



Methodology Report for the 2010 Health and Lifestyles Survey



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1 Introduction

The Health and Lifestyles Survey (HLS) is a monitor of the health behaviour and attitudes of New Zealand adults aged 15 years and over, and parents and caregivers of 5 to 16-year-olds. The HLS is managed by the Health Sponsorship Council (HSC) and collects information relating to HSC's key programme areas tobacco control, sun safety, problem gambling and healthy eating. The HLS is carried out every two years, with the first HLS undertaken in 2008.

The 2010 HLS involved face-to-face interviews with 1,740 adults (aged 15 years and over). Some of these adults were also included in interviews of 820 parents and caregivers of 5 to 16-year-olds.

The 2010, and second, HLS included questions relating to tobacco control, healthy eating and sun safety. The 2010 HLS included a comprehensive set of items relating to problem gambling, to enable comparisons with measures from the 2006/07 Gaming and Betting Activities Survey. The 2010 HLS also included a small section about people's attitudes to alcohol regulation and sponsorship, which were included to inform the Ministry of Health of the public's opinion on this topic while consulting on the review of New Zealand's alcohol laws.

This methodology report details the procedures and protocols followed to ensure the HLS produces high quality, robust data. Specific analyses eg, short fact sheets can be accessed at <http://www.hsc.org.nz>.

1.1 Background

Prior to the 2008 HLS, the HSC undertook a number of different monitor surveys to benchmark and monitor changes in New Zealanders' knowledge, attitudes and behaviour in response to its social marketing and health promotion programmes and community-level activities in the health sector. These included:

- The Smokefree/Auahi Kore Monitor, which had been running since the early 1990s and had been run annually since 2003.
- The 2006/07 Gaming and Betting Activities Survey, which provided benchmark measures for the problem gambling programme.
- The New Zealand Children's Food and Drinks Survey, undertaken in 2007 to provide benchmark measures for the healthy eating programme.
- The Sun Protection Triennial Survey, which monitored responses to the sun safety programme and had been undertaken since 1994.

These monitors focused on adults, although the Gaming and Betting Activities Survey, the Children's Food and Drink Survey and the Sun Protection Triennial Survey also interviewed young people in the target age group for that particular programme.

In 2007 HSC reviewed the adult surveys and combined the majority of these into a single survey - the HLS.

1.2 Objectives of the HLS

The objectives of the HLS are to:

- measure progress against HSC's existing programme plans
- provide quality measures for Statement of Intent reporting requirements

- monitor short-, medium- and long-term societal changes in attitudes, knowledge and behaviours, and track changes in views about the social desirability and acceptability of various measures of tobacco control, preventing and minimising gambling harm, increasing healthy eating behaviours, and sun safe behaviours.

1.3 Ethics

The 2010 HLS was voluntary and this was clearly explained to potential participants in the HSC brochure, on the HSC website, as well as verbally by the interviewer. All survey procedures were consistent with the Code of Practice of the Market Research Society of NZ Inc, of which the survey provider, the National Research Bureau Limited (NRB) is a member.

Confidentiality of all the information given by respondents in the interviews was assured by the Privacy Act 1993. The final, stored electronic records contain no identification of the participating respondents, and responses can only be analysed as overall or grouped data.

2 Population and Frame

This section discusses the target population, the survey population, and the sample frame. The *target population* is the population the survey aims to represent. All statistics for the survey refer to the target population. The *survey population* is the population that had a probability of being selected to participate in the survey. For reasons discussed below, a small proportion of people did not have a chance of being selected to participate in the survey. As a result, the survey population is slightly smaller than the target population. The sample *weights* are designed to reflect the target population, so that the weighted statistics produced from the HLS can be taken to be representative of this population.

The *sample frame* is the list of areas, and the lists of dwellings and people within these areas, that were used to select the HLS sample from the survey population.

2.1 Target population

The target population was the usually resident civilian population of all ages living in permanent private dwellings in New Zealand. The target population was approximately 3.2 million adults aged 15 years and over. This is the 2010 estimated resident population adjusted to exclude those who do not reside in permanent private dwellings based on information from the 2006 Census (Ministry of Health 2008).

For reasons of practicality and cost-effectiveness, the target population is defined to include only permanent private dwellings, so temporary private dwellings are excluded, including caravans, cabins and tents in a motor camp, and boats. The target population also excludes non-private dwellings (institutions). Examples of this type of dwelling are hotels, motels, guest houses, boarding houses, homes for the elderly, hostels, motor camps, hospitals, barracks, and prisons.

People were eligible to be interviewed at their usual residence only. If they were temporarily visiting a household that was selected into the HLS they were not eligible for selection as part of that household. This process ensured that double counting was not possible.

People who were usually resident in a private dwelling in New Zealand, but who were temporarily overseas for some of the survey period, were included in the target population. In the majority of cases these individuals had a chance of being selected in the survey, as the survey provider made six repeated call-backs to non-contacted households in the sample over the survey period. The benchmarks used in weighting the survey also included usual residents temporarily overseas.

2.2 Survey population

Households were not included if they were in meshblocks with fewer than nine occupied dwellings (according to the 2006 New Zealand Census of Population and Dwellings), or located off the main islands of New Zealand (North, South and Waiheke), such as those on other sparsely inhabited off-shore islands, on-shore islands, waterways, and inlets. This meant that a small number of households (1.1%) that were part of the defined target population were excluded from the survey population, but these have been accounted for in the final estimates via the survey weights. Due to the small number of households omitted, any possible bias is likely to have little consequence.

2.3 Sample frame

Meshblocks are the smallest geographical measure used by Statistics New Zealand. They vary in size from a city block to a large rural area, and are used to make up other geographical measures in New Zealand (Statistics New Zealand 2009).

New Zealand 2006 Census meshblocks were used as part of an area-based frame of 34,723 meshblocks. A sample of 350 meshblocks was selected from this frame, these were the primary sampling units (PSU) of the HLS. Interviewers listed all the addresses in each of these areas. These lists of dwellings were then used as a frame from which a sample of dwellings was selected from each meshblock. One eligible parent/caregiver and/or one adult (if any) was then selected from each selected dwelling.

3 Design Effect

The net effect of a complex design can be measured by the design effect (or DEFF). The DEFF is the ratio of the variance (a measure of precision) of an estimate achieved by a complex design relative to the variance of the same estimate that would be achieved by a simple random sample of the same size. The closer the DEFF is to 1, the closer the design is to simple random sampling. Design effects of between 2 and 4 are typical in population health surveys, which means the variance is larger than would have been obtained using a simple random sample. A complex design like that used in the 2010 HLS is less precise than a simple random sample with the same sample size, but is much more precise than could be achieved by a simple random sample with the same budget.

Nevertheless, DEFFs should not be too large. On the one hand, it is appropriate for weights to vary across the sample, otherwise it would not be possible for Māori and Pacific peoples to have an increased chance of selection in the sample. On the other hand, if the variation in weights is too extreme, the DEFF will be very large, and this would be counter-productive for all statistics, even for Māori and other sub-population groups. The methods to sample sub-populations were used to ensure the sample design was appropriate for achieving adequate precision for national and sub-population estimates within the survey budget.

Note that the design effects are different for each statistic. Table 1 presents the design effects for an indicator from each programme area. These are calculated by dividing the variance from the sample proportion by an estimate of the variance of an unrestricted sample with unknown parameters, estimated from the HLS sample: $\frac{\text{proportion} \times (1 - \text{proportion})}{\text{sample size}}$

Table 1: Design effects for four indicators from the 2010 HLS for each sample, by ethnic group

| Indicator | Ethnic group | General sample | Parent/Caregiver sample |
|---------------------------------|----------------|----------------|-------------------------|
| Current smoker | Māori | 1.9 | 2.1 |
| | Pacific | 2.1 | 2.0 |
| | Asian | 4.5 | 1.6 |
| | European/Other | 2.5 | 0.8 |
| | Total | 3.0 | 1.4 |
| Sunburnt last summer | Māori | 2.2 | 2.4 |
| | Pacific | 2.9 | 1.5 |
| | Asian | 3.8 | 1.9 |
| | European/Other | 1.8 | 2.3 |
| | Total | 2.5 | 1.7 |
| Eats fruit at least twice a day | Māori | 3.0 | 2.3 |
| | Pacific | 2.3 | 2.4 |
| | Asian | 2.3 | 1.9 |
| | European/Other | 1.7 | 1.8 |
| | Total | 2.4 | 1.6 |
| Gambler | Māori | 2.4 | — |
| | Pacific | 2.3 | — |
| | Asian | 2.9 | — |
| | European/Other | 2.6 | — |
| | Total | 3.4 | — |

Note: the parent/caregiver sample was not asked any questions from the gambling section of the questionnaire.

4 Sample Design

The survey was designed to be able to produce nationally representative estimates. The 2010 HLS adopted a multi-stage, stratified, probability-proportional-to-size (PPS) of the meshblocks, sampling design.

4.1 Rationale for the sample design

A primary consideration in the sample design of the HLS was the need for sufficient samples of people of Māori, Pacific, and people of European/Other ethnicities, as well as low socio-economic status groups and current smokers. The main group of interest was adults aged 15 years and over, but it was also important there be enough parents and caregivers of 5 to 16-year-olds to be able to analyse the results of this group with confidence.

The challenge for the sampling methodology was to arrive at a sample that could:

- provide national, projectable figures
- use a survey method with higher (face-to-face), rather than lower (phone, mail, web) public participation
- deliver 1,800 interviews with adults aged 15 years and over, made up of 440 interviews with Māori, 330 with Pacific peoples and 1,030 with European/Other people
- deliver 800 interviews from parents/caregivers of 5 to 16-year-olds (including interviews with 220 Māori, 165 Pacific, 415 European/Others), 350 interviews from low socio-economic groups, and 400 interviews from smokers
- provide the minimum design effect for the overall sample and specific target groups within the budget for the survey.

The simplest possible sample design would be a random sample of all people in New Zealand, so that everyone has an equal and independent chance of being selected in the sample. However, a design of this type would not be feasible because:

- there is not a sufficiently accurate list of all addresses in New Zealand to use as a sampling frame
- the sample would be geographically very dispersed, requiring interviewers to travel great distances between interviews
- it would not result in large enough numbers of Māori or Pacific peoples to enable adequate statistics for these groups.

Because of this, the 2010 HLS used a complex sample design.

Complex designs have two main features that affect the precision of statistics coming from the survey.

1. *Different people have a different chance of selection.* This was captured in the ‘weight’, which is the number of people that each survey respondent represents in the target population. In the 2010 HLS, Māori and Pacific peoples had lower weights than other people to reflect the fact that these groups had an increased chance of selection in the sample relative to simple random sampling. Sampling of one adult per household also led to different weights, because adults in larger households received a larger weight. In the

2010 HLS, the selection weight for adult participants who were selected for the parent/caregiver sample was adjusted to account for their increased chance of selection in the adult sample.

2. *The sample was 'clustered'.* In the HLS a sample of meshblocks was selected, and then a sample of households was selected from each meshblock. If the households in the sample were shown on a map of New Zealand they would appear clumped. Clustering made the survey more cost effective as interviewers did not have to travel between as many areas as they would if simple random sampling was used.

4.2 Sample selection procedure

A four-step selection process was used to achieve the sample.

Step 1: Put all meshblocks into strata

Using Statistics New Zealand meshblocks as the initial unit of sampling, two strata were formed – a Pacific people's stratum consisting of meshblocks in which 20% or more of the population were of Pacific ethnicity, and another stratum consisting of all of the ("other") remaining meshblocks.

Step 2: Select meshblocks within strata

Meshblocks vary considerably in size and were, therefore, selected by PPS design within each stratum. The size measure was the number of occupied dwellings in the meshblock according to the 2006 Census. This means that larger meshblocks had an increased chance of selection in the design. In summary:

- 56 meshblocks were selected from within the Pacific stratum
- 294 meshblocks were selected from the Other stratum.

Thus, a total of 350 meshblocks were drawn randomly.

Step 3: Select households within meshblocks

Within each meshblock, some households (on average 10, with a maximum of 15) were selected to form the core sample, and some households were selected to form the screened or booster sample.

Households in the core sample were selected by a systematic procedure of beginning at a random dwelling pre-allocated in the meshblock and knocking on the door of every k^{th} house.

Up to 22 of the dwellings in between the k^{th} houses were then selected as the screened sample. In up to 14 of these 22 dwellings, both Māori and Pacific peoples were eligible to be sampled, in the remaining eight dwellings only Pacific peoples were eligible to be sampled.

There was no substitution of households or respondents if the selected household or respondent was not contactable or was unavailable.

1 K is determined by the number of dwellings in the meshblock. For example, in a small meshblock K might be every 5th dwelling, while in a large meshblock it might be every 10th dwelling.

Step 4: Select respondents within households

The procedure for selecting respondents in the 'core' and 'screened' households was essentially the same (see Figure 1).

Within each household, all eligible adults who were aged 15 years and over and usually resided at that dwelling were identified. The names of all eligible respondents were then listed in descending order of age on a sampling Kish grid (Kish 1949). The ethnicities of eligible respondents were obtained by proxy from the person who answered the door using the Statistics New Zealand question that has been used in the 2001 and 2006 Census. The interviewer asked if any children aged 5 to 16 years usually lived four or more days per week in the household. If so, the interviewer recorded whether any of the adults were parents or caregivers of any children aged 5 to 16 years.

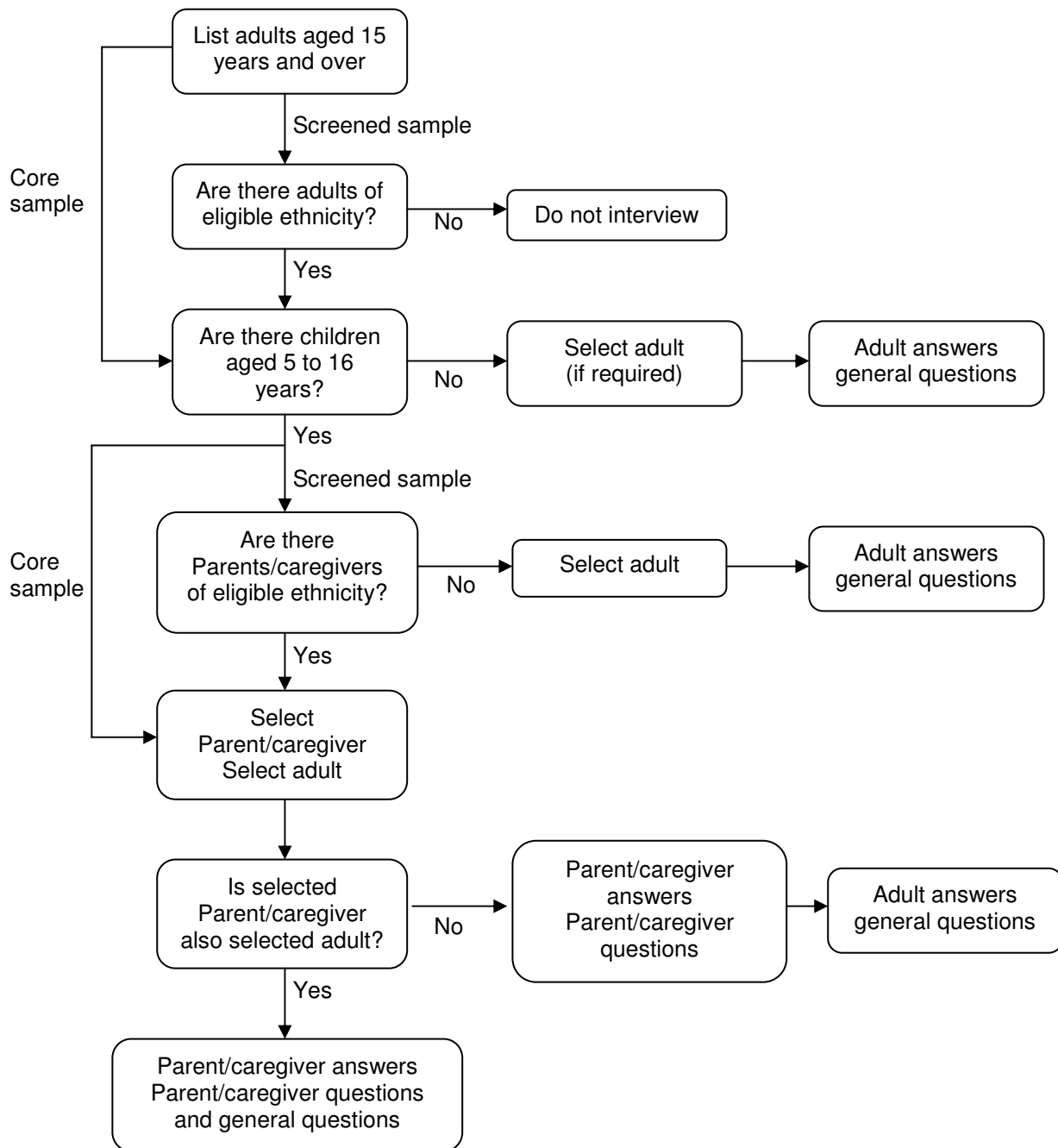
If there were no 5 to 16-year-old children living in the household, and the household was included as part of the adult sample (which occurred approximately 50% of the time), then one adult was selected based on whose names fell alongside predetermined indicators on the sampling Kish grid (see Appendix 1 for an example of how the Kish grid selection process works).

If there were 5 to 16-year-old children living in the household then one parent/caregiver was selected based on whose names fell alongside predetermined indicators on the sampling Kish grid. After the parent/caregiver was selected, the probability of selection of the same person for the adult sample was double. This meant that in some households a single person was interviewed as part of the parent/caregiver sample and as part of the adult sample, while in other households two people were interviewed, one for the parent/caregiver sample and another for the adult sample.

The sampling process for parents/caregivers and adults was the same in the screened sample, except that for the first 14 houses only people of Māori or Pacific ethnicities were eligible for selection in either the parent/caregiver or the adult samples, and for the other eight houses only Pacific peoples were eligible for these samples.

Overall, 1,740 people aged 15 years and over participated in the adult sample and 820 people participated in the parent/caregiver sample of the 2010 HLS.

Figure 1: Diagram of the 2010 HLS respondent selection process within the household



5 Data Collection Instruments

5.1 Questionnaire content

The 2010 HLS questionnaire is available from <http://www.hsc.org.nz/researchpublications.html>. Table 2 outlines the topic areas in the questionnaire.

The gambling section, with over 80 questions, was the largest section of the questionnaire. The majority of these gambling questions were sourced from the 2006/07 Gaming and Betting Activities Survey and the Gambling Participation and Attitudes Survey to facilitate comparisons with data collected from these surveys previously and monitor any changes in problem gambling behaviour, knowledge and attitudes since the HSC's problem gambling programme was established.

Other questions in the 2010 HLS were also sourced from previous surveys or pilot surveys. These included the 2008 HLS, the Smokefree/Auahi Kore Monitor, the 2007 Children's Food and Drinks Survey, the 2010 Sun Exposure Survey, and the New Zealand Tobacco Use Survey. This was done to enable monitoring over time of the concepts these questions measured.

The 2010 HLS questionnaire was informed by advice from HSC staff working in the specific programme areas, external researchers working in the specific topic areas, as well as other surveys. The HSC Research and Evaluation Unit and the research company carrying out the survey, NRB, worked together to construct the questionnaire.

Table 2: Summarised content of the 2010 HLS questionnaire

| Programme area | Information domains | Output details |
|----------------|--------------------------|--|
| All | Attitudes | <ul style="list-style-type: none">Whether or not different people/groups should play a role in helping New Zealanders live a healthy lifestyle. |
| | Demographics | <ul style="list-style-type: none">Age, gender, ethnicity (of adult, and child if applicable).Country born, languages spoken.Employment status, highest qualification, household income.Household composition. |
| | Re-contact | <ul style="list-style-type: none">Respondents were asked if they would consent to be re-contacted within two years to participate in further HSC research. Details from the re-contact question responses have been kept separately from the main dataset to maintain confidentiality. |
| Sun safety | Sun protection behaviour | <ul style="list-style-type: none">Use of SunSmart behaviours (for children).Changes in sun protection behaviours in order to get Vitamin D.Tanning behaviour. |
| | Incidence of sunburn | <ul style="list-style-type: none">Incidence of mild and extreme sunburn last summer (of adult, and child if applicable). |
| | Campaign monitoring | <ul style="list-style-type: none">Sun protection resources available at daytime outdoor events in the previous spring/summer. |

| Programme area | Information domains | Output details |
|-----------------|--------------------------------------|--|
| | Sun protection-related demographics | <ul style="list-style-type: none"> • Skin type (of adult, and child if applicable). |
| Healthy eating | Healthy eating behaviour | <ul style="list-style-type: none"> • Availability and consumption of different food types (by adult and child). • Agreement scales: prepare a healthy meal, healthiness of takeaways, product label. |
| | Shopping patterns | <ul style="list-style-type: none"> • Frequency of buying food and drinks from various locations. • Weekly spend on food and drinks from supermarket-type locations and from convenience-type locations. • Perception of what affects food or drink choices. |
| | Healthy eating-related demographics | <ul style="list-style-type: none"> • Main food provider status. |
| Tobacco control | Tobacco control-related demographics | <ul style="list-style-type: none"> • Smoking status. |
| | Quitting | <ul style="list-style-type: none"> • ABC² programme. • Resources used. |
| | Initiation | <ul style="list-style-type: none"> • Parents/caregivers' perception of their influence on, and parents/caregivers' rules with their child about smoking. • Child's smoking status. |
| | Knowledge | <ul style="list-style-type: none"> • Knowledge of how many adult smokers there are in New Zealand. |
| | Attitudes | <ul style="list-style-type: none"> • Attitudes towards smoking in a number of indoor and outdoor settings. • Smoking in New Zealand. • Attitudes towards regulation of smoking. |
| | Campaign monitoring | <ul style="list-style-type: none"> • Awareness of Smokefree/Auahi Kore messages. • Actions taken or not taken as a result of seeing Smokefree/Auahi Kore messages. |

² New Zealand Smoking Cessation Guidelines provide updated guidance for health care workers in their contacts with smokers (Ministry of Health 2007). The guidelines are structured around the ABC approach for quitting smoking: health care workers should **Ask** about smoking status, give **Brief** advice to stop smoking to all smokers and provide evidence-based **Cessation** (quitting) support for those who wish to stop smoking (Ministry of Health 2009).

| | | |
|------------------|---------------------------------------|--|
| Problem gambling | Problem gambling-related demographics | <ul style="list-style-type: none"> • Participation in gambling activity - nature and frequency of this participation. |
| | Exposure | <ul style="list-style-type: none"> • Gambling advertising and perceived behaviour relating to this. • Personal gambling harm (Problem Gambling Severity Index). • Gambling harm of a significant other. • Problem gambling service use. • Household gambling harm. • Strategies used to avoid gambling harm. • Involvement in decisions about gambling activities in the community. |
| | Awareness | <ul style="list-style-type: none"> • Problem gambling advertising. • Signs of problem gambling. • Consequences for the community. • What to do to help someone gambling too much. • Services available. • Household discussion of gambling harm and ways to avoid it. • Who in the community makes decisions about gambling sites. • How to be involved in decisions about gambling activities in the community. |
| | Attitudes | <ul style="list-style-type: none"> • Attitudes towards communities/individuals' ability to contribute to activities that prevent and minimise problem gambling harm. • Which gambling types cause harm or are socially undesirable. • Size of role various people and organisations should have in preventing gambling harm. |
| Alcohol | Alcohol-related demographics | <ul style="list-style-type: none"> • Drinking status. |
| | Attitudes to regulation changes | <ul style="list-style-type: none"> • Price. • Hours. • Purchase age. • Advertising, promotion and sponsorship. • Number of outlets. |
| | Exposure | <ul style="list-style-type: none"> • Sources of alcohol advertising exposed to in the past three months. |

6 Data Collection and Quality Control

6.1 Collection mode

Interviews were conducted in respondents' homes. Interviewers typed responses directly into laptop computers using Blaise Computer Assisted Personal Interview (CAPI) software. Show cards with predetermined response categories were used to assist respondents where appropriate.

6.2 Interviewer training

Approximately 80 interviewers were trained in the sampling and interviewing procedure. Interviewer training sessions took place in the 20 largest population centres. These were delivered by the NRB Area Supervisor for that centre. Training sessions were over one day and covered both sampling procedures and questionnaire administration. Practice interviews were conducted by each interviewer as part of this training.

Training sessions revolved around a training manual that contained both generic NRB training material as well as material specific to the administration of the HLS.

6.3 Enumeration

Before selecting households to participate in the 2010 HLS, interviewers counted the dwellings in their area (meshblock) to take account of the number of new dwellings built and the number of buildings demolished since the last pre-Census enumeration.

6.4 Call pattern

The 'call' refers to one visit on one day during a particular time period. Households were initially approached between 4pm and 7pm on weekdays, and 10am and 6pm on weekends. Thereafter, appointments were made at a time that best suited the household for completing the interview. NRB conducted a total of up to six calls at each sampled dwelling, at different times of the day, and on different days of the week, before accepting that dwelling as a non-contact.

6.5 Performance and quality control

It is rare for interviewers who are properly trained and field-supported to falsify interview data. Nevertheless, NRB monitor interviewers to ensure high quality data collection.

Interviewers were monitored by their NRB Area Supervisors by way of:

- regular meetings to examine sampling sheet completion and deal with meshblock issues and enumeration checks
- examination of individual response rates and how to improve these if necessary
- checking of 15% of completed interviews by phoning respondents to confirm that the interview was done and to check that the respondent is the one stated.

6.6 Informed consent

The 2010 HLS was voluntary. Consent was obtained without coercion. No incentive was offered.

Participants selected for the survey were given an invitation letter and an information brochure. This included an insert with a brief paragraph about the survey and information about the provision of an interpreter translated into te reo Māori, Samoan, Tongan, Hindi, and traditional and simple Chinese. Translators were available for other languages, including New Zealand Sign Language when requested. Respondents were also informed of the possibility of matching respondents and interviewers by language, ethnicity, and gender when requested. The information brochure, as well as the translations and further questions and answers were all available on the HSC website for respondents to view. (See Appendix 2 for examples of the information provided to the participants.)

6.7 Pilot

A pilot survey of 75 respondents was run in March 2010. The pilot was designed to test:

- lengths of the different sections
- wording of new questions and how respondents understood them
- flow of the questionnaire
- that questions would provide useful information.

The survey design and sampling method had already been successfully used for the 2008 HLS.

The pilot sample was not random, as people were selected to represent the different mix of ethnic groups, age groups, and geographic locations likely to be included in the main survey (a purposive sample). Once the pilot was reviewed, a number of questions were removed from the questionnaire, or further refined. A full report of the pilot procedure, including a copy of the pilot questionnaire, is available from HSC on request.

6.8 Field dates

Interviews for the main survey were conducted from May to late-August 2010.

6.9 Respondent burden

HSC sought to minimise the burden on respondents by:

1. seeking interviews by appointment rather than requesting immediate participation
2. reducing the number of dwellings in which two interviews were required, by increasing the probability of the randomly selected parent/caregiver also being the randomly selected adult
3. planning for a 45-minute average duration. In practice, a duration of 50 minutes³ eventuated for adults and 43 minutes for parent/caregivers. Where the parent/caregiver was also the selected adult, thereby answering both sets of questions, the average duration was 56 minutes. Two interviews were conducted in 172 dwellings, one with a parent/caregiver and one with another adult. In these dwellings, the combined average interview duration was 80 minutes
4. using showcards wherever possible to assist answering
5. inviting open-ended answers to enable people to feel they could express themselves, rather than being simply an information source.

³ These times are the CAPI times and include all question modules. They do not include the time spent in a household before or after the interview was conducted.

7 Response Rates

The main measure used to assess the overall quality of a survey is the response rate. The response rate is a measure of how many people who were selected to take part in the survey actually participated. The response rate reflects the proportion of people interviewed from those who were selected into the sample, and describes the success of the study in terms of achieving cooperation from the population being measured. A high response rate means the survey results are more representative of the target population.

7.1 Response rate calculation

There are four components to the response rate calculation:

- ineligibles (eg, vacant sections, vacant dwellings, non-residential dwellings and those not available during the survey period)
- respondents (interview conducted, respondent confirmed to be eligible for the survey)
- eligible non-respondents (interview not conducted, but enough information collected to indicate that the household did contain an eligible adult)
- unknown eligibility⁴ (eg, non-contacts and refusals who provided insufficient information to determine eligibility ie, households in the screened samples).

The 2010 HLS response rate was calculated as follows:

$$\text{Response rate} = \frac{\text{number of respondents}}{\left[\begin{array}{c} \text{number of} \\ \text{respondents} \end{array} \right] + \left[\begin{array}{c} \text{number of eligible} \\ \text{non-respondents} \end{array} \right] + \left[\begin{array}{c} \text{estimated number of eligibles} \\ \text{from the unknowns} \end{array} \right]} \times 100$$

The justification for this response rate was that a proportion of the unknowns were likely to be eligible if contact could have been made. As contact could not be made with the estimated number who would be eligible, they were classified as non-respondents.

The estimated number of unknown eligibles was calculated as follows:

$$\left[\begin{array}{c} \text{Estimated number of eligibles} \\ \text{from the unknowns} \end{array} \right] = \left[\begin{array}{c} \text{number of} \\ \text{unknowns} \end{array} \right] \times \frac{\left[\begin{array}{c} \text{number of} \\ \text{respondents} \end{array} \right] + \left[\begin{array}{c} \text{number of eligible} \\ \text{non-respondents} \end{array} \right]}{\left[\begin{array}{c} \text{number of} \\ \text{respondents} \end{array} \right] + \left[\begin{array}{c} \text{number of eligible} \\ \text{non-respondents} \end{array} \right] + \left[\begin{array}{c} \text{number of} \\ \text{ineligibles} \end{array} \right]}$$

For the adult and the parent/caregiver samples a separate response rate was calculated for each PSU. This was then adjusted to the estimated number of eligible households in that PSU. Once this was done the average response rate across all of the PSUs was calculated.

Unweighted response rates are calculated using the raw counts and reflect the success of the survey in terms of being able to get the people selected to participate.

Weighted response rates take probability of selection into account and reflect the success of the survey in terms of the population being measured, these have been used for the HLS because of

⁴ This grouping applies to the response rate calculated for parent/caregivers. The response rate calculated for adults has all these outcomes added to the eligible non-respondents category.

the sample design and reflect that different dwellings had a different chance of selection due to screened samples being used to boost the proportions of Māori and Pacific peoples in the survey.

7.2 Adult sample response rate

The unweighted response rate for the adult sample was 55.5%.

The final (weighted) response rate for the adult sample in the 2010 HLS was 56.7%, compared with 63.7% for the 2008 HLS.

7.3 Parent/caregiver sample response rate

The unweighted response rate for the parent/caregiver sample was 54.3%

The final response rate for the parent/caregiver sample in the 2010 HLS was 54.8%, compared with 63.2% for the 2008 HLS.

8 Data Processing

This section outlines the processes used to collect, check, and output the data for the 2010 HLS.

8.1 Data Capture

Questionnaire responses were entered directly on interviewers' laptops using Blaise CAPI software. As interviewing progressed, completed interviews were uploaded to NRB's website, from which they were downloaded for inspection, coding, and editing. Interviews were uploaded to the website on a weekly basis.

8.2 Coding

Different types of questions were used in the 2010 HLS. Single-response multiple choice questions, which a respondent can only give one response to, were coded as is. Some questions allowed for multiple responses. For these questions all responses were retained, with each response shown as a separate variable on the data file.

Open-ended questions were used extensively. For these, the interviewer keyed in the verbal answers, as near as possible to the respondent's spoken words. Coding of these was then done by NRB's data processing team.

Coding of open-ended questions was undertaken by initially printing out the answers given by respondents to each open-ended question. These answers were examined jointly by the researcher and a data specialist to search for recurring points or themes. Each recurring point/theme was identified as a code. All answers falling sufficiently close to that point/theme, (ie, differing only in the words the person used to describe it) were assigned to that code. Codeframes were then reviewed by HSC to ensure the groupings of responses were useful for the purpose for which the data were collected. Note that where an open-ended question was sourced from a prior HSC survey, the code frame used previously was also used for the 2010 HLS when appropriate, to enable comparisons between the surveys.

Questions with an "Other, please specify" code were treated in the same way as open-ended questions. In this case, the number of original codes was extended to accommodate any further recurring answers. In some instances, interviewers tend to put into "Other, please specify" an answer that fits into one of the pre-coded categories. In this case, the answer was assigned that code.

All open-ended responses have been retained, to inform any further review of the codeframes used.

8.3 Security of information

Any information collected in the survey that could be used to identify individuals has been treated as strictly confidential. Data were transferred from interviewers' laptops to head office at NRB by a secure internet upload facility.

Names and addresses of people and households who participated in the survey have been stored separately from the response data.

8.4 Imputation

A small number of respondents (less than 0.5%) did not answer their age. However, all of these provided an age group, of which the midpoint was used for specific age analysis. For those who selected the 65+ age group age was imputed by randomly selecting another respondent with the same gender, ethnic group, employment and education status.

Income was missing for 3.6% of respondents in the General sample. However, 0.6% were able to be imputed using parent/caregiver responses from the same household. This was also done for a very small number of missing responses for the food and drink expenditure questions.

8.5 Creation of derived variables

A number of derived variables have been created for the 2010 HLS data set.

Ethnicity

Ethnicity was calculated using prioritisation in the order of Māori, Pacific peoples, Asian, European/Others. Prioritisation involves each person being allocated to a single ethnic group, based on the ethnicities they have identified with, in the prioritised order of Māori, Pacific peoples, Asian and European/Other (Ministry of Health 2004). For example, if someone identifies as being Chinese and Māori, under the prioritised ethnic group method, they are classified as Māori for the purpose of analysis. The way that the ethnicity data is prioritised means that the group of prioritised European/Other effectively refers to non-Māori, non-Pacific, and non-Asian people. Prioritisation is a method outlined in the *Ethnicity Data Protocols for the Health and Disability Sector* as a useful method for grouping people into independent ethnic groups for analysis (Ministry of Health 2004).

As the number of Asian people who participated in the HLS was small (124 in the adult sample), for some of the analyses Asian people have been grouped with European/Other people.

Note that as ethnicity has been collected as a multiple response variable it is possible to analyse it using total response or sole/combination methods.

Smoking status

These are the definitions used for smoking status:

Never smoker: has never smoked tobacco.

Non-smoker now: has ever smoked tobacco, but never started smoking [regularly].

Current smoker: has ever smoked tobacco, and now smokes at least once a month or more often.

Recent/past quitter: has ever smoked tobacco, but has now stopped smoking.

Gambling type

Gambling types are often classified into two categories, those where winnings can be immediately 'reinvested' and those where they cannot. The former referred to as 'continuous' and the latter 'non-continuous' (Abbott and Volberg 1996). For the HLS these two groupings

were combined with frequency in the same way they were presented for the 2006/07 Gaming and Betting Activities Survey (NRB 2007).

Non gamblers: did not participate in any gambling activities in the last 12 months.

Infrequent gamblers: participated in any gambling activities less than once a week.

Frequent, non-continuous gamblers: participated weekly or more often in non-continuous⁵ forms of gambling.

Frequent, continuous gamblers: participated weekly or more often in continuous⁶ forms of gambling.

Neighbourhood socioeconomic deprivation: The New Zealand Index of Socioeconomic Deprivation 2006

The New Zealand Index of Socioeconomic Deprivation 2006 (NZDep2006) has been linked to the 2010 HLS as a measure of neighbourhood socioeconomic deprivation and a proxy for individual socioeconomic position. The NZDep2006 was created using nine variables⁷ from the 2006 Census data, with a decile value calculated for each meshblock (Salmond et al. 2007). For some analyses of the 2010 HLS, these deciles have been grouped, so that deciles 1–3 are referred to as low deprivation, 4–7 as moderate (or mid) deprivation, and 8–10 as high deprivation.

Household Equivalised Income

Respondents were asked to choose an income range that represented their total household income from all sources before tax in the previous 12 months. Household income by itself is not very useful, as a two-person household with a total household income of \$100,000 is likely to be quite different in many characteristics from that of a six-person household with a total household income of \$100,000. To mitigate this equivalised household income was calculated using the revised Jensen Index (Jensen 1988). The revised Jensen Index is a recognised equivalisation index used within New Zealand (Blakely 2002, Ministry of Health 2010), that takes into account the number of adults, the number of children (younger than 18-years-old) and the ages of the children living in the household.

Income was calculated as the mid-point of the band the respondent selected. If the respondent did not provide a band, but another person in the household was also interviewed and did provide a band (ie, different adults were interviewed for the parent/caregiver and the adult sample), then the band selected by the other person in the household was used. If ‘\$150,000 or more’ was selected then \$175,000 was used as the household income. For those respondents who did not answer using the narrower bands first provided to them, a question was asked using wider income bands. For those respondents who selected \$100,000 or more the mean of the mid-points of the top three (over \$100,000) bands of the narrower band question was used, this figure was rounded to \$140,000.

5 Non-continuous forms of gambling include lottery games, going to casino evenings/buying raffle tickets for fundraising, participating in sweepstakes, making bets with family/friends and other gambling activities.

6 Continuous forms of gambling include playing electronic gaming (pokie) machines, betting on horse or dog races, or sports events, table games at casinos, housie and bingo, mobile phone games for money, online activities for money or prizes through an overseas website.

7 Receiving a means-tested benefit, low household income, not owning the home you live in, single-parent family, unemployment, no school qualifications, household overcrowding, no access to a telephone and no access to a car.

Household income was divided by the formula developed by Jensen:

$$\text{Income equivalence of a household} = \frac{[(\text{number of adults aged 18+}) + (w_1 \times \text{number of children}) + (w_2 \times \text{the sum of the ages of all the children})]^u}{2^u}$$

Where $w_1 = 0.460697$, $w_2 = 0.0283848$ and $u = 0.621488$. The mid-points of the ranges provided for the childrens' ages were used in this equation.

Equivalised household income was then divided into tertiles (ie, three equal groups) of low, medium and high for use in some analyses.

Household equivalised expenditure on food and drinks

Respondents were asked how much money their household usually spends each week on food and drinks from different vendors. These variables have the same limitation mentioned above for household income, and Jensen's formula can also be used for expenditure (Jensen 1988). The same process was followed to calculate household equivalised expenditure on food and drinks (the value used for \$351 or more was \$375) as was used to calculate household equivalised income, please see the description of this outlined above.

9 Weighting

To ensure that no population group is under- or over-represented in estimates from the survey, 'weights' are calculated for every survey participant. The weight can be thought of as the number of people in the population represented by a given survey participant.

9.1 Overview of weighting process

Most national surveys have complex sample designs, where different groups have different probabilities of being selected in the survey. These complex designs are used for a variety of purposes, including:

- reducing interviewer travel costs by ensuring the sample is geographically clustered, or 'clumped'
- ensuring all sub-populations (in the 2010 HLS, especially the Māori and Pacific populations) have a sufficient sample to enable adequate estimates.

To ensure no group is under- or over-represented in estimates from a survey, a method of calculating estimates that reflects the sample design must be used. Estimation weights are used to achieve this. A weight is calculated for every respondent, and these weights are used to calculate estimates of population totals (counts), averages, and proportions. Typically, members of groups who have a lower chance of selection are assigned a higher weight, so that these groups are not under-represented in estimates. Conversely, groups with a higher chance of selection (eg, Māori and Pacific populations who are included in the booster samples) receive lower weights. Also, groups that have a lower response rate (eg, older men) are usually assigned a higher weight so that these groups are correctly represented in all estimates from the survey.

Weights are designed to:

- a) reflect the probabilities of selection of each respondent
- b) make use of external population benchmarks (typically obtained from a population census) to correct for any discrepancies between the sample and the population benchmarks – this improves the precision of estimates and reduces bias due to non-response.

9.2 Probability of selection and selection weights

The probability of selection for each respondent comes from three factors:

1. The probability of the meshblock being selected.

For the 2010 HLS this was:

$$\text{no. of meshblocks in the stratum} \times \frac{\text{no. of dwellings in the meshblock recorded in the 2006 Census}}{\text{Total no. of dwellings in the sampled meshblocks for the stratum}}$$

For the Pacific stratum the number of meshblocks was 56 and the total number of dwellings in the stratum was 108,357.

For the Other stratum the number of meshblocks was 294 and the total number of dwellings in the stratum was 1,346,679.

2. The probability of their dwelling being selected within the meshblock.

For the 2010 HLS this was:

$$\frac{\text{No. of dwellings with eligible respondents}}{\text{No. of private dwellings in the meshblock at the time the meshblock was sampled}}$$

3. The probability of the respondent being selected from all the eligible individuals within the dwelling.

For the parent/caregiver sample this was:

$$\frac{1}{\text{No. of parents in the household}}$$

For the adult sample this was:

$$\frac{1}{2 \times \text{No. of adults in the household}}$$

For non-parents in the core sample

$$\frac{1}{\text{No. of adults in the household}}$$

For non-parents in the screened sample

$$\frac{2}{\text{No. of adults in the household} + 1}$$

For parents/caregivers interviewed for both the parent/caregiver and the adult sample.

$$\frac{1}{\text{No. of adults in the household} + 1}$$

For adults (parent/caregivers or non-parents) interviewed for the adult sample (parent/caregiver interview done with someone else)

The average probability of selection is the product of these three probabilities.

The selection weight applied to each respondent in the dataset is the inverse of the probability of selection for that respondent.

9.3 Non-response adjustment

Each selection weight was adjusted using the response rate of the meshblock the respondent was selected from. This adjustment was done to compensate for any non-response bias that may have arisen from people refusing to participate in the survey. The adjustment was made by dividing the selection weight by the response rate. Applying this adjustment at the meshblock level accounted for any bias that may have arisen due to differences at the area level, for example differing levels of deprivation in different meshblocks.

9.4 Benchmark populations used for the 2010 HLS adult sample

Benchmarking is an adjustment that ensures that the proportion of particular groups in the sample match the proportions observed in the actual population estimates based on the Census data. The benchmarks used in the 2010 HLS weighting of the adult sample were population counts by:

- age group (15-24 years, 25-34 years, 35-44 years, 45-54 years, 55 years and over)

by

- gender (male, female)

by

- ethnic group (Māori, Pacific, Asian, European/Other).

Age, gender and ethnicity were included because these variables are related to health behaviour and to non-response and were a key output classification for the survey.

The most recent New Zealand Census was conducted in March 2006, the population benchmarks were calculated using the 2006 Census counts for usual residents. These figures were adjusted by age by gender to be representative of Statistics New Zealand's 2010 estimated usually resident population counts.

The ethnic group counts from the Census were calculated using prioritised ethnic groups in order of Māori, Pacific peoples, Asian, and European/Other people. Prioritisation applies when someone has selected more than one ethnic group. This means that if someone identified as both Māori and Chinese, they would be included in the Māori ethnic group for this calculation of Census counts.

When a respondent was selected for the survey from the Pacific screened sample, the respondent was included in the Pacific ethnic group for the benchmarking process. All other respondents were included in an ethnic group based on the same prioritisation process described above.

Adjusting the selection weight with the benchmark weight helps remove any differences between the proportions of different groups in the sample compared to these proportions in the New Zealand population.

The 2010 HLS weights were adjusted back down to the sample size of the survey.

9.5 Representativeness of the 2010 HLS parent/caregiver sample

Due to difficulties in obtaining counts of how many parents/caregivers of 5 to 16-year-olds there are in New Zealand, the 2010 HLS parent/caregiver sample was not adjusted using benchmark weights.

In the parent/caregiver sample, a number of questions referred to a randomly selected 5 to 16-year-old child in the household. Published statistics exist for this group that can be used to determine the representativeness of the parent/caregiver sample.

Table 3 below gives three basic demographics gender, age, and ethnic group. The column on the left gives the weighted number of children represented by a parent/caregiver in the 2010 HLS (this is the number of children in these sub-groups) after selection weights have been applied. The column on the right gives the number of interviews we would expect from our sample, based on 2010 population estimates.

Table 3 shows that with the selection weight adjustments the weighted counts are very similar to what would have been expected based on the 2006 Census estimated resident population counts adjusted to 2010. Therefore, if the selected child is used as a proxy for the parent/caregiver, we can see that the HLS sample was fairly representative of New Zealand children aged 5 to 16 years, with similar proportions of gender, age, and ethnic group counts to what were expected.

Table 3: Actual versus expected numbers of children represented by a parent/caregiver in the 2010 HLS, by gender, age and ethnic group

| Demographic | Sub-group | Actual Weighted Counts in 2010 HLS | Expected Counts |
|--------------|----------------|------------------------------------|-----------------|
| Gender | Male | 426 | 420 |
| | Female | 394 | 400 |
| Age group | 5– 7 years | 245 | 199 |
| | 8–12 years | 294 | 337 |
| | 13–16 years | 281 | 284 |
| Ethnic group | Māori | 168 | 181 |
| | Pacific | 67 | 69 |
| | Asian | 100 | 71 |
| | European/Other | 485 | 500 |

9.6 Replicate weights

Standard errors are a measure of the precision of an estimate and replicate weights are a method for obtaining standard errors for any weighted estimate. In the 2010 HLS, jackknife replicate weights were used as part of the survey estimation procedures in the Stata version 11 statistical software package.

To remove bias in the estimate from any particular PSU ‘delete-a-group’ jackknife is used ie, the estimate is calculated from a sample of everyone except those in a particular PSU. This re-calculation is done over and over again, until an estimate is calculated from each of multiple samples with a different PSU deleted each time. The standard error of the population estimate is based on the variation of the replicate estimates.

For technical information on replicate variance estimation in surveys, see Rao and Wu (1988) and Shao and Tu (1995).

9.7 Survey estimates

Once weights have been calculated for all respondents, estimates of means, totals, counts, and proportions can be calculated as follows.

Proportions

The proportion of the population who belong to a particular group (eg, the proportion of the population who smoke daily) is estimated by calculating the sum of the weights for the respondents in the group, divided by the sum of the weights of all respondents.

Proportions within population groups

The proportion of people in a population group who belong to a subgroup (eg, the proportion of Māori who smoke daily) is estimated by calculating the sum of the weights for the respondents

in the subgroup (Māori who smoke daily), divided by the sum of the weights for the respondents in the population group (Māori).

Totals (counts)

Estimates of totals (counts) are given by the sum of the respondents of the weight multiplied by the variable of interest. For example, the estimate of the total number of people who smoke daily in the whole population would be given by the sum, over all respondents, of the number of respondents who smoke daily multiplied by the weight.

Averages (means)

The population averages (eg, the average age of smoking initiation) are estimated by calculating the sum, over all respondents, of the weight multiplied by the variable of interest divided by the sum of the weights.

Averages within population groups

Sometimes the average within a group is of interest (eg, the average age of smoking initiation among males). The estimate is given by calculating the sum, over respondents, in the group of the weight multiplied by the variable of interest, divided by the sum of the weights of respondents in the group.

10 Technical Notes for Analysis

The descriptive 2010 HLS analyses are presented in fact sheets called *In Fact*. These use a number of specific techniques, which are discussed below.

10.1 Suppression due to small numbers

Small sample numbers can affect both the reliability and the confidentiality of results. Problems with reliability occur when the sample becomes too small to adequately represent the population from which it has been drawn. For example, if only one meshblock was sampled from the West Coast then it would not be appropriate to provide estimates from West Coast District Health Board, as people from one small area of the West Coast could not accurately represent the full diversity of people from that area. Problems with confidentiality can occur when it becomes possible to identify an individual, usually someone in a sub-group of the population within a small geographical area. For example, people who are involved in the Tokelauan community might know most of the elders resident in New Zealand and know one of them participated in the HLS, if this were the case and we released results by age group for Tokelauans, this person's answers may then be obvious to others in the community.

In order to ensure the survey data presented are reliable and that the confidentiality of the participants is protected, data have only been presented when there are at least 30 people in the denominator (the population group being analysed). Therefore, no participant can be identified from the results.

10.2 Confidence intervals

Ninety-five percent confidence intervals have been used to represent the sample error for estimates. A 95% confidence interval means there is a 95% chance the true value of the estimate (if the whole population was sampled) lies between the lower and upper confidence interval values.

Differences between estimates are said to be 'statistically significant' when the confidence intervals for each rate do not overlap. However, even when there are overlapping confidence intervals the difference between the groups can be statistically significant, when the variance is sufficiently small.

Any differences between two variables where the confidence intervals overlapped were tested using the most appropriate statistical test for that data. The significance of many different statistical tests is represented by a probability value, or p-value. If a p-value is below 0.05, then we are 95% confident the difference between the two estimates is not due to chance.

11 Other New Zealand Survey Data

Other surveys have measured health-related behaviour, knowledge and attitudes of New Zealanders. This section outlines the methodologies of a selection of some of the surveys HSC uses to inform its programmes.

Caution is recommended when comparing results between surveys, because there are differences in sample sizes, response rates, questions, and methodology. It is recommended that comparisons not be made between these surveys unless specific analysis has been done to account for the methodological differences.

11.1 The 2008 Health and Lifestyles Survey

The 2008 HLS included a general sample of 1,608 adults aged 15 years and over and a sample of 777 parents/caregivers of children aged 5–16 years. The methodology of the 2010 HLS was the same as the 2008 HLS except for the weighting process. The 2008 HLS has been re-weighted before any comparisons have been made between these two surveys.

11.2 The Smokefree/Auahi Kore Monitor

The Smokefree/Auahi Kore Monitor (SF/AKM) was a cross-sectional telephone survey that was carried out from 1999 to 2007, typically on a biennial basis.

The SF/AKM provided information for HSC-specific social marketing brands and programmes, as well as information on smoking behaviour, second-hand smoke exposure in public and private settings, restrictions on smoking in the home, household car, and public settings, and quitting behaviour. The SF/AKM also provided information on public opinion towards smoking restrictions, the rights of people to live in smokefree environments, and youth uptake of smoking behaviour.

11.3 The 2006/07 Gaming and Betting Activities Survey

The 2006/07 Gaming and Betting Activities Survey (GBAS) provided baseline information for evaluating the impact of the social marketing programme and related public health activities in communities, and for informing the planning of future public health services.

The GBAS was a nationwide CAPI survey of adult New Zealand residents aged 18 years and over. The survey also included a sample of young people aged 15 to 17 years. A total of 1,774 adult and 199 youth interviews were conducted. This represented a weighted response rate of 66.3% and included 514 Māori, 267 Pacific peoples, 346 Asian peoples, 1,098 European/Other people.

Note that initial analysis of the GBAS used a slightly different weighting methodology to the 2010 HLS. The process used for the 2010 HLS has been applied to the GBAS for any comparisons made since the 2010 HLS was carried out.

11.4 The 2007 Children's Food and Drink Survey

The 2007 New Zealand Children's Food and Drinks Survey (CFDS) was a nationwide survey of main food providers of children aged 5 to 16 years. A number of the questions were about a child in this age range. If there was more than one 5 to 16-year-old in a household, then one of these children was selected at random. In half the households, the child was also asked to complete a

short interview and then to complete a booklet to record all the foods and drinks they usually ate and drank.

Interviews were conducted with a total of 1,133 main food providers and 547 (out of 579 sampled) children. This was a response rate of 75% for the main food providers and 94% for the children. Of the 547 children who answered questions, 424 completed and returned the Food Questionnaire (ie, 73% of the child sample). The sample of main food providers included 315 Māori, 330 Pacific peoples, 81 Asian and 543 European/Other people.

Note that the CFDS was a sample of main food providers, of which there is a maximum of one per household, compared to the HLS parent/caregiver sample where more than one person may have been eligible to participate.

11.5 The Triennial Sun Protection Survey

The Triennial Sun Protection Survey was initiated in 1994 by the Cancer Society of New Zealand and the Department of Preventive and Social Medicine at the University of Otago. The purpose of the Triennial Sun Protection Survey was to provide regular and consistent prevention information to inform skin cancer control programmes in New Zealand. The survey was carried out over the summer months when ultraviolet radiation is at its highest. Many of the questions asked respondents about their behaviour outdoors in the previous weekend, measuring weekend prevalence of sunburn.

The survey population was adults aged 15 to 69 years, approximately 1,250 per survey and some children 12 to 14 years (inclusion varied across years). New Zealand's five largest metropolitan centres (Auckland, Hamilton, Wellington, Christchurch, and Dunedin) were included. Five waves of the survey were carried out every three years (1994, 1997, 2000, 2002/03, 2005/06).

Telephone random digit dialling (RDD) was used as the original sample frame. From 2000, the electoral roll, followed by tele-matching, were used to send a pre-contact letter to households. This was followed by computer assisted telephone interviewing. In order to improve the response rates of youth, interviewers would ask to speak to the youngest person in the household over 15 years of age. Additionally, for each wave of the survey, quotas were set for males and females (50:50), and within each geographical area (n=250). The response rate declined from 68% in 1994 to 21% in 2005/06.

The Triennial Sun Protection Survey has been reviewed and replaced with the Sun Exposure Survey (SES). The first wave of the SES was carried out in 2010.

11.6 2006, 2008 and 2009 New Zealand Tobacco Use Surveys

The target population for the New Zealand Tobacco Use Surveys (NZTUSs) was the usually resident New Zealand adult population, aged 15–64 years, living in permanent private dwellings. An area-based frame using meshblocks as primary sampling units was used as the sample frame. A booster sample was taken of Māori, Pacific peoples and Asian people, as well as 15- to 24-year-olds.

Data were collected in the early part of 2006, 2008 and 2009 using face-to-face CAPI interviewing. The total response rates for the surveys were 75.4% for 2006, 74% for 2008 and 71.3% for 2009 (Ministry of Health 2007b, 2009b, 2010b). The sample sizes were 5,703 for 2006, 5,132 for 2008 and 5,222 for 2009. Full details on the methodology of the NZTUSs can be found in *New Zealand Tobacco Use Survey 2006, Methodology Report for the 2008 New*

Zealand Tobacco Use Survey, and Tobacco Use in New Zealand: Key findings from the 2009 New Zealand Tobacco Use Survey (Ministry of Health 2007, 2009, 2010).

11.7 2006/07 New Zealand Health Survey

The New Zealand Health Survey (NZ Health Survey) measures self-reported physical and mental health status, risk and protective behaviours for health outcomes, and the use of health care services among usually resident New Zealand population living in private dwellings. Topics covered include smoking and gambling behaviour, as well as nutrition and physical activity.

The target population for the 2006/07 NZ Health Survey was the usually resident New Zealand population of all ages living in permanent private dwellings. An area-based frame using meshblocks as primary sampling units was used as the sample frame. A booster sample was taken of Māori, Pacific people and Asian people. The 2006/07 NZ Health Survey was the first to ask comprehensive questions on child health.

Data were collected from October 2006 to November 2007 using CAPI face-to-face interviewing. The survey involved face-to-face interviews with the primary caregiver of one randomly selected child in 4921 households. As well as an interview of an adult aged 15 years and over in 12,488 households. The total response rate for the adult sample was 68% and for the child sample 71.2%.

Full details on the methodology of the 2006/07 NZ Health Survey can be found in the *Methodology Report for the 2006/07 New Zealand Health Survey* (Ministry of Health 2008).

From 2011 the New Zealand Health Survey is planned to be carried out continuously with sections of questions on specific health topics being added and removed as and when appropriate (Ministry of Health 2010c).

12 Dissemination of Data

There are several ways to access the results and data from the 2010 HLS:

- publications
- journal articles
- confidential microdata.

12.1 Publications

In Fact are information sheets highlighting interesting points from specific research. *In Fact* is designed to meet the needs of researchers, academics and people working in the health sector.

In Fact reports using data from the 2008 HLS are available on the HSC website at: <http://www.hsc.org.nz/researchpublications.html>. Some of these include:

Trappitt, R. (2010). *Where are people smoking? [In Fact]*. Wellington: Health Sponsorship Council.

Trappitt, R. (2010). *What makes quitting difficult? [In Fact]*. Wellington: Health Sponsorship Council.

Trappitt, R. (2010). *Public concern about tobacco [In Fact]*. Wellington: Health Sponsorship Council.

Further publications using the 2010 HLS are planned and will be available from <http://www.hsc.org.nz/researchpublications.html>.

12.2 Access to confidential microdata

The analyses presented in HSC publications are only a small proportion of those that could be undertaken. In mid-2011 HSC will produce confidentialised microdata from the 2010 HLS for approved researchers to use for specific research projects.

The microdata will have all identifying information about individuals removed and be modified to protect individual information. Approval will be subject to certain criteria, terms and conditions and the researcher's organisation will have to sign an access agreement with HSC. Contact HSC for more information research@hsc.org.nz, ph: 64 4 472 5777.

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Appendix 1: Example of Kish grid respondent selection process

08-083



0

HEALTH AND LIFESTYLES SURVEY

PSU No:

1 2 3

Sampled home No:

3 4

GREEN SCREENER: 'IN-BETWEEN HOMES'
PACIFIC ARE ELIGIBLE

INTRODUCTION

"Good morning/afternoon/evening. My name is Xxx from the National Research Bureau. I'm calling today on behalf of the Health Sponsorship Council. We're talking to people all over the country about a number of health topics, and we'd like to include the opinions of your household. The way we find which person is eligible, is to list the first name or initials, and then check if they fit the criteria."

Pre-Kish: ADULTS 15 years and over

| | A First name / Initials | B Ethnicity <input checked="" type="checkbox"/> Other | C Parent/CG <input checked="" type="checkbox"/> |
|----------|----------------------------|---|---|
| Oldest | | | |
| 1. | A | P <input type="checkbox"/> Other <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. | L | P <input type="checkbox"/> Other <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. | S | P <input checked="" type="checkbox"/> Other <input checked="" type="checkbox"/> | |
| 4. | K | P <input type="checkbox"/> Other <input checked="" type="checkbox"/> | |
| 5. | T | P <input checked="" type="checkbox"/> Other <input type="checkbox"/> | |
| 6. | P | P <input checked="" type="checkbox"/> Other <input type="checkbox"/> | |
| 7. | | P <input type="checkbox"/> Other <input type="checkbox"/> | |
| Youngest | | | |
| 8. | | P <input type="checkbox"/> Other <input type="checkbox"/> | |

PACIFIC ☒ AND PARENT/CG ☒
IF NONE, PACIFIC ☒

KISH: Select ELIGIBLE PARENT/CAREGIVER If none, select ELIGIBLE ADULT 15 yrs & over

| F Respondent No. | D Eligibles: Pacific (first name/initials) | E |
|---------------------|--|---|
| 1 | Oldest S | 1 |
| 2 | T | 2 |
| 3 | P | 2 |
| 4 | | 3 |
| 5 | | 3 |
| 6 | | 4 |
| 7 | | 5 |
| 8 | Youngest | 5 |

A "To see if anyone in this house is eligible for this survey, may I please have the first name or initials of all the people aged 15 years and over, who usually live here, even if they are away at present? Please give them to me oldest to youngest." LIST IN COLUMN A, OLDEST TO YOUNGEST.

B SHOW ETHNICITY CARD "We also ask about the ethnicity of these people. This helps us to include enough people in each group. Looking at this card, can you tell me which ethnic group or groups Xxx belongs to?" TICK BOX IN COLUMN B FOR EACH PERSON - USE MULTIPLE BOXES IF APPLICABLE.

IF NO PACIFIC ADULTS, TICK NE: ☐
THEN THANK AND CLOSE.
RECORD NE ON SAMPLING SHEET

C "Are there any children who usually live here, who are aged between 5 and 16 years old?" CIRCLE ANSWER BELOW.

Yes - 1

No - 5

SELECT PACIFIC PARENT/CAREGIVER:

"Can you tell me which of the people listed are regular parents or caregivers of these children?" TICK PARENT/CAREGIVERS IN COLUMN C.

D TRANSFER NAMES OF PACIFIC PARENT/CGs TO THE KISH GRID BELOW. LIST OLDEST TO YOUNGEST.

IF NO PACIFIC PARENT/CGs, GO TO D

E FOLLOW THE YOUNGEST PARENT/CG's LINE ACROSS TO COLUMN E. THE NUMBER IN COLUMN E TELLS YOU WHICH PARENT/CG TO SELECT IN COLUMN F.

F CIRCLE THE SELECTED PARENT/CG IN COLUMN F. TICK PARENT/CG ☐

INTERVIEW: ☐
NOW TURN THE PAGE OVER AND ASK FOR AN INTERVIEW APPOINTMENT WITH THE SELECTED PARENT/CAREGIVER.

SELECT PACIFIC ADULT:

D TRANSFER NAMES OF ALL PACIFIC ADULTS TO THE KISH GRID BELOW. LIST OLDEST TO YOUNGEST.

E FOLLOW THE YOUNGEST ADULT'S LINE ACROSS TO COLUMN E. THE NUMBER IN COLUMN E TELLS YOU WHICH ADULT TO SELECT IN COLUMN F.

F CIRCLE THE SELECTED ADULT IN COLUMN F.

TICK ADULT INTERVIEW: ☒

NOW TURN THE PAGE OVER AND ASK FOR AN INTERVIEW APPOINTMENT WITH THE SELECTED ADULT.

Appendix 2: Information provided to potential participants

Invitation letter



Health Sponsorship Council
Te Rōpū Whakaitaranga Hauora
Level 3, 181 Wakefield Street
PO Box 2142, Wellington 6140
NEW ZEALAND

P +64 4 472 5777
F +64 4 472 5799
W www.hsc.org.nz

Kia ora / Hello

The Health Sponsorship Council (HSC) is undertaking the 2010 Health and Lifestyles Survey to understand more about the views and experiences of people around New Zealand on food and drink, smoking, gambling and being out in the sun.

The HSC would greatly appreciate your household taking part in the survey to help us understand more about people's health and lifestyles so we can develop advice, information and practical ways to help New Zealand adults, children and young people have healthy lifestyles.

The National Research Bureau (NRB) is carrying out this survey for HSC. NRB's interviewers wear an official badge and will hand you a brochure that will tell you more about this survey, and answer any questions you may have.

Your participation in this survey is important, so please help us by taking part.

Thank you

Iain Potter
Chief Executive
Health Sponsorship Council

Your NRB interviewer's name is: _____

Appointment Day: _____ Date: _____ Time: _____

If you would like to change this appointment or request an interviewer of the same gender or ethnicity as yourself, please phone NRB on 0800 672 476.





What is the Health and Lifestyles Survey?

This survey is about New Zealanders' views and experiences of a number of health and lifestyle topics, including food and drink, smoking, gambling and being out in the sun. This is the second Health and Lifestyles Survey. The first survey was undertaken in 2008.

What is the Health Sponsorship Council?

The Health Sponsorship Council (HSC) is a New Zealand government agency that promotes health and encourages healthy lifestyles.

Who is carrying out the survey?

The National Research Bureau (NRB Ltd), an independent research company, is carrying out the survey for the HSC.

Why should I take part?

Your views and experiences are important, even if you have not taken part in any of the activities we are asking people about. Your answers will help identify if there have been any changes in people's views and experiences since the last survey in 2008. Your answers will also help improve the health of New Zealanders. You do not have to take part in the survey. However, it will be very helpful if you can.

Why was I chosen to take part?

Addresses from throughout New Zealand are randomly selected, so your home has been chosen by chance. One person (aged 15 years and over) from your household will be chosen at random by the interviewer and asked to take part in the survey. If there are children in your household, we may ask a second person to take part as well (also aged 15 years and over) because the views of parents and caregivers are

also of particular interest to us. Overall, about 1,800 people will take part in this survey.

Where and when will I be interviewed?

In your own home. The interviewer calling on you will have photo identification and an interviewer number. If you are busy when the interviewer calls, please ask them to come back when it's more convenient. The interviewer is happy to make an appointment for a time and day that suits you.

What sort of questions will I be asked?

You will be asked questions on different health and lifestyle topics, including food and drink, smoking, gambling and being out in the sun. If you don't want to answer a question, you don't have to; just tell the interviewer.

If you are a parent or caregiver, you may also be asked questions about these health topics for one of the children you look after.

How long will it take?

The interview will take about 45 minutes. The interviewer is happy to arrange a time and day when you have time to take part in the survey.

Can I have an interviewer of my own gender (male or female) or culture?

Yes, you can. Please let the interviewer know if you would like your interview to be done by an interviewer of the same gender or culture as yourself. If you prefer, you can phone the free survey information line (0800 672 476) and leave your request with the Supervisor. Remember to leave a contact phone number or address.

Can I have an interpreter?

Yes, if you would like an interpreter for any language, including for New Zealand Sign Language, please let your interviewer know or call the free survey information line 0800 672 476.

What happens to my answers?

The interviewer will not discuss your information with anyone else, and no-one will know that you have taken part in this survey. Your answers are confidential and are protected by the Privacy Act 1993. You are not identified with the results. No person's name or address is connected to the answers they give. Everyone's answers will be grouped to report on the survey results.

What will the information be used for?

The survey will help HSC develop advice, information and practical ways to help adults and children living in New Zealand to live healthy lifestyles.

Can I find out about the results from the survey?

Yes, some of the results from the survey will be available by the end of 2010 on our website www.hsc.org.nz

Thank you for your time.



Te Rangahau Hauora me te Āhua Noho 2010

Ko te kaupapa o tēnei rangahau mō ngā whakaaro me ngā wheako o ngā tāngata o Aotearoa e pā ana ki ngā take maha o te hauora me te āhua noho, tae atu ki ngā kai me ngā inu, kai paipa, petipeti me te haere ki raro i te rā. He mea nui o whakaaro me o wheako, ahakoa kāore anō koe kia whai wāhi ki ētahi o ēnei mahi e uiuihia ana e mātau.

Kāore he tikanga i runga i a koe ki te whakauru ki tēnei rangahau, engari he āwhina nui mēnā e taea e koe. Ka whakamahia ngā hua o tēnei rangahau ki te whakapai ake i te hauora o ngā tāngata noho i Aotearoa.

Tēnā pātai atu ki tō kaiuiui, waea atu rānei ki te waea pārongo rangahau kore utu i **0800 672 476**, mēnā e hiahia ana koe ki tētahi kaiwhakamāori reo.

Soifua Mālōlōina ma Sa'ili'iliga o le Faiga 'o le olaga 2010

'O lenei sa'ili'iliga e fa'atatau i manatu ma le poto māsani mo nisi o matā'upu tau i le ola mālōlōina fa'apea faiga o le olaga, e aofia ai mea'ai ma meainu, ulaula, petipetiga ma le fa'alā. E tāua ou manatu ma le poto māsani, tusa lava pe 'e te le'i 'auai i nisi o gāioiga 'olo'o matou fa'atalanoaina ai tagata.

E te lē tau 'auai i lenei sa'ili'iliga, 'ae o se fesoasoani tele pe 'āfai e mafai. 'O le a fa'aāoga le fa'ai'uga o lenei sa'ili'iliga e fa'aleleia ai le ola mālōlōina o tagata 'olo'o nonofo i totonu o Niu Sila.

Fa'amolemole fesili i lē 'olo'o faia le fa'atalatalanoaga, pe telefoni le laina sa'ili'ili e leai se totogi **0800 672 476**, pe 'āfai e te mana'omia se fa'aliliu'upu.

Savea ki he Mo'ui Lelei mo e Ngaahi To'onga Mo'ui 2010

Ko e savea ni, 'oku fekau'aki pea mo e kakai Nu'u Sila pea mo e ngaahi me'a kuo nau a'usia pe ne hoko, kae pehē foki ki he anga 'enau sio fekau'aki mo e ngaahi topiki pe kāveinga to'onga mo'ui mo e mo'ui lelei, kau ai heni 'a e me'akai pea mo e inu, ifi tapaka, peti pea pehē foki ki he fakala'ala'ā 'i tu'a 'i he la'a'. Ko ho'o ngaahi lau pe fakamatala pea mo e ngaahi me'a ne ke 'osi fai pe kuo ke a'usia, 'oku mahu'inga, 'o tatau ai pe kapau 'oku te'eki ke ke kau atu koe ki ha taha 'o e ngaahi 'ekitiviti' ni koia 'oku mau 'initaviu kiai e kakai.

Ko e me'a fa'iteliha pe 'a koe, pe teke kau ki he savea ni, ka 'e fu'u tokoni lahi 'aupito, kapau teke lava 'o kau. Ko e ngaahi ola mei he savea ni, 'e ngāue'aki ki hono fakalelei'i 'e mo'ui lelei 'a e kakai 'oku nofo 'i Nu'u Sila ni.

Kataki 'o 'eke ki he tokotaha fai 'initaviu, pe telefoni ki he telefoni ta'etotongi' fekau'aki mo e savea 'aia ko e **0800 672 476**, kapau 'oku ke fiema'u ha tokotaha fakatonulea.

2010年健康與生活方式調查

這是一項針對於新西蘭人對若干健康和生活方式看法與經歷的調查，包括飲食、吸煙、博彩以及在外曬太陽等議題。雖然您的日常生活可能從未涉及到我們調查議題中的項目，但您的看法和經歷對我們來說仍然非常寶貴。

您可以選擇拒絕參與本項調查，但您的參與將對本項調查起到很大的幫助作用。調查的各項結果將被致力於改善新西蘭居民的健康狀況。

我們可以為您提供口譯員的協助，如果您有需要，請向我們的訪查員詢問，或致電諮詢免費調查資訊專線：0800 672 476。

2010年健康与生活方式调查

这是一项针对于新西兰人对若干健康和生活方式看法与经历的调查，包括饮食、吸烟、博彩以及在外晒太阳等议题。虽然您的日常生活可能从未涉及到我们调查议题中的项目，但您的看法和经历对我们来说仍然非常宝贵。

您可以选择拒绝参与本项调查，但您的参与将对本项调查起到很大的帮助作用。调查的各项结果将被致力于改善新西兰居民的健康状况。

我们可以为您提供口译员的协助，如果您有需要，请向我们的访查员询问，或致电咨询免费调查信息专线：0800 672 476。

2010 स्वास्थ्य एवं जीवनचर्या सर्वेक्षण

यह सर्वेक्षण खाद्य व पेय, धूम्रपान, पणन तथा धूप में घूमने-फिरने जैसे विषयों को शामिल कर कई स्वास्थ्य एवं जीवनचर्या संबंधित विषयों पर न्यूजीलैंड वासियों के विचारों और अनुभवों के बारे में है। आपके विचार और अनुभव महत्वपूर्ण हैं, भले ही आपने ऐसी किसी भी गतिविधि में भाग ना लिया हो जिसके बारे में हम लोगों से साक्षात्कार कर रहे हैं।

आपका सर्वेक्षण में भाग लेना आवश्यक नहीं है, परंतु यदि आप इसमें भाग लेते हैं तो यह बहुत उपयोगी होगा। इस सर्वेक्षण से प्राप्त होने वाले परिणामों का प्रयोग न्यूजीलैंड में रहने वाले लोगों के स्वास्थ्य को सुधारने के लिए किया जाएगा।

यदि आपको दुभाषिये की आवश्यकता है, तो कृपया अपने साक्षात्कारकर्ता से निवेदन करें या निःशुल्क सर्वेक्षण सूचना लाइन को 0800 672 476 पर फोन करें।

Other information included on the HSC website

Information sheet for Health and Lifestyles Survey

What is the Health and Lifestyles Survey?

This survey is about New Zealanders' views and experiences of a number of health and lifestyle topics, including food and drink, smoking, gambling and being out in the sun. This is the second Health and Lifestyles Survey (HLS). The first survey was undertaken in 2008.

Why is the Health and Lifestyles Survey being done?

The HLS is a survey of the general public. It aims to measure current and changing knowledge, attitudes and behaviours across HSC's programme areas: Smokefree, Auahi Kore, Sun Smart, Healthy Eating, and Problem Gambling. The 2010 HLS also includes some questions on the sale and advertising of alcohol.

The data collected from the survey will be used by HSC to develop advice, information and practical ways to help adults and children living in New Zealand to live healthy lifestyles.

Who is taking part?

Overall, about 1,800 people (aged 15 years and over) will take part in this survey. Addresses from throughout New Zealand have been randomly selected. One person from each household will be chosen at random by the interviewer and asked to take part in the survey. If there are children in the household, a second person may be asked to take part as well (also aged 15 years and over) because HSC is also interested in the views of parents and caregivers.

Who is carrying out the survey?

The National Research Bureau (NRB Ltd), an independent research company, is carrying out the survey for the HSC.

When is the survey taking place?

NRB's interviewers will be 'out in the field' collecting information from early May to the end of July 2010.

When will the results from the survey be available?

Some of the results from the survey will be available by the end of 2010 on our website www.hsc.org.nz

Do you have any other questions about the survey?

If you want to know more or have any further questions about the survey, please email the HSC's Research and Evaluation Team at - research@hsc.org.nz or phone (04) 472 5777.

Questions and Answers for 2010 HLS Participants

1. Is it compulsory? / Am I obliged to take part in the survey?

No, but having you take part on a voluntary basis is very important because you have been selected by a random process, like a ballot or lottery, so no-one can exactly substitute for you.

2. Can we do the interview over the telephone?

No, because the survey involves looking at some showcards. Therefore, it is necessary for us to interview you in person.

3. I'm too old. Why don't you talk to my son? He could better answer your questions.

We need to interview men and women from all age groups across New Zealand. Your answers are important to us.

4. Why do you want to talk to my daughter? She is too young to place bets or to smoke.

While most young people don't gamble or smoke, we know from other surveys that some do, so it is important to find out what young people think and know about these topics.

5. Why are you asking me all these questions? I live a healthy lifestyle already - I don't smoke or gamble.

The survey covers a number of topics. We are interested in everybody's views on smoking, regardless of whether they smoke or not, whether or not they gamble (participate in gaming and betting activities). We are also interested in everybody's views on sun safety, regardless of their skin type.

6. Do you need this information? Couldn't you get it from another source?

Information available from other sources is very limited. This survey will provide more complete information about New Zealanders' views and experiences of sun safety, food and drink, smoking and gambling.

7. How has HSC used the 2008 HLS data? Has any of the 2008 information been used?

The HSC has used the results of the 2008 HLS in a number of ways. For example, it has helped develop our Face the Facts initiative, (see www.facethefacts.org.nz for more information). The 2008 data has also been used in submissions to government, including the Maori Health Select Committee Inquiry on Tobacco in 2010. To help inform the people who work in the health sector and provide them with information they can use, we are also starting to publish a series of fact sheets about some of the 2008 key results - these will be on our website shortly. Our researchers have also presented papers at international and national conferences such as the 2009 Oceania Tobacco Control Conference.

8. The Government has too much information already.

The data that is available through other sources is incomplete. New Zealand's society is dynamic and there are constant changes in our way of life, attitudes, social and economic conditions. It is important to monitor these changes so we can act on the most up-to-date information.

9. These surveys are a waste of taxpayers' money.

The survey results will be used to help plan and implement health and community programmes to promote healthier lifestyles. Therefore, it is important that the HSC is well informed, so that we can use public money in the most effective way.

10. How will I know if all my answers will be kept confidential?

The information is held securely by the National Research Bureau (NRB). The HSC is bound by the Privacy Act to use this information only for the purpose for which it was collected.

11. Why has the interviewer only asked for people of Māori or Pacific ethnicities?

In some instances a household may be asked about people of Māori or Pacific ethnicities. This is done to ensure we have enough people of these ethnic groups to be able to report on their health and lifestyles with accuracy.

Information provided after the interview

At the end of the interview respondents were offered an envelope containing brochures in case the interview raised any issues the respondent wanted to talk to someone about.

The envelope included a pen from one of HSC's programmes, as well as brochures on:

- Problem gambling, HSC
- Eat for Health, Pacific Heart Beat
- Alcohol drug helpline card, Alcohol Drug Association New Zealand
- Quit smoking for a better life card, HSC

Appendix 3: Sample sizes

Tables A1 to A6 show the 2010 HLS actual sample sizes and the weighted counts by gender, age, ethnicity, and NZDep2006 quintile for the adult and parent/caregiver samples.

Table A1: Sample sizes, by gender, 2010 HLS adult sample

| Gender | Actual sample size | Weighted sample size |
|---------|--------------------|----------------------|
| Males | 711 | 841 |
| Females | 1029 | 899 |
| Total | 1740 | 1740 |

Table A2: Sample sizes, by gender, 2010 HLS parent/caregiver sample

| Gender | Actual sample size | Weighted sample size |
|---------|--------------------|----------------------|
| Males | 262 | 315 |
| Females | 558 | 505 |
| Total | 820 | 820 |

Table A3: Sample sizes, by ethnic group and gender, 2010 HLS adult sample

| Ethnic group | Gender | Actual sample size | Weighted sample size |
|----------------|---------|--------------------|----------------------|
| Māori | Males | 184 | 95 |
| | Females | 276 | 105 |
| Pacific | Males | 122 | 43 |
| | Females | 204 | 46 |
| Asian | Males | 44 | 73 |
| | Females | 80 | 79 |
| European/Other | Males | 450 | 681 |
| | Females | 617 | 728 |

Note: Ethnic group counts do not sum to 1740 because total response groups have been used and some respondents have selected more than one ethnic group.

Table A4: Sample sizes, by ethnic group and gender, 2010 HLS parent/caregiver sample

| Ethnic group | Gender | Actual sample size | Weighted sample size |
|----------------|---------|--------------------|----------------------|
| Māori | Males | 70 | 47 |
| | Females | 162 | 78 |
| Pacific | Males | 55 | 21 |
| | Females | 152 | 45 |
| Asian | Males | 22 | 32 |
| | Females | 45 | 68 |
| European/Other | Males | 146 | 234 |
| | Females | 289 | 359 |

Note: Ethnic group counts do not sum to 820 because total response groups have been used and some respondents have selected more than one ethnic group.

Table A5: Sample sizes, by age group and gender, HLS 2010 adult sample

| Age group | Gender | Actual sample size | Weighted sample size |
|-------------|---------|--------------------|----------------------|
| 15–24 years | Males | 85 | 161 |
| | Females | 112 | 154 |
| 25–34 years | Males | 89 | 133 |
| | Females | 188 | 142 |
| 35–44 years | Males | 177 | 148 |
| | Females | 248 | 164 |
| 45–54 years | Males | 134 | 150 |
| | Females | 201 | 159 |
| 55–64 years | Males | 102 | 119 |
| | Females | 131 | 128 |
| 65+ years | Males | 124 | 130 |
| | Females | 149 | 152 |

Table A6: Sample sizes, by age group and gender, HLS 2010 parent/caregiver sample

| Age group | Gender | Actual sample size | Weighted sample size |
|-------------|---------|--------------------|----------------------|
| 15–24 years | Males | 4 | 3 |
| | Females | 16 | 11 |
| 25–34 years | Males | 27 | 22 |
| | Females | 124 | 94 |
| 35–44 years | Males | 123 | 168 |
| | Females | 254 | 239 |
| 45–54 years | Males | 90 | 106 |
| | Females | 137 | 139 |
| 55–64 years | Males | 15 | 14 |
| | Females | 21 | 20 |
| 65+ years | Males | 3 | 2 |
| | Females | 6 | 2 |

Table A7: Sample sizes, by NZDep2006 group and gender, 2010 HLS adult sample

| NZDep2006 group | Gender | Actual sample size | Weighted sample size |
|-------------------------------------|---------|--------------------|----------------------|
| Low (least deprived neighbourhoods) | Males | 190 | 296 |
| | Females | 217 | 297 |
| Mid | Males | 237 | 303 |
| | Females | 320 | 336 |
| High (most deprived neighbourhoods) | Males | 284 | 242 |
| | Females | 492 | 266 |

Table A8: Sample sizes, by NZDep2006 group and gender, 2010 HLS parent/caregiver sample

| NZDep2006 group | Gender | Actual sample size | Weighted sample size |
|-------------------------------------|---------|--------------------|----------------------|
| Low (least deprived neighbourhoods) | Males | 73 | 108 |
| | Females | 100 | 141 |
| Mid | Males | 88 | 126 |
| | Females | 147 | 197 |
| High (most deprived neighbourhoods) | Males | 101 | 82 |
| | Females | 311 | 168 |

Note: weighted counts may not sum to 820 due to rounding.