	4.42	0	0.0%
CS 08	2.12		0.0%
CS 09	1.1	485	1.0%
CS 10	2.21	4	0.0%
CS 11	2.21	50	0.1%
CS 12	2.21		0.0%
CS 13	2.21		0.0%
CS 18	3.212*	3,171	6.3%
CS 19	4.70	99	0.2%
CS 20	4.70	9,138	18.3%
CS 21	4.70	2,871	5.7%
CS 22	3.211*	19	0.0%
CS 24	4.70		0.0%
CS 27	3.211*	6	0.0%
CS 28	3.211*	53	0.1%
CS 30	3.211*	6	0.0%
CS 31	3.211*	2	0.0%
CS 32	4.70		0.0%
CS 33	4.70	2	0.0%
CS 34	4.70	2	0.0%
CS 35	2.11	106	0.2%

Summary of disposition codes			
AAPOR Code	Description	Freq.	%
N/A	Total sample with final disposition	50,002	100.0%
1.0	Interview	487	1.0%
1.1	Complete interview (I)	485	1.0%
1.2	Partial interview (P)	2	0.0%
2.0	Eligible (but not-interviewed)	192	0.4%
2.10	Refusal & break-off (R)	106	0.2%
2.11	Refusal	106	0.2%
2.12	Break-off (BO)	0	0.0%
2.20	Non-contact (NC)	54	0.1%
2.30	Other (O)	32	0.1%
3.0	Unknown eligibility (not-interviewed)	17,256	34.5%
3.10	Unknown if housing unit (UH)	7,933	15.9%
3.21	Housing Unit, but no screener completed (NS)	9,323	18.6%
3.211*	NS, but known that adult smoker in household (NS1)	111	0.2%
3.212*	NS, but unknown if adult smoker in household (NS2)	9,212	18.4%
4.0	Not Eligible	32,067	64.1%
	Multiple AAPOR codes (see corresponding colour in column C)	19,955	39.9%
4.70	No eligible respondent (NR)	12,112	24.2%

* AAPOR code created by DMC

CS 40	3.13	4,158	8.3%
CS 41	3.12	3,775	7.5%
CS 42	3.14		0.0%
CS 43	3.212*	185	0.4%
CS 44	3.10		0.0%
CS 80	3.212*	4,948	9.9%
CS 81	3.211*	25	0.0%
CS 82	3.212*	7	0.0%
CS 83	1.2		0.0%
CS 84	1.2	2	0.0%
CS 85	1.2		0.0%
CS 90	3.212*	154	0.3%
CS 91	3.212*	363	0.7%
CS 92	3.212*	384	0.8%
CS 93	2.33		0.0%
CS 94	2.32		0.0%
CS 95	2.35	32	0.1%
Total:		50,002	100%

Revised number of non-contacts (by accounting that some were not eligible)	
$e1 \times (CS10 + CS11)$	3
$e2 \times (CS12 + CS13) = e2 \times (NC - CS10 - CS11)$	0
Revised non-contact (revNC)	3

Computed rates from disposition codes	
Eligibility rate (overall) $e1 = (I + P + R)/(I + P + R + NR)$	4.7%
Eligibility rate (after completion of screener) $e2 = 1 - (CS32 + CS33 + CS34)/(I + P + BO)$	99.2%
Estimated proportion of household (vs. commercial) phone numbers $e3 = 1 - (4.42* + 4.50*)/(I + P + R + NC + O + UH + NS + NR + 4.42* + 4.50*)$	97.2%
Cooperation rate (AAPOR COOP4) $COOP4 = (I + P)/(I + P + R)$	82.1%
Response rate (AAPOR RR4) $RR4 = (I + P)/(I + P + R + revNC + O + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	31.9%
Response rate (excluding Other = 2.30*) $RR4 = (I + P)/(I + P + R + revNC + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	32.6%
Refusal rate (AAPOR3) $REF3 = R/(I + P + R + revNC + O + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	6.9%
Non-contact rate (1 - AAPOR CON2) $1 - CON2 = 1 - (I + P + R + O)/(I + P + R + revNC + O + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	59.1%

* These are AAPOR codes 2.30, 4.42 and 4.50; not numbers.

For more information on AAPOR consult <http://www.aapor.org>

Australia

Disposition codes			
DMC	AAPOR	Freq.	%
CS 00	4.30	7,884	55.3%
CS 01	4.20	664	4.7%
CS 02	4.40		0.0%
CS 03	4.50	564	4.0%
CS 04	4.42	6	0.0%
CS 08	2.12		0.0%
CS 09	1.1	155	1.1%
CS 10	2.21		0.0%
CS 11	2.21	97	0.7%
CS 12	2.21		0.0%
CS 13	2.21		0.0%
CS 18	3.212*	842	5.9%
CS 19	4.70	28	0.2%
CS 20	4.70	1,897	13.3%
CS 21	4.70	46	0.3%
CS 22	3.211*	23	0.2%
CS 24	4.70		0.0%
CS 27	3.211*	3	0.0%
CS 28	3.211*	43	0.3%
CS 30	3.211*	3	0.0%
CS 31	3.211*	0	0.0%
CS 32	4.70		0.0%
CS 33	4.70	1	0.0%
CS 34	4.70	2	0.0%
CS 35	2.11	37	0.3%

Summary of disposition codes			
AAPOR Code	Description	Freq.	%
N/A	Total sample with final disposition	14,248	100.0%
1.0	Interview	155	1.1%
1.1	Complete interview (I)	155	1.1%
1.2	Partial interview (P)	0	0.0%
2.0	Eligible (but not-interviewed)	143	1.0%
2.10	Refusal & break-off (R)	37	0.3%
2.11	Refusal	37	0.3%
2.12	Break-off (BO)	0	0.0%
2.20	Non-contact (NC)	97	0.7%
2.30	Other (O)	9	0.1%
3.0	Unknown eligibility (not-interviewed)	2,858	20.1%
3.10	Unknown if housing unit (UH)	1,253	8.8%
3.21	Housing Unit, but no screener completed (NS)	1,605	11.3%
3.211*	NS, but known that adult smoker in household (NS1)	79	0.6%
3.212*	NS, but unknown if adult smoker in household (NS2)	1,526	10.7%
4.0	Not Eligible	11,092	77.8%
	Multiple AAPOR codes (see corresponding colour in column C)	9,118	64.0%
4.70	No eligible respondent (NR)	1,974	13.9%

* AAPOR code created by DMC

CS 40	3.13	1,151	8.1%
CS 41	3.12	102	0.7%
CS 42	3.14		0.0%
CS 43	3.212*	108	0.8%
CS 44	3.10		0.0%
CS 80	3.212*	306	2.1%
CS 81	3.211*	7	0.0%
CS 82	3.212*	4	0.0%
CS 83	1.2		0.0%
CS 84	1.2	0	0.0%
CS 85	1.2		0.0%
CS 90	3.212*	127	0.9%
CS 91	3.212*	22	0.2%
CS 92	3.212*	117	0.8%
CS 93	2.33		0.0%
CS 94	2.32		0.0%
CS 95	2.35	9	0.1%
Total:		14,248	100%

Revised number of non-contacts (by accounting that some were not eligible)	
$e1 \times (CS10 + CS11)$	9
$e2 \times (CS12 + CS13) = e2 \times (NC - CS10 - CS11)$	0
Revised non-contact (revNC)	9

Computed rates from disposition codes	
Eligibility rate (overall) $e1 = (I + P + R)/(I + P + R + NR)$	8.9%
Eligibility rate (after completion of screener) $e2 = 1 - (CS32 + CS33 + CS34)/(I + P + BO)$	98.1%
Estimated proportion of household (vs. commercial) phone numbers $e3 = 1 - (4.42* + 4.50*)/(I + P + R + NC + O + UH + NS + NR + 4.42* + 4.50*)$	90.0%
Cooperation rate (AAPOR COOP4) $COOP4 = (I + P)/(I + P + R)$	80.7%
Response rate (AAPOR RR4) $RR4 = (I + P)/(I + P + R + revNC + O + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	29.7%
Response rate (excluding Other = 2.30*) $RR4 = (I + P)/(I + P + R + revNC + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	30.2%
Refusal rate (AAPOR3) $REF3 = R/(I + P + R + revNC + O + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	7.1%
Non-contact rate (1 - AAPOR CON2) $1 - CON2 = 1 - (I + P + R + O)/(I + P + R + revNC + O + (e1 \times NS2 + e2 \times NS1 + e1 \times e3 \times UH))$	61.5%

* These are AAPOR codes 2.30, 4.42 and 4.50; not numbers.

For more information on AAPOR consult <http://www.aapor.org>

Appendix D. Wave 8 Main/Replenishment Disposition Code

A. Disposition to be entered by supervisor:

27 respondent calls to withdraw

B. Dispositions to be entered by interviewers:

00 non-contact; not in service, line problem

15 contact; rescheduled appointment not kept

32 answered; respondent has moved; emergency # tried; non-contact

33 answered; respondent has moved; emergency # tried; contact; refused

34 answered; respondent has moved; emergency # to be tried (temporary disposition code)

40 non-contact; rings only

41 non-contact; busy

42 non-contact; answering machine, fax, or modem

95 contact; termination by interviewer (language problem, incompetence, other)

C. Dispositions which can be programmed into the script:

28 contact; household refusal to get respondent

29 contact; respondent unavailable this wave

30 contact; respondent has died

31 answered; respondent has moved; no emergency number

80 contact; respondent refuses before smoking status is known (refusal)

D. Dispositions which can be derived after all data are collected:

09 contact; all questions answered (complete)

81 contact; all questions asked; respondent refuses to answer 1 or more questions (complete2)

83 interruption; never completed (incomplete)

85 respondent completes all but income (complete1)

86 contact; some questions answered; age/sex/smoking status unknown (incomplete)

E. Web dispositions

51 Respondent completed the web survey before ever being phoned
(i.e., within the first 3 weeks or round 1)

- 52** Respondent completed the web survey after being phoned one or more times (i.e., after first 3 weeks or round 2)
- 53** Respondent started/attempted the web survey, but completed web with interviewer's help
- 54** Respondent started/attempted the web survey, but did not complete; survey was not completed by phone
- 55** Respondent called before ever being phoned (i.e., within the first 3 weeks or round 1) and asked to do survey by phone
- 56** Respondent e-mailed to withdraw; respondent returned to phone queue
- 57** Respondent started/attempted the web survey but did not complete; respondent returned to phone queue
- 58** Respondent never attempted (i.e., never logged-in) to complete the web survey; respondent returned to phone queue

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