

Content Guide

2014/15

New Zealand Health Survey



New Zealand Health Survey

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Contents

Authors	iii
Introduction	1
Background	1
Survey design and methodology	1
Goal and objectives	1
Information domains	2
Questionnaire components	2
Development of the New Zealand Health Survey	4
Core component	4
Module component	5
Cognitive testing	5
Pilot testing	6
Ethics approval	7
Content of the New Zealand Health Survey	8
Long-term health conditions	8
Health service utilisation and patient experience	9
Rheumatic fever clip-on	10
Health behaviours and risk factors	11
Developmental health and wellbeing	12
Health status	14
Sociodemographics	16
Measurements	16
Sexual and reproductive health	19
Exit	19
References	20
Appendix 1: Source of questions in Sexual and Reproductive Health questionnaire	21
List of tables	
Table 1: Long-term health conditions	9
Table 2: Health service utilisation and patient experience	10
Table 3: Health behaviours and risk factors	11
Table 4: SDQ questions	12
Table 5: Scoring for the SDQ	13
Table 6: Scoring for the SF-12	15
Table 7: Scoring for the K10	16
Table 8: Biomedical tests	18
Table 9: Sexual and reproductive health	19

Introduction

This guide describes the content of the New Zealand Health Survey (NZHS) for the period July 2014 to June 2015. It also briefly outlines the history of the NZHS and its development into a continuous survey, describes the process for developing the adult and child questionnaires for 2014/15, and gives an overview of each section of the survey. The questionnaires are available with this report on the Ministry of Health website www.health.govt.nz

Background

The NZHS was first undertaken in 1992/93, with further surveys in 1996/97, 2002/03 and 2006/07. The Ministry of Health's wider health survey programme also included surveys on adult and child nutrition; tobacco, alcohol and drug use; mental health; and oral health. From 2011 the Ministry has integrated the NZHS and the surveys from its wider survey programme into a single survey, which is now in continuous operation. The rationale for this change is detailed in *The New Zealand Health Survey: Objectives and topic areas* (Ministry of Health 2010a).

The NZHS forms part of the Programme of Official Social Statistics, which was established by Statistics New Zealand to develop and coordinate official social statistics across the government. As a signatory of the Protocols of Official Statistics (Statistics New Zealand 1998), the Ministry of Health employs best-practice survey techniques to extract high-quality information from the NZHS. Where possible, the Ministry uses standard frameworks and classifications so that data from the NZHS can be integrated with data from other sources.

Survey design and methodology

The target population for the survey is New Zealand's usually resident population of all ages (including those living in non-private accommodation). The NZHS sample is selected using a stratified, multi-stage area design. The survey questionnaire is administered through face-to-face interviews, using computer-assisted personal interviewing (CAPI) software. Participants are adults aged 15 years and older, as well as children aged 0 to 14 years, who are interviewed through their parent or legal guardian acting as a proxy respondent. The NZHS sample design and methodology will be published online alongside this report.

Goal and objectives

Goal

The goal of the NZHS is to support the formulation and evaluation of policy by providing timely, reliable and relevant health information. This information cannot be collected more efficiently from other sources, and covers population health, health risk and protective factors, and health service utilisation.

Objectives

To achieve this goal, 13 high-level objectives have been identified for the NZHS.

1. Monitor the physical and mental health of New Zealanders and the prevalence of selected long-term health conditions.

2. Monitor the prevalence of risk and protective factors associated with these long-term health conditions.
3. Monitor the use of health services, and patient experience with these services, including access to services.
4. Monitor trends in health-related characteristics, including health status, risk and protective factors, and health service utilisation.
5. Monitor health status and health-related factors that influence social wellbeing outcomes.
6. Examine differences between population groups, as defined by age, sex, ethnicity and socioeconomic position.
7. Provide a means for the rapid collection of data to address emerging issues related to the health of the population.
8. Enable follow-up surveys of at-risk populations or patient groups identified from the NZHS as required to address specific information needs.
9. Measure key health outcomes before and after a policy change or intervention.
10. Facilitate the linking of NZHS to routine administrative data collections to create new health statistics and address wider information needs.
11. Provide data for researchers and health statistics for the general public.
12. Allow the comparison of New Zealand data with international health statistics.
13. Evaluate methods and tools to improve survey quality, including the implementation of objective tests to capture information not accessible to self-report.

Information domains

To meet the high-level objectives of the NZHS, particularly the first six listed above, detailed information is collected across nine information areas or domains. These nine domains are:

1. health status
2. long-term health conditions
3. behaviours and risk factors
4. nutrition
5. mental health
6. oral health
7. health service utilisation
8. patient experience
9. sociodemographics.

There is crossover between some domains. For example, aspects of mental health and oral health could be included within the long-term health conditions domain, and nutrition could be included within the risk and protective factors domain.

Questionnaire components

The NZHS includes a set of questions drawn from each of the nine information domains. These 'core' questions are the same each year. They make up about half of the survey questions. The

NZHS also includes questions that examine a topic in more depth. These 'module' questions change each year and make up the other half of the survey questions. The topics covered by the modules include:

- health status
- long-term health conditions
- behaviours and risk factors
 - physical activity
 - tobacco use
 - alcohol consumption
 - drug use
 - problem gambling
 - sexual and reproductive health
- nutrition
- mental health
- oral health
- health service utilisation
- patient experience
- sociodemographics.

Because of its size and importance, the behaviours and risk factors domain has been split into a number of modules, as shown above. Some modules may run concurrently (eg, tobacco, drugs and alcohol use).

The continuous nature of the survey also makes it possible to incorporate shorter (one- to three-minute) clip-on modules. These clip-on modules may address an urgent emerging issue, or an important topic where policy development or monitoring requires information that can be obtained through a small number of questions.

Development of the New Zealand Health Survey

The Ministry of Health's Health and Disability Intelligence Group developed the adult and child questionnaires. In doing so, it consulted with key internal stakeholders (eg, policy groups) and external stakeholders (eg, technical experts and data users) regarding the questionnaire content.

Core component

The NZHS aims to maintain continuity with previous surveys so that time trends can be analysed. To facilitate this approach, the 2006/07 NZHS was used as a question bank. Where possible, the wording of the core questions and response options and the use of show cards and interviewer prompts were kept the same as in the 2006/07 NZHS.

Topics for inclusion in the core component of the NZHS were based on those outlined in *The New Zealand Health Survey: Objectives and topic areas* (Ministry of Health 2010a). The following criteria were used to determine which topics would be included each year as core components:

- impact – the topic has a large impact on health, health policy or health care costs
- measurability – the topic lends itself to robust measurement, including high reliability and validity, and responsiveness to change
- disaggregation – the data that can be collected on the topic will allow analysis by social group or region
- international comparability – the topic lends itself to meaningful international benchmarking.

Priority was given to those questions required to produce key indicators or outputs and to monitor time trends of importance to the Ministry of Health. Where the results on an indicator or output were included in *A Portrait of Health: Key results of the 2006/07 New Zealand Health Survey* (Ministry of Health 2008), it was considered to be a good indication of their importance.

Almost all questions selected for the core component of the survey were from the 2006/07 NZHS. The 2006/07 NZHS included a number of questions from validated instruments such as the Medical Outcomes Study Short Form (SF-36) and the Alcohol Use Disorders Identification Test (AUDIT). For the NZHS core, the SF-36 has been replaced by the SF-12. Most other questions selected for the core had been included in at least one earlier survey (1992/93, 1996/97 and/or 2002/03).

The need to sustain time series makes it more difficult to amend core questions where they might be improved and to add new core questions. Where needed, questions will generally be improved when a topic area covered by a core question is reviewed in depth during the development of a related module.

The core component of the NZHS includes measurement of height and weight in participants aged two years and older, waist circumference in participants aged five years and older and blood pressure in participants aged 15 years and older.

Module component

The module topics for adults and children were:

- sexual and reproductive health for adults aged 16–74 years
- biomedical tests (blood and urine) for a sub-sample of adults
- child development health and wellbeing
- rheumatic fever clip-on for children and adults under 25 years.

Details of question development are explained in the ‘Content of the New Zealand Health Survey’ section below.

Cognitive testing

Cognitive testing helps ensure questions are understood as intended and that response options are appropriate. The cognitive testing process (Tourangeau 1984; Eisenhower et al 1991) includes:

- comprehension – how does the respondent understand the question?
- recall – what knowledge or memory do they select that is relevant to the subject matter?
- judgement – how do they judge the completeness and relevance of what they remember?
- selection of response – how do they then decide whether their answer fits and whether or not they actually want to provide that answer?

Initially the new module questions are cognitively tested with colleagues as respondents. Then a smaller number of questions are prioritised for cognitive testing with relevant populations (demographic variety, extreme cases, etc).

Adult survey 2014/15

Face-to-face cognitive interviews were conducted with 60 adults to pre-test a sample of the questions included in the module change to the adult version of the New Zealand Health Survey. The questions tested focused on definitions of sex and sexual identity. The adults completed the Sexual and Reproductive Health (S&RH) module by way of Computer-Assisted Self-Interviews (CASI). After each question, a researcher conducted a face-to-face cognitive interview on that question before moving to the next question.

Generally, questions were understood as intended.

The key change resulting from cognitive testing was the use of the terms ‘male/female’ in questions rather than ‘opposite or same sex’, or ‘man/woman.’

Respondents also rated each question discretely for acceptability and their willingness to answer the question in a CASI scenario. Respondents found the questions acceptable and were willing to answer them in a CASI scenario.

Child survey 2014/15

Telephone cognitive interviews were conducted with 80 respondents (40 adults and 40 children) to test six questions selected from the 2014/15 rheumatic fever clip-on.

Some major issues with a few of the rheumatic fever questions were highlighted during cognitive testing. Two questions were deleted because respondents did not understand them, and two further questions were changed to minimise respondents guessing an answer when they did not know the answer.

Minor changes were made to rheumatic fever questions which referred to specific time periods to ensure respondents were recalling events from the correct time period.

Pilot testing

Separate pilots were run for the questionnaire and the biomedical components of the 2014/15 survey.

The main objectives of the questionnaire pilot testing were to check:

- flow of survey components
- questions with high non-response rates, and high duration
- questionnaire routing, edits and consistency checks
- audio CASI interface – particularly for respondents aged 55 and over
- survey timing
- training materials and fieldwork materials
- acceptability of the (S&RH) module content.

The questionnaires were pilot tested on 100 respondents from different age, sex and ethnic groups. No changes were required for the child development module as a result of the pilot.

The key changes resulting from the questionnaire pilot were:

- correction to rheumatic fever skip
- minor improvements to question wording
- addition of a new 'too personal' non-response category in the Survey Management System
- addition of a prompt in the Survey Management System for interviewers to provide the S&RH information sheet
- improved IT training for interviewers, to help respondents self-complete the S&RH module
- improvements to the number keypad (split into two screens when question obscured by keypad)
- better headphones (to prevent noise leakage).

The main objectives of the biomedical pilot were to:

- determine the response rate of participants consenting to biomedical testing, and the proportion of consenting participants completing the tests
- ensure that biomedical testing text reminders were effective in relation to content and timing
- confirm that systems for laboratory results and koha were fit for purpose

- ensure that the training provided was comprehensive and fully prepared the surveyor to work on the project, as well as answer any respondent questions that arise
- ensure fieldwork communications, including biomedical testing kits and associated laboratory forms were appropriate.

The key recommendations resulting from the biomedical pilot were:

- surveyor training covers the importance of the biomedical module, the sample collection process including the best times to go to the lab to avoid waiting, and the process for dealing with clinical significant results and sending results to the respondent's doctor
- the forms within the lab kit are completed by laboratory personnel rather than the surveyor
- the sample collection kit is amended to include a section for recording the lab location and the agreed date for a visit
- a change to the number and timing of text reminders.

Ethics approval

The Multi-region Ethics Committee provided approval of the NZHS 2014/15 (Multi-region Ethics Committee Reference: MEC/10/10/103).

Content of the New Zealand Health Survey

The adult and child core questionnaires included the following sections:

- long-term conditions
- health service utilisation and patient experience
- rheumatic fever clip on (in survey for three years)
- health behaviours and risk factors
- health status
- sociodemographics
- anthropometric measurements
- exiting the survey.

The adult module included:

- sexual and reproductive health
- biomedical tests.

The child development health and wellbeing module included:

- the Parents' Evaluation of Developmental Status (PEDS)
- the Strengths and Difficulties Questionnaire (SDQ)
- questions on uses of services for behavioural and developmental problems
- parental stress
- food security.

Long-term health conditions

Long-term health conditions cover any ongoing or recurring health problem, including physical and mental illness, which has a significant impact on the life of a person and/or the lives of family, whānau or other carers. These are conditions generally not cured once acquired. For the purposes of monitoring population health, a long-term health condition is defined in the NZHS as a health condition that has lasted, or is expected to last, for more than six months, and is based on a respondent's self-report of what a doctor told them.

This section collects information on the prevalence of major long-term conditions (see Table 1) as well as treatments for these conditions. Table 1 also indicates the chronic kidney disease module topic, which will provide context to the kidney function biomedical tests.

Table 1: Long-term health conditions

Adult	Child
Heart disease	Asthma
Stroke	Eczema
Diabetes	Diabetes
Chronic kidney disease (module)	Rheumatic heart disease
Asthma	Autism spectrum disorder
Arthritis	Depression
Mental health conditions	Anxiety disorder
Chronic pain	Attention deficit disorder or attention deficit hyperactivity disorder
Oral health	Oral health

Health service utilisation and patient experience

The use of appropriate and effective health care services is an important determinant of population health. Areas of interest include the frequency of health care contact, the range and comprehensiveness of services, their accessibility, availability and affordability, and the continuity and coordination of care.

Patient experience includes the processes or events that occur (or do not occur) in the course of a specific episode of care. It addresses the interpersonal aspects of care: the interaction between health professionals and health care users. Examples include communication skills, the building of trust, the discussion and explanation of symptoms, and the involvement of patients in decisions about treatment and care.

The NZHS focuses on health service utilisation and patient experience in the primary health care setting, which is people's first point of contact with the health system. Nearly all New Zealanders (over 90 percent) have a primary health care provider, and the NZHS provides the only comprehensive source of data on primary health care utilisation. Therefore a number of questions focus on consultations with general practitioners (GPs) and primary health care nurses. To reduce recall bias, the time period of interest for many of the patient experience questions relates to primary care visits in the previous three months.

Questions are also included about the use of and experience with after-hours and emergency department services. These questions use a 12-month recall period to capture a sufficient number of contacts with these services.

Information on the use of secondary- and tertiary-level services (public and private hospitals, and medical specialists) can generally be captured in more detail from administrative databases and surveys administered immediately following a patient's contact with these services. Therefore, the NZHS collects only a subset of questions on service utilisation and patient experiences related to secondary and tertiary services.

A small number of questions are also included on prescriptions, oral health care services and visits with other health care workers.

The question topics are summarised in Table 2. They included the following topics:

- reasons for being unable to make an appointment with a primary health care provider within 24 hours
- GP waiting times
- unmet need due to cost or transport problems
- continuity of care received outside primary care
- emergency department waiting times
- reasons for using an emergency department.¹

Table 2: Health service utilisation and patient experience

Health service setting	Adult and child topics
Usual primary health care provider	Type of service, timely access
General practitioners	Visit number in last 12 months, visit cost, patient experience, unmet need / barriers to access
Primary health care nurses	Visit number in last 12 months, visit cost
Other health care workers	Visits in last 12 months
After-hours medical services	Visit number in last 12 months, visit cost, patient experience, unmet need / barriers to access
Hospitals	Use in last 12 months
Emergency departments	Visit number in last 12 months, reason for last visit, patient experience / continuity of care
Medical specialists	Visit number in last 12 months, patient experience / continuity of care
Oral health care workers	Visit number in last 12 months, unmet need / barriers to access
Prescription medicines	Unmet need / barriers to access

Rheumatic fever clip-on

The purpose of the rheumatic fever questions is to:

- measure changes in access to and use of health services for sore throat management (including barriers), and
- measure changes in awareness of rheumatic fever.

Sore throats are a common medical condition which are usually viral and do not usually cause serious problems. In the New Zealand population, group A streptococcal (GAS) sore throats are considered to be the only clinically significant bacterial throat infection. Between 3 percent and 36 percent of sore throats are due to a GAS infection (Ebell et al 2000).

The treatment of GAS infections will reduce the incidence of rheumatic fever. Within the New Zealand population, not all groups are at equal risk of developing acute rheumatic fever as a consequence of streptococcal throat infection.

In New Zealand, Māori and Pacific 3–45-year-olds (particularly 3–14-year-olds) from lower socioeconomic areas have the highest rate of acute rheumatic fever.

¹ Adapted from the Australian Patient Experience Survey. For more information, see www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4839.0.55.001Explanatory%20Notes12009?OpenDocument

There is a Better Public Services initiative to reduce the incidence of rheumatic fever by two-thirds, to 1.4 cases per 100,000 people, by June 2017. (The 2010/11 hospitalisation data show the annual rate is 4.2 cases per 100,000 people.) The Ministry of Health's aim is that no ethnic groups or geographical communities should be disadvantaged with higher rates of rheumatic fever. There will be interest in the results at a DHB level so it is likely that the questions will be continuously in the survey for at least three years starting in 2014/15.

The questions on rheumatic fever were developed by the Ministry of Health for the NZHS and were submitted to cognitive and pilot testing.

Health behaviours and risk factors

Health behaviours and risk factors can have a direct or indirect impact on health and wellbeing. For example, smoking is a health behaviour that has a direct impact on health, whereas education has an indirect impact on health by influencing our ability to understand and use health information. Health behaviours that have a negative effect on health are referred to as risk factors (eg, smoking), whereas health behaviours that have a positive effect on health are referred to as protective factors (eg, vegetable and fruit intake).

Monitoring trends in exposure to risk and protective factors informs the development and evaluation of health policy, especially policy related to health promotion, disease prevention and primary health care. The measurement of risk and protective factors is part of the internationally recognised minimum standards for health surveys. These standards, developed by the World Health Organization (WHO), comprise the STEPwise approach to surveillance of risk factors for non-communicable diseases (STEPS) (WHO 2005).

The core health risk and protective factor questions are based on a subset of questions from the 2006/07 NZHS, some of which were also included in earlier surveys. For example, the Alcohol Use Disorders Test (AUDIT), developed by the WHO (Babor et al 2001), has been used previously and provides important time series information on hazardous drinking behaviour.

The topics included in the health behaviours and risk factors section are shown in Table 3. The core adult topic has been expanded to include one module question on nicotine replacement products to provide further context to the cotinine (nicotine exposure biomedical test) results.

Table 3: Health behaviours and risk factors

Adult	Child
High blood pressure	Perceptions of child's weight
High blood cholesterol	Infant feeding
Physical activity	Nutrition (dietary habits)
Tobacco use	Physical activity (sedentary behaviour)
Nicotine replacement products (module)	Family cohesion
Nutrition	
Alcohol use	
Drug use	

Developmental health and wellbeing

This topic area in the child questionnaire includes the following instruments and questions:

- Strengths and Difficulties Questionnaire (SDQ)
- Parent’s Evaluation of Developmental Status (PEDS)
- whether the parent has ever consulted any health professionals about behavioural or developmental problems exhibited by their child
- parental stress.

2014/15 is the second time specific instruments for monitoring children’s development have been included in the NZHS, as this module was also run in 2012/13. The SDQ and PEDS are also used in B4 School Checks in New Zealand, so including these instruments in the NZHS provides population norms. Asking parents whether they have consulted a health professional about behavioural or developmental problems exhibited by their child helps identify the prevalence of unmet need in this area. Finally, parental stress is an important factor in children’s emotional and behavioural problems.

Strengths and Difficulties Questionnaire (SDQ)

The SDQ is a brief emotional and behavioural screening questionnaire developed specifically for use with children and adolescents. It is multi-informant, and so it can be completed by parents, teachers, or adolescents themselves (for 11–17-year-olds). In the NZHS, it is completed by the child’s parent or caregiver.

The SDQ (Goodman, 1997) consists of 25 questions, and has five subscales: conduct problems, hyperactivity, emotional symptoms, peer problems, and pro-social behaviour, as shown in Table 4 below. It has been used in over 40 countries around the world, and in New Zealand it has been a part of the B4 School Checks for four-year-olds since 2009, and it has been used as an outcome measure in mental health services. The SDQ was also included in the 2012/13 NZHS. The SDQ has been validated internationally to screen for child and adolescent psychiatric disorders.

Table 4: SDQ questions

	Not true	Somewhat true	Certainly true
Emotional symptoms scale			
Often complains of headaches, stomach aches ...	0	1	2
Many worries, often seems worried	0	1	2
Often unhappy, downhearted or tearful	0	1	2
Nervous or clingy in new situations ...	0	1	2
Many fears, easily scared	0	1	2
Conduct problems scale			
Often has temper tantrums or hot tempers	0	1	2
Generally obedient, usually does what ...	2	1	0
Often fights with other children or bullies them	0	1	2
Often lies or cheats	0	1	2
Steals from home, school or elsewhere	0	1	2

	Not true	Somewhat true	Certainly true
Hyperactivity scale			
Restless, overactive, cannot stay still for long	0	1	2
Constantly fidgeting or squirming	0	1	2
Easily distracted, concentration wanders	0	1	2
Thinks things out before acting	2	1	0
Sees tasks through to the end, good attention span	2	1	0
Peer problems scale			
Rather solitary, tends to play alone	0	1	2
Has at least one good friend	2	1	0
Generally liked by other children	2	1	0
Picked on or bullied by other children	0	1	2
Gets on better with adults than with other children	0	1	2
Prosocial scale			
Considerate of other people's feelings	0	1	2
Shares readily with other children	0	1	2
Helpful if someone is hurt, upset or feeling ill	0	1	2
Kind to younger children	0	1	2
Often volunteers to help others	0	1	2

Scoring of SDQ

A total difficulties score can be calculated by totalling the first four deficit-focused scales, which can indicate the overall risk of mental health problems. Suggested scoring ranges are shown in Table 5. Approximately 10 percent of a community sample scores in the abnormal band on any given score, with a further 10 percent scoring in the borderline band (www.sdqinfo.org). Exact proportions vary according to country, age and gender.

Table 5: Scoring for the SDQ

SDQ score for parent-completed Australian version	Normal	Borderline	Abnormal
Total difficulties score	0–13	14–16	17–40
Emotional symptoms score	0–3	4	5–10
Conduct problems score	0–2	3	4–10
Hyperactivity score	0–5	6	7–10
Peer problems score	0–2	3	4–10
Prosocial behaviour score	6–10	5	0–4

Parents' Evaluation of Developmental Status (PEDS)

PEDS is an evidence-based method for detecting and addressing developmental and behavioural problems in children. It consists of 10 questions that elicit parents' concerns about speech and language, motor development, behaviour, social skills, self-help skills, school skills, sensory problems (vision or hearing) and global cognitive function. The 10th question, 'Please list any other concerns', was not included in the NZHS in 2014/15 or in 2012/13.

The NZHS uses an adapted form of PEDS called Survey PEDS (Glascoe 2014). Survey PEDS is useful for population-based needs assessments rather than assessing needs of individual children. For more information, email peds.ccch@rch.org.au.

Children were categorised as being at high, moderate, low or no developmental risk based on the number of concerns and whether those concerns are predictive of developmental problems for children of that particular age.

- High risk if there are two or more concerns that are predictive.
- Moderate risk if there is one concern that is predictive.
- Low risk if there is at least one concern, but none that are predictive.
- No risk if there are no concerns.

The licence holders (The Royal Children's Hospital Melbourne) request that a copy of all published papers and abstracts using Survey PEDS be provided to the Centre for Community Child Health at The Royal Children's Hospital.

Food security

This topic area includes the eight-item food security questionnaire developed by Winsome Parnell at Otago University. The questionnaire has internal and external validity (Parnell 2005) and has been used in the following previous New Zealand nutrition surveys:

- 1997 National Nutrition Survey
- 2002 National Children's Nutrition Survey
- 2008/09 New Zealand Adult Nutrition Survey
- 2012/13 New Zealand Health Survey.

Parental stress

There are five questions in this section that ask the parent or caregiver how they have felt while caring for their child and whether they have access to day-to-day emotional support for raising children. These questions are from the National Survey of America's Families (1997), where they showed good reliability and construct validity, and have since been used in the US National Study of Children's Health (2007). These questions were also included in a previous NZHS in 2012/13.

Health status

Monitoring the health status of the population provides useful information to evaluate the performance of the health system, identify unmet need for health services, evaluate the impact of the determinants of health, and uncover health problems requiring further investigation.

Self-reported health measures are based on an individual's own perception of their health status and functioning. These measures provide an alternative source of data to objective measures of health, such as hospital rates and disease prevalence.

The WHO defines a 'health state' as a multi-dimensional attribute of an individual that indicates his or her level of functioning across all important physiological, psychological and psychosocial dimensions of life. The relevant dimensions are those defined in the International Classification of Functioning, Disability and Health (WHO 2001).

Various survey instruments have been developed to assess these dimensions. For adults, instruments included in the 2013/14 NZHS are the Medical Outcomes Study Short Form version 2.0 (SF-12) (Ware et al 1998) and the Kessler 10-item Psychological Distress Scale (K10) (Andrews and Slade 2001).

The SF-12 is an internationally validated instrument comprising a subset of the SF-36 questions included in the NZHS since 1996/97. The SF-12 includes at least one item for all eight of the SF-36 domains: physical functioning, role limitation (physical), bodily pain, general health perceptions, vitality, social functioning, role limitation (emotional) and general mental health.

The SF-12 is considered to be an appropriate substitute for the SF-36 when a briefer instrument is required and the summary scales are of interest. The SF-12 physical component summary scale and a mental health component summary scale have been shown to explain approximately 90 percent of the variance in the SF-36 summary scales (Ware et al 1996). An analysis of the 2006/07 NZHS showed that the correlation between the SF-12 and SF-36 was 0.95 for the physical summary scales and 0.93 for the mental summary scales.

Scoring of SF-12

Responses to each of the SF-12 items are scored, and expressed on a 0-100 scale for each of the eight health domains. Interpretation of the SF-12 is based on the mean average scores (see Table 6).

Table 6: Scoring for the SF-12

Code	Domain	Low score interpretation	High score interpretation
PF	Physical functioning	Limited a lot in performing all physical activities, including self-care, due to health	Performs all types of physical activities, including the most vigorous, without limitations due to health
RP	Role limitation – physical	Limited a lot in work or other daily activities as a result of physical health	No problems with work or other daily activities as a result of physical health
BP	Bodily pain	Very severe and extremely limiting bodily pain	No pain or limitations due to pain
GH	General health perceptions	Evaluates own health as poor and believes it is likely to get worse	Evaluates own health as excellent
VT	Vitality	Feels tired and worn out all of the time	Feels full of energy all of the time
SF	Social functioning	Extreme and frequent interference with normal social activities due to physical or emotional problems	Performs normal social activities without interference due to physical or emotional problems
RE	Role limitation – emotional	Problems with work or other daily activities as a result of emotional problems	No problems with work or other daily activities as a result of emotional problems
MH	Mental health	Has feelings of nervousness and depression all of the time	Feels peaceful, happy and calm all of the time

Scoring of K10

The K10 is an internationally validated instrument for measuring non-specific psychological distress in the population and scores of 12 or more on the K10 are strongly correlated with having an anxiety or depressive disorder (Kessler et al 2003). The K10 was included for the first time in the 2006/07 NZHS. Each question in the K10 has five possible responses: ‘all of the time’, ‘most of the time’, ‘some of the time’, ‘a little of the time’, or ‘none of the time’. The response to each question was recoded as follows: ‘all of the time’ was set to 4; ‘most of the time’ was set to 3; ‘some of the time’ was set to 2; ‘a little of the time’ was set to 1; ‘none of the time’

was set to 0; and all other values were set to missing. The possible range of scores is 0–40 with higher scores indicating higher psychological distress. For NZHS reporting, psychological distress means having high or very high levels of psychological distress on the K10 scale, ie, a score of 12 or more (see Table 7).

Table 7: Scoring for the K10

Score	Interpretation
0–5	None or low psychological distress
6–11	Moderate psychological distress
12–19	High psychological distress
20–40	Very high psychological distress

Sociodemographics

Health status, health risks and health service utilisation are strongly influenced by socioeconomic, cultural and demographic forces. Understanding the sociodemographic structure of the population is essential for interpreting survey data and using this evidence to inform policy.

Statistics New Zealand has developed standard sociodemographic questions for use in all household social surveys that are part of the official statistics system. The sociodemographic domain in the NZHS closely follows the Statistics New Zealand model, including questions from the New Zealand Census of Population and Dwellings and the New Zealand General Social Survey. In addition to self-reported variables (eg, age, sex, ethnicity, education, employment status and income), the NZHS records variables derived from the census area unit/meshblock of the household (eg, area deprivation and rurality). Questions on health insurance are also included in the sociodemographic section of the adult questionnaire.

Measurements

The World Health Organization (WHO) STEPS approach to monitoring chronic diseases and their risk factors covers three levels of data collection:

- Step 1 – questionnaires
- Step 2 – physical measurements (eg, height, weight, blood pressure)
- Step 3 – biomedical measurements (eg, blood and urine samples).

The NZHS questionnaires have always collected data on chronic diseases and their risk factors. Up until 2002/03 physical and biochemical measurements were only included in nutrition surveys, but these objective measurements have gradually been added to the NZHS.

Measurement of body size (adults only) was added to the NZHS core content in 2002/03 and extended to children in 2006/07. Measurement of blood pressure (adults only) was added to the NZHS core content in 2012/13 and will be extended to children in the future. A biomedical module (adults only) was included in the 2014/15 NZHS and is likely to be repeated in 2017/18 (adults and children).

Body size

A healthy body size is recognised as being important for good health and wellbeing. There is strong evidence that obese children and adults are at greater risk of short-term and long-term health consequences (WHO 2000).

Self-report of height and weight is unreliable compared with measurements (Gorber et al 2007). Overall, people underestimate their weight and overestimate their height (resulting in a lower BMI), and they are more likely to do so if they are overweight or obese.

For the NZHS, height and weight are measured for eligible participants aged two years and over, and waist measurements are taken for participants aged five years and over. Measurements are not taken for pregnant women. Measurements are collected following a standardised protocol and using the same professional anthropometric equipment as for the 2011/12 NZHS – aside from the introduction of laser height measurement in 2012/13.

Data on height and weight are used to calculate body mass index (BMI), which is used to classify people as underweight, healthy weight, overweight and obese according to international cut-off points. BMI cut-offs points are intended to identify people or populations at increased risk of health conditions associated with increasing BMI, not as a measure of body fat.

Blood pressure

High blood pressure (often referred to as hypertension) is a risk factor for ischaemic heart disease, stroke, hypertensive heart disease, kidney failure and dementia.

There are usually no symptoms associated with high blood pressure, so self-report will underestimate the prevalence of high blood pressure. The best way to monitor population blood pressure is to take actual blood pressure measurements. By combining data on self-reported and measured high blood pressure we can also estimate levels of hypertension awareness, treatment and control.

Measurement of blood pressure in adults was introduced into the annual core content of the NZHS in 2012/13. Measurements of blood pressure and heart rate are made using standardised protocol and an OMRON HEM-907 device, which automatically records heart rate, systolic and diastolic blood pressure three times, with one minute between measurements.

Biomedical tests

A biomedical module for adults was included in the 2014/15 NZHS because it provides information that cannot be collected by self-report and/or enhances information collected by self-report. For example:

- Biomedical testing provides information on the full distribution of metabolic risk factors, such as blood cholesterol levels. The association between metabolic risk factors and health outcomes is continuous and graded from levels lower than those traditionally defined as 'high'.
- For many nutrients, biomedical testing is the only reliable way to determine intake or the amount of nutrient functioning in the body. Nutrients that are best assessed by biomedical tests include iodine, folate, and sodium.
- The early stages of type 2 diabetes and chronic kidney disease can be asymptomatic so people may not have been diagnosed. Therefore, self-report of these conditions will under-estimate the true prevalence of these diseases.

- Biomedical data can be used to calibrate or provide a quality check for self-reported data. For example, measuring cotinine (a nicotine metabolite) in urine provides an objective measure of exposure to tobacco smoke.
- Biomedical testing can be used to identify gaps in immunity to vaccine preventable diseases.

Biomedical tests were selected according to the Ministry's policy priorities. Other considerations included when (or if) tests had been included in other national surveys, the need to minimise respondent burden, feasibility in a population survey, available funding, and plans for further biomedical tests in 2017/18. The tests that were included in the 2014/15 NZHS are summarised in Table 8.

Table 8: Biomedical tests

Indicator	Tests	Sample	Population
Cardiovascular disease	Total and HDL cholesterol	Blood	15+ years
Diabetes	Glycated haemoglobin (HbA1c)	Blood	15+ years
Kidney disease	Creatinine (to calculate estimated glomerular filtration rate) Albumin to creatinine ratio	Blood Urine	15+ years
Liver function	Alanine aminotransferase (ALT) Aspartate transaminase (AST) Gamma glutamyltransaminase (GGT)	Blood	15+ years
Nutrition	Folate Iodine, sodium, potassium	Blood Urine	15+ years
Tobacco exposure	Cotinine	Urine	15+ years
Vaccine preventable diseases	Measles and rubella	Blood	15–44 years

Process for biomedical testing

A detailed description of the methodology for the biomedical module will be published at a later date, but key steps are outlined below:

- At the end of the survey, a sub-sample of respondents aged 15 years and older was invited to take part in the biomedical module, with the aim of achieving a sample size of 5000.
- Respondents were provided with an information sheet and had the opportunity to ask the surveyor questions before signing the biomedical consent form.
- Respondents who consented to take part were given sample collection kit (containing tubes and lab instructions) and asked to attend their local lab to provide a blood and urine sample.
- The lab collected the samples and sent them to Canterbury Health Laboratories for testing.
- Test results were transferred to the survey provider (CBG) and reviewed by a study doctor if they were outside the reference range.
- If results were clinically significant, the study doctor followed up with the respondent and/or their GP (if they consented to this).
- Test results were sent to respondents and their GP (if they consented to this).
- Respondents who participated in the biomedical module received a \$50 koha.

Sexual and reproductive health

Overview

The rationale for including a module on sexual and reproductive health in the 2014/15 NZHS is New Zealand's high incidence of teen pregnancies (especially among Māori and Pacific teenagers), high rates of abortion and the high incidence of sexually transmitted infections (STIs). The S&RH module is the first national survey of its kind in New Zealand and will be used to inform policy to help address these issues.

The module was completed by respondents aged 16–74 years. While the 16–44 year age group is of most relevance, the upper age limit of 74 years was used because data on sexual functioning for older people, and data comparing differing age groups (eg, age at first intercourse) will be useful.

The S&RH module was self-completed by respondents, because of the potentially sensitive nature of the questions. Respondents recorded their responses directly into a computer tablet with little assistance (aside from training). Self-completion was emphasised, with surveyors reiterating that they would not be able to see any of the module answers. Respondents with English language difficulties and cognitive disabilities that prevented them from answering the questionnaire independently were ineligible.

The question topics are summarized in Table 9.

Table 9: Sexual and reproductive health

Learning about sex	Pregnancy history
Women's reproductive health	Family formation, fertility intentions and infertility
Sex with the opposite sex	Sexually transmitted infections
Contraception use	Health screening and drug use
Sex with the same sex	Sexual functioning
Most recent partners	Sexual orientation
Paying for sex	Non-volitional sex

Exit

At the end of the interview, the interviewer seeks the respondent's permission for:

- re-contact by the survey supervisor for audit purposes
- re-contact within the next two years about the possibility of answering other health-related questions of importance to the Ministry of Health
- combining their survey data with other health information already routinely collected by the Ministry of Health – if the respondent consents to this data linkage, they sign a separate consent form to authorise it.

Respondents are also asked if they were a resident of Christchurch at the time of the 22 February 2011 earthquake, to assist with future monitoring of the earthquake's impact.

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Appendix 1: Source of questions in Sexual and Reproductive Health questionnaire

Source of questions

National Survey of Sexual Attitudes and Lifestyles 2010

Most of the survey questions have been drawn from the 2010 United Kingdom National Survey of Sexual Attitudes and Lifestyles (NATSAL). This survey is highly regarded and its questions have been extensively tested and validated over time.

Questions were also taken from the following surveys:

Dunedin Multidisciplinary Health & Development Study – Phase 38 (NZ)

The Dunedin Multidisciplinary Health and Development Study (DMHDS) is an ongoing, longitudinal study of the health, development and well-being of a large sample of young New Zealanders. They were studied at birth (1972–73), followed up and assessed at the age of three, then every two years until the age of 15, then at ages 18 (1990–91), 21 (1993–94), 26 (1998–99), 32 (2003–2005), and 38 (2010–2012). It is planned to next see the Study members at age 44, then again at age 50, and beyond.

Oxford Million Women Study

The Million Women Study is a national study of women's health, involving more than one million UK women aged 50 and over. It is a collaborative project between Cancer Research UK and the National Health Service, with additional funding from the Medical Research Council and the Health and Safety Executive, which aims to answer many outstanding questions about the factors affecting women's health in this age group. The study investigates how various reproductive and lifestyle factors affect women's health. In particular, the study looks at how hormone replacement therapy affects a woman's breasts and other aspects of her health.

US Nurses' Health Study 2003

The Nurses' Health Studies are among the largest and longest running investigations of factors that influence women's health. Started in 1976 and expanded in 1989, the information provided by the 238,000 dedicated nurse-respondents has led to many new insights on health and disease. While the prevention of cancer is still a primary focus, the study has also produced landmark data on cardiovascular disease, diabetes and many other conditions.

Health Survey for England 2010

The Health Survey for England (HSE) is a series of annual surveys about the health of people living in England, which started 1991. It is commissioned by The Health and Social Care Information Centre. The survey is used to help plan NHS services, look at ways of improving people's health and changes to the nation's health over time, and at inequalities in health.

HSE includes adults aged 16 and over, and since 1995 has also included children aged 2–15. From 2001 onwards, the survey covers all ages, but certain age groups are asked questions on certain topics only. Information about children aged under the age of 13 is obtained from a parent, with the child present and obtained directly from persons aged 13 years and over.

An interview with each eligible person in the household is followed by a nurse visit for those who agree to take part. The HSE includes a set of core questions, asked each year on general health and psycho-social indicators, smoking, alcohol, demographic and socio-economic indicators, questions about use of health services and prescribed medicines and measurements of height, weight and blood pressure. Each year, there is also a particular focus on a population group, disease or condition. Topics are repeated at appropriate intervals in order to monitor changes with time.

Australian Study of Health and Relationships 2001

The Australian Study of Health and Relationships (ASHR) is conducted once a decade, it provides a snapshot of the sexual health and well-being of the Australian population and provides information essential for the development of policy and the delivery of sexual and reproductive health programs across Australia. The Study has two related components: the Australian Study of Women's Health and Relationships; and the Australian Study of Men's Health and Relationships. The survey is anonymous and people aged 16–69 contacted through randomly generated mobile phone numbers or from randomly selected households are personally invited to take part.

National Survey of Family Growth 2008

The US National Survey of Family Growth (NSFG) gathers information on family life, marriage and divorce, pregnancy, infertility, use of contraception, and men's and women's health. The survey results are used by the US Department of Health and Human Services and others to plan health services and health education programs, and to do statistical studies of families, fertility, and health.

Demographic Health Survey

Demographic Health Surveys (DHS) provide data for a wide range of monitoring and impact evaluation indicators in the areas of population, health, and nutrition. MEASURE DHS is a USAID-funded project implemented by ICF International. MEASURE DHS is housed at ICF International's office in Calverton, Maryland USA. Several other organisations are partners on the DHS project. DHS surveys are generally carried out at the request of the USAID mission or another international donor in a given country. DHS surveys are carried out only in less-developed countries, or countries receiving US foreign aid.

Canadian Addiction Survey 2004

The two questions relating to intravenous drug use (DRU2.50 and 2.49) have been used previously in the NZHS and were adapted from The Canadian Addiction Survey (CAS). The CAS is a collaborative initiative sponsored by various agencies. The CAS is based on a two-stage (telephone household, respondent) random sample stratified by 21 regional areas. In the first stage, households were sampled at random based on random dialling, and in the second stage, one member of the household was selected at random from all the eligible members.

Standard instruments

In addition to questions taken from the surveys listed above, the module used two standard instruments: the London Measure of Unplanned Pregnancy score, and the Natsal-SF. London Measure of Unplanned Pregnancy.

The unplanned pregnancy questions in the S&RH module are sourced from the London Measure of Unplanned Pregnancy score (LMUP) (Barrett et al 2004). The LMUP is self-administered, and it comprises six questions (contraceptive use, timing, intention, desire for a baby, partner discussion, and pre-conceptual preparations) via which women report the circumstances of their current or recent pregnancy.

This measure is also used in NATSAL-3. In NATSAL this was asked of women who were currently pregnant or had been pregnant in the last 12 months. In the NZHS module, the questions were asked of women who had been pregnant in the last five years.

Scoring LMUP

Responses to each of LMUP items are scored, such that each item is scored 0–2, with women's total score ranging from 0 to 12. Each point increase represents an increase in pregnancy planning/intention, with the authors recommending a broad preliminary interpretation of scores of 0–3 as unplanned, 4–9 ambivalent, and 10–12 planned.

Sexual functioning

Natsal-SF provides an estimate of the level of sexual function in the last year. By including items on distress about sex and sexual relationships, and by being relevant to all regardless of sexual lifestyle, it addresses some of the gaps in current measurement design. In designing the measure, NATSAL-3 researchers were guided by the definition of sexual dysfunction formulated by the World Health Organization (WHO): 'The various ways in which an individual is unable to participate in a sexual relationship as he or she would wish. Sexual response is a psychosomatic process and both psychological and somatic processes are usually involved'.

Community-based studies that measure sexual problems but report them as sexual dysfunction, have met with criticism. Natsal focused instead on sexual function, defined as the inverse of the WHO definition of dysfunction, that is, the extent to which an individual is able to participate in a sexual relationship as he or she would wish. Natsal's development work suggested that sexual function is also about a positive and healthy sexual relationship, as well as enjoyment, sexual satisfaction and an absence of distress. It is important to note that the items on individual sexual function problems do not equate to a clinical diagnosis of specific dysfunction.

Compared to the 17 item Natsal-SF, the NZHS module:

- uses an abbreviated nine-item version (identified by Mitchell et al (2012) for use in community surveys)
- has two additional questions (about partnership status and duration of relationship) to minimise routing from questions asked earlier.
- uses '12 months' rather than '1 year', and
- the list of sexual health advice sources have been modified for the New Zealand context.