



# **Content Guide 2022/23**

New Zealand Health Survey



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# Introduction

This guide describes the content of the New Zealand Health Survey (NZHS) for the year ended 30 June 2023. This guide 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 2022/23 and provides an overview of each section of the survey. The questionnaires are available along with this report on the Ministry of Health's (the Ministry's) website: [www.health.govt.nz](http://www.health.govt.nz)

## Background

The NZHS was first undertaken in 1992/93, with further surveys taking place in 1996/97, 2002/03 and 2006/07. The Ministry's wider health survey programme included surveys on adult and child nutrition; tobacco, alcohol and drug use; mental health; and oral health. From 2011, the Ministry integrated the NZHS and these other 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 2010).

As a signatory to the *Protocols of Official Statistics* (Statistics New Zealand 1998), the Ministry employs best-practice survey techniques to extract high-quality information from the NZHS. It uses standard frameworks and classifications, with validated questions where possible, so that NZHS data 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. Respondents are adults aged 15 years and older, as well as children aged 0–14 years, who are interviewed through their parent or legal guardian acting as a proxy respondent. Most of the survey questionnaire is conducted in the respondent's home, through face-to-face interviews, using computer-assisted personal interviewing (CAPI) software. Respondents self-complete some parts of the survey where the questions are potentially sensitive.

In 2021/22, computer-assisted video interviewing (CAVI) was introduced in response to the contact restrictions imposed in the COVID-19 pandemic response. Most interviews continue to be conducted with CAPI.

Physical measures, including of height, weight and waist circumference, were resumed in 2022/23, after not being collected in 2021/22 due to COVID-19 restrictions.

The NZHS sample design and methodology will be published online alongside this report, on the Ministry's website: [www.health.govt.nz](http://www.health.govt.nz).

# Goal and objectives

## Goal

The goal of the NZHS is to monitor and research the health and wellbeing of New Zealanders, including how people experience their own health and health services. The information covers population health, health risk and protective factors, as well as health service utilisation.

## Objectives

To achieve this goal, four high-level objectives have been identified for the NZHS. These are to:

1. provide an evidence base to inform health system funding, policy, programmes and advocacy with a focus on long-term priorities
2. monitor and research population health status and the prevalence of key health behaviours and risk factors
3. monitor barriers to access and use of health care services including health service user experience
4. provide ability to carry out robust statistical analysis and enable linkage to other data collections to address wider information needs.

# Questionnaire components

To meet the high-level objectives of the NZHS, detailed information is collected across information areas or domains. The NZHS includes a set of questions drawn from these domains. These core questions remain the same each year. The NZHS also includes supplementary questions that examine a topic in more depth. These 'module' questions change each year.

Table 1 summarises the topics included in the core content of the 2022/23 NZHS.

**Table 1: New Zealand Health Survey 2022/23 core content**

Domain	Topics
<b>Children</b>	
Long-term health conditions	Asthma, eczema, developmental disorders, attention deficit hyperactivity disorder, autism spectrum disorder
Health status	Parent-rated health
Health behaviours and risk factors	Nutrition, physical activity, screen time, sleep, tooth brushing, child discipline
Health care services: utilisation and barriers	General practitioners (GPs), nurses, specialist doctors, emergency departments (EDs), prescriptions, dental health care workers

<b>Domain</b>	<b>Topics</b>
Sociodemographics	Child: gender, age, ethnicity, country of birth, health insurance, Household: housing, household income, household composition (age, gender, and the relationship between all household members), household food security Primary caregiver: education and employment status
Health measurements	Height, weight, waist circumference
<b>Adults</b>	
Long-term health conditions	Heart disease, stroke, high cholesterol, high blood pressure, diabetes, asthma, arthritis, chronic pain, psychological distress
Health status	General health (physical and mental health), functional difficulties (disability status), life satisfaction, family wellbeing, loneliness
Health behaviours and risk factors	Tobacco smoking, electronic cigarette use, alcohol use, drug use, nutrition, physical activity, sleep, tooth brushing
Health care services: utilisation and barriers	General practitioners, nurses, specialist doctors, EDs, prescriptions, dental health care workers
Sociodemographics	Adult: sex, gender, age, ethnicity, sexual identity, languages spoken, country of birth, education, personal income and income sources, employment status, health insurance Household: housing, household income, household composition (age, gender, and the relationship between all household members)
Health measurements	Height, weight, waist circumference, measured blood pressure

Notes: Health measurements (including measured blood pressure) were not collected in the 2021/22 NZHS due to COVID-19 restrictions. Blood pressure was not measured in the 2017/18 and 2022/23 surveys due to a lack of time.

Because of its size and importance, the health behaviours and risk factors domain has been split into a number of modules, including physical activity, tobacco use, alcohol consumption, drug use, problem gambling, and sexual and reproductive health. Some modules may run together in the same year of the survey (eg, tobacco, drugs and alcohol use ran together in the 2012/13 survey).

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 additional information that can be obtained through a small number of questions.

# Process for developing the New Zealand Health Survey

The Ministry's Evidence, Research and Analytics Group developed the adult and child questionnaires for the NZHS in consultation with key internal stakeholders (eg, policy groups) and external stakeholders (eg, technical experts and data users).

## 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'; that is, where possible, the wording of the core questions, response options, show-cards and interviewer prompts from the 2006/07 NZHS has been retained in subsequent surveys.

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 2010). The following four criteria were used to determine the topics that 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 can be analysed by social group or region.
- International comparability – the topic lends itself to meaningful international benchmarking.

Priority was given to questions that related to key indicators or outputs and could be used to monitor important health-related time trends. Results on an indicator or output that were included in *A Portrait of Health: Key results of the 2006/07 New Zealand Health Survey* (Ministry of Health 2008) were considered to be important.

Most of the 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 Kessler 10 (K10) and the Alcohol Use Disorders Identification Test (AUDIT). Most other questions selected for the NZHS core occurred in at least one previous survey (1992/93, 1996/97 and/or 2002/03).



The need to sustain time series has to be balanced against updating and improving core questions and adding 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 measuring height and weight in respondents aged two years and older, waist circumference in respondents aged five years and older and blood pressure in respondents aged 15 years and older.<sup>1</sup>

## Module component

These module topics in the 2022/23 NZHS were repeated from the 2021/22 NZHS to increase the sample size and provide more robust statistics on:

- mental health and substance use for adults
- self-perceived height and weight for adults
- behavioural and developmental problems for children.

A module on functional difficulties for children (Child Functioning Module, CFM) and extra questions on functional difficulties for adults (Washington Group Short Set Enhanced, WG-SS Enhanced) were added for the first time in the 2022/23 survey.

Details of question development are explained in 'Content of the New Zealand Health Survey' below.

All the module topics for the continuous NZHS until 2022/23 are summarised in Table 2.

**Table 2: New Zealand Health Survey module topics, 2011/12–2022/23**

Year of NZHS	Child module topic(s)	Adult module topic(s)
2011/12	Health service utilisation and patient experience	Health service utilisation and patient experience Problem gambling Racial discrimination
2012/13	Child development Household food security Exposure to second-hand smoke	Alcohol use Tobacco use Drug use
2013/14	Long-term conditions Health status Disability status Living standards Housing quality Exposure to second-hand smoke	Long-term conditions Health status Disability status Living standards Housing quality

<sup>1</sup> Adult and child health measurements were not taken in the 2021/22 NZHS because of COVID-19 restrictions.

Year of NZHS	Child module topic(s)	Adult module topic(s)
2014/15	Child development Household food security Rheumatic fever	Sexual and reproductive health Biomedical tests Rheumatic fever (under 25 years)
2015/16	Child development Household food security <sup>2</sup> Exposure to second-hand smoke Rheumatic fever	Tobacco use Rheumatic fever (under 25 years)
2016/17	Behavioural and developmental problems Rheumatic fever	Mental health and substance use Rheumatic fever (under 25 years) Racial discrimination
2017/18	Health service utilisation and patient experience	Health service utilisation and patient experience Understanding health and health care
2018/19	Dietary habits Functional difficulties (WG-SS)	Dietary habits Functional difficulties (WG-SS) <sup>3</sup> Alcohol use
2019/20	Household food security Dietary habits Functional difficulties (WG-SS)	Household food security Dietary habits Alcohol use
2020/21	Functional difficulties (WG-SS) Child development	COVID-19 Racial discrimination
2021/22	Behavioural and developmental problems	Mental health and substance use COVID-19
2022/23	Behavioural and developmental problems Functional difficulties (CFM) <sup>4</sup>	Mental health and substance use Extra questions on functional difficulties (WG-SS Enhanced)

## Cognitive testing

The 2022/23 questionnaires were not cognitively tested because the modules were being repeated from 2021/22 and the changes to the core questions were either minor or already established practice in other national surveys (such as the General Social Survey run by Stats NZ). In previous years, new content was cognitively tested to ensure questions could be understood as intended and response options were appropriate.

<sup>2</sup> The household food security questions became 'core' for the child questionnaire in 2019/20, so this is not counted as a module after the 2015/16 NZHS.

<sup>3</sup> The functional difficulties (WG-SS) questions became 'core' for the adult questionnaire in 2019/20 so are not counted as a module for adults after the 2018/19 NZHS. Six more questions were added as a module in 2022/23 to form the WG-SS Enhanced.

<sup>4</sup> The functional difficulties module questions used for children in the 2018/19, 2019/20 and 2020/21 surveys (WG-SS) did not work well to identify disabled children. In 2022/23, a different set of module questions (CFM) was used. This set of questions is better at identifying disabled children, and these questions are likely to become core questions.

The cognitive testing process includes:

- comprehension – how does the respondent understand the question?
- recall – what knowledge or memory does the respondent select that is relevant to the subject matter?
- judgement and selection – how does the respondent judge what they remember and formulate a response?

Initially, new or changed 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). Reach Aotearoa, an Auckland-based independent public health research provider formerly known as CBG Health Research, carries out this second stage of cognitive testing. Ministry researchers assess these findings to decide if the new questions work well or require changes before being implemented.

## Pilot testing

The purpose of the pilot testing was to mimic the main survey as closely as possible, to ensure that the questionnaire and associated survey processes were robust and functioning correctly.

The main objectives of the pilot testing were to:

- ensure that the questionnaires performed as expected, with all routing, edits and consistency checks working correctly
- determine the average duration for each element of the questionnaire as well as the survey process overall
- identify and explore questions with high non-response rates
- identify any problems with new or modified questions
- evaluate whether the training provided was adequate and fully prepared the interviewers to work on the project and answer any questions raised by respondents
- identify any risks to the main fieldwork
- evaluate how respondents engaged with the survey
- evaluate the survey flow
- evaluate the new adult self-complete sections (new sex and gender, sexual identity, body size and hysterectomy questions), in particular, assessing any issues when the interviewer administers the questions if respondents cannot self-complete.

Interviewers tested the survey on 100 respondents from different age, gender and ethnic groups. Due to uncertainty around COVID-19 restrictions and to minimise the impact of the pilot test on the main study data collection, the decision was made to conduct the pilot test entirely using CAVI and forego any face-to-face field activity. The respondents were recruited via the usual NZHS process for respondent selection.

The following key changes resulted from the pilot test.

- It was decided to not measure blood pressure in the 2022/23 NZHS because respondents in the pilot test said the survey felt longer than the 2021/22 survey and the estimated duration was longer than in previous years (this estimate took into account the mode used for the pilot test and that pilot surveys typically take longer than the main fieldwork).
- Interviewers commented that many caregivers did not appear to know their child's measurements, which is reflected in the high non-response results for these questions. Therefore, the parent-perceived child height and weight questions were removed from the questionnaire.

## Ethics approval

The Multi-region Ethics Committee (MEC) approved the NZHS 2022/23 (Multi-region Ethics Committee Reference: MEC/10/10/103).

# Content of the New Zealand Health Survey

The adult and child questionnaires included the following sections, which are core to the questionnaires unless noted otherwise:

- long-term health conditions
- access to health care
- health behaviours and risk factors
- health status
- behavioural and developmental problems (a module for children only)
- mental health and substance use (a module for adults only)
- sociodemographics
- health measurements<sup>5</sup>
- permission details for data linkage and follow up survey participation.

## Long-term health conditions

Long-term health conditions cover any ongoing or recurring health problem, including a physical or mental illness, which has a significant impact on a person's life and/or the lives of family, whānau or other carers. Such conditions are 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 3) as well as treatments for these conditions.

In the 2017/18 NZHS, a new core question about self-rated oral health question was included for adults and children aged 1–14 years, asking them to rate the health of their teeth or mouth. This question was also included in the 2009 New Zealand Oral Health Survey and the 2013/14 NZHS long-term conditions module.

In 2018/19 NZHS, the question about having ever had a hysterectomy was added to the core for female respondents aged 20 years and over. It was previously included as a module question in the 2006/07, 2013/14 and 2014/15 surveys. In the 2022/23 survey, this question was changed to a self-complete question that reverts to face-to-face if the respondent cannot self-complete.

<sup>5</sup> Adult and child health measurements were not taken in the 2021/21 NZHS because of COVID-19.

Questions about being diagnosed with mental health conditions (anxiety, depression or bipolar disorder) at any point in their lifetime were removed for adults and children. Respondents complained of too many questions on mental health, and these questions were not capturing the information stakeholders wanted (that is, prevalence of current mental health conditions). Questions on diabetes and rheumatic heart disease were removed for children because the prevalence of children with these conditions in New Zealand is too low to report robust statistics from NZHS data.

**Table 3: Long-term health conditions**

Adult	Child
Heart disease	Asthma
Stroke	Eczema
Diabetes	Autism spectrum disorder
Asthma	Attention deficit hyperactivity disorder
Arthritis	Oral health
Chronic pain	
Hysterectomy	
Oral health	

## Access to health care

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

The NZHS focuses on health service utilisation in the primary health care setting, which is often people's first point of contact with the health system. Nearly all New Zealanders (over 90 percent) have a primary health care provider (Ministry of Health 2022), and the NZHS provides a comprehensive source of data on primary health care utilisation. Therefore, a number of questions focus on consultations with GPs and primary health care nurses.

In the 2017/18 NZHS, there were some changes to the questions about visits to primary health care nurses. In the survey, the term 'practice nurse' was replaced with 'nurse at GP clinic or medical centre' in case 'practice' could be misinterpreted to mean a nurse who is not fully qualified. New questions were added about primary health care nurse visits that were completed as part of a GP consultation (including seeing the nurse before or after seeing the GP). These questions were also included in the 2006/07 NZHS.

In a specific change to only the 2020/21 NZHS, questions about visits to primary health care services were changed to include video or phone appointments, which became more common ways of accessing primary health care due to restrictions during COVID-19 Alert Levels. New questions were also added to the 2020/21 adult and child questionnaires about barriers to accessing health care due to COVID-19. Respondents were asked if in the past 12 months, because of COVID-19, there was a time when they:

- had a medical problem but did not visit or talk to a GP
- did not collect one or more prescription items from the pharmacy or chemist
- had a medical problem outside regular office hours but did not visit an after-hours medical centre.

The health service utilisation section was refreshed for the 2021/22 NZHS in consultation with key stakeholders. It was decided that a key focus for this section would be to collect more information on barriers to access and unmet need. Several questions were removed, as follows.

- The patient experience questions were removed because this data is better captured by the Health Quality & Safety Commission patient experience surveys.
- The questions on after-hours medical services were removed because of difficulty in defining after-hours services in a simple concise manner, which caused confusion for respondents.
- The questions about hospital use were removed as administration data was readily available and preferred over the self-reported NZHS.
- Questions about cost for visiting nurses as part of consultation at general practices and medical centres were also removed because of the potential misrepresentation of self-reported costs. Nurse visits are often accompanied by GP consultation, and respondents may not separate these components.
- Questions about visits with specialist doctors were removed as information on the use of secondary- and tertiary-level health services (public and private hospitals and medical specialists) can generally be captured in more detail from administrative databases. In addition, the questions were difficult for respondents and the information was not useful at a national level, as there was no link to the actual specialist or district health board.
- A question about other health care worker visits was removed as the question was found to be difficult and a burden on respondents.

In the 2021/22 NZHS, four new questions were added.

- A question on visits with various health care workers at a usual medical centre was added, to acknowledge the way the primary health care model has evolved. More medical centres now have a practice team-based approach, rather than focussing on GPs. This data will be used to monitor primary health care team utilisation, as administration data does not separate this out.
- A question on barriers to accessing a GP has been expanded. This information is not easily obtainable from other sources. The NZHS includes information from people who do not engage with the health system, whereas administrative data only includes people who do.
- Two new questions were added about referrals to specialist doctors and reasons why people could not see a specialist after receiving a referral. These questions use a five-year recall period to capture a sufficient number of referrals. There is currently an information gap on unmet need for secondary care.

In the 2021/22 NZHS, questions were revised for visits to a GP clinic or medical centre, frequency of and barriers to visiting a GP and the use of ED services.

The question topics included in this section of the NZHS are summarised in Table 4. Most of the topics listed were included in both the adult and child survey, but some were in the adult survey only.

**Table 4: Health service utilisation**

Health service setting	Topics
Usual primary health care provider	Type of service, timely access, health checks, health discussions
General practitioners	Visits in last 12 months, visit cost, unmet need / barriers to access
Prescription medicines	Unmet need / barriers to access
Nurses at general practices and medical centres	Visits in last 12 months
Emergency departments	Visits in last 12 months, reason for last visit
Specialist doctors	Visits in the past five years, barriers to access
Dental health care workers	Length since last visit, reason for visit, barrier to access

## Health behaviours and risk factors

Health behaviours and risk factors can have a direct or indirect impact on health and wellbeing. For example, smoking has a direct impact on health, while education has an indirect impact by informing and influencing our ability to make better health choices. Health behaviours that have a negative effect on health are referred to as risk factors (eg, smoking), while health behaviours that have a positive effect on health are referred to as protective factors (eg, eating healthy foods such as vegetables and fruit).

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. This provides important time-series information on topics such as smoking.

### Substance use risk factors

#### Alcohol

The questions about alcohol use come from the Alcohol Use Disorders Test (AUDIT). The AUDIT is a 10-item questionnaire that covers three aspects of alcohol use: alcohol consumption, dependence and adverse consequences. A score of eight or more



indicates a hazardous drinking pattern. A respondent can reach a score of eight from the alcohol consumption items of the questionnaire alone, for example, by drinking six or more drinks on one occasion, twice a week (Babor et al 2001).

In 2015/16, two alcohol questions were changed in the AUDIT section of the NZHS. Before 2015/16, the NZHS did not define 'drinks' in the two AUDIT questions covering typical quantity and frequency of heavy drinking. To ensure respondents interpreted the meaning of 'drinks' in the same way, the authors of the AUDIT recommended that each country apply its own definition of a standard drink (which, in New Zealand, is 10 g pure alcohol), with illustrations of standard drinks in local beverages. For this reason, for the 2015/16 survey, the two AUDIT alcohol consumption questions were changed from 'drinks' to 'standard drinks' and included a show-card illustrating the number of standard drinks in various common beverages. The changes were only made for half the survey sample (selected randomly) in order to assess their impact. From 2016/17, the NZHS only uses the standard drinks show-card version of AUDIT, creating a break in the time series.

## Illicit drugs

In the 2017/18 NZHS, the question about drug use was changed from interviewer-administered to self-completed to encourage more honest responses. Respondents who were taking part in the interview with cognitive or language assistance from a family member, caregiver or friend were not asked this question. This was to ensure these confidential responses were not revealed to people with whom the respondent has a personal relationship.

In the 2017/18 NZHS the drug use question was moved to the end of the survey so the self-completed questions were asked together. In the 2018/19 NZHS it was moved to the health behaviours and risk factors section to be asked alongside other self-completed questions relevant to that section of the questionnaire. In 2021/22, the drug use questions were changed back to being interviewer-administered. This was to encourage all respondents to answer the questions as respondents were less inclined to self-complete them. Survey results indicated prevalence did not change markedly with administration mode.

In 2020/21 the drug categories and the drug section introduction were updated to align with the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST). This included capturing drug use other than as prescribed. Because the nature of the drug use question has changed, data collected is unlikely to be comparable with previous years.

Questions on cannabis from the ASSIST question set were added to the 2020/21 NZHS. The ASSIST question set is a validated screening tool developed by the World Health Organization, which can be used to monitor the harmful effects of cannabis use. It has previously been used in the mental health and substance use module in the 2016/17 NZHS.

Scoring involves calculating a risk score for cannabis, and respondents are categorised into low-, moderate- and high-risk categories. A score of 4–26 is considered moderate risk and 27 or more high risk. Scores should be interpreted as estimating the risk of problematic use, not actual disorder prevalence, although studies indicate the

instrument is reasonably good at discriminating between non-problematic use and substance abuse.

For the ASSIST manual, which covers the scoring system, go to:  
[www.who.int/publications/i/item/978924159938-2](http://www.who.int/publications/i/item/978924159938-2)

The full ASSIST instrument is in the 2021/22 NZHS mental health and substance use self-completion module – so the cannabis ASSIST questions were asked in the module rather than face to face in the core component for this survey year.

## Electronic cigarettes

Vaping products have the potential to improve the health of people who choose to switch from tobacco smoking. Although less harmful than smoking, vaping is not harmless, and schoolteachers and professional bodies have expressed concerns about young people vaping. It is therefore important to monitor the uptake of electronic cigarettes in New Zealand. The NZHS includes questions for adults about whether they have ever tried an electronic cigarette and how often they now use them. These questions were also included in the 2015/16 NZHS tobacco use module. In the 2018/19 NZHS, the words 'or vaping devices' were added to these questions because this is an alternative name for electronic cigarettes.

## Nutrition and physical activity

Poor diet and excess body weight are leading causes of potentially avoidable health loss in New Zealand. In 2017, dietary risks accounted for 8.6 percent of health loss from all causes, closely followed by high body mass index (BMI) (8.3 percent) (Institute for Health Metrics and Evaluation 2018).

The 2016/17 NZHS included two new questions about screen time for children aged 2–14 years. The Ministry developed these questions to measure the amount of time children spend watching television or looking at a screen (excluding time spent looking at screens at school or for homework). From 2017/18, the questions about screen time were also asked for children aged 6 months to 2 years to measure screen time in the younger age group as well.

In the 2021/22 NZHS, the vegetable and fruit intake questions were refreshed to align with the updated *Eating and Activity Guidelines for New Zealand Adults* (Ministry of Health 2020). These guidelines recommend a different number of serves depending on age and gender for both adults and children. The highest number of serves recommended is six or more servings of vegetables, for men aged 19–50 years. The definition of a serve is different for some fruits and vegetables than it was in the old guidelines. For example, half a medium potato, rather than a whole potato, is now considered a serve. One cup of salad, rather than half a cup, is now considered a serve. The refreshed questions allow for a greater number of serves and revised definitions of some of the serves.

## Sleep

Getting enough quality sleep is important for brain functioning, emotional wellbeing and physical health. The NZHS for adults and children asks how much sleep the respondent usually gets in a 24-hour period. This question originally came from the United States' National Health Interview Survey and was also included in the 2013/14 NZHS long-term conditions module. For the 2017/18 NZHS, an interviewer note was added to ensure interviewers use a consistent method of rounding to a whole number.

## Oral health

The Ministry recommends brushing teeth twice a day with standard fluoride toothpaste. The NZHS for adults and children asks how often the respondent brushes their teeth and what type of toothpaste they usually use. These tooth-brushing questions became part of the core NZHS in 2017/18. The show-card for the question on type of toothpaste used includes pictures to help respondents differentiate between categories, particularly between standard and low-fluoride toothpaste. In 2021/22, the show-card pictures changed slightly to reflect products available on the market. Similar questions on tooth brushing were included in the 2013/14 NZHS long-term conditions module.

Table 5 shows the topics included in the core NZHS component of the health behaviours and risk factors section.

**Table 5: Health behaviours and risk factors**

Adult	Child
High blood pressure	Perceptions of child's weight
High blood cholesterol	Breastfeeding
Dietary habits	Dietary habits
Physical activity	Physical activity (sedentary behaviour)
Sleep	Screen time
Tooth brushing	Sleep
Tobacco use	Tooth brushing
Electronic cigarette use	Response to child's misbehaviour
Alcohol use	
Drug use	

# 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 that require 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 2001a).

Various survey instruments have been developed to assess these dimensions. For adults, instruments included in the core NZHS are the SF-12 and the K10.

## SF-12

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 SF-36 domains: physical functioning, role limitation (physical), bodily pain, general health perceptions, vitality, social functioning, role limitation (emotional) and 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.

## SF-12 scoring

Responses to each of the SF-12 items are scored and expressed on a scale of 0–100 for each of the eight health domains. Interpretation of the SF-12 is based on the mean average scores (see Table 6). A physical component summary score and mental health component summary score can also be derived.

**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 the time	Feels peaceful, happy and calm all the time

## Functional difficulties

A set of six questions, known as the Washington Group Short Set (WG-SS), on functional difficulties and activity limitations was first included as a module in the 2018/19 NZHS for adults and children aged 5–14 years. In 2019/20, the WG-SS was added to the core component of the adult survey so the information can be collected every year. These questions were developed by the Washington Group on Disability Statistics (WG), a United Nations city group established to address the need for internationally comparable population-based statistics on disability.

The WG-SS identifies respondents who are more likely to experience restrictions in social participation because of difficulties undertaking basic functional activities (Washington Group on Disability Statistics 2016a). These activities are seeing (even with their glasses), hearing (even with their hearing aid), walking or climbing stairs, remembering or concentrating, self-care and communicating.

The WG-SS was developed for inclusion in population surveys and will allow comparisons of NZHS results for disabled people with the rest of the population. Several New Zealand population surveys have included the question set, including the New Zealand General Social Survey (NZGSS) and 2018 New Zealand Census of Population and Dwellings. The WG-SS identifies disabled people as those who have a lot of difficulty with, or cannot do at all, at least one of the six specified activities.

In the 2022/23 survey, a further six module questions on disability were added to the adult questionnaire to make up the Washington Group Short Set Enhanced (WG-SS Enhanced – the WG-SS is a subset of the WG-SS Enhanced). The extra six questions in the WG-SS Enhanced include two questions on upper body functioning and four on affect.

The WG-SS was repeated as a module for children in the 2019/20 and 2020/21 surveys, but these questions didn't work well to identify disabled children, and this data hasn't been published. In the 2022/23 survey, the questions were replaced with the Washington Group / UNICEF Child Functioning Module (CFM), which is better at identifying children with disabilities than the WG-SS because it covers developmental disabilities.

The CFM was reduced by excluding questions that are not directly used in deriving disability status, as per Stats NZ usage in the Household Economic Survey (HES). People aged 5 to 14 years are disabled if they have serious difficulty with at least one of the following: seeing (even with glasses), hearing (even with hearing aids), walking, feeding or dressing themselves, communicating, learning, remembering, concentrating, accepting change, controlling their own behaviour, making friends, experiencing anxiety or experiencing depression. 'Serious difficulty' means the child feels very anxious, nervous or worried and/or very sad or depressed daily and/or has at least a lot of difficulty with any of the remaining domains of functioning.

The disability questions (WG-SS Enhanced and CFM) do not cover all types of disability and should not be used to determine overall disability prevalence. Both these sets of questions on functional difficulties are likely to become core questions. Further information on the disability questions is available on the Washington Group on Disability Statistics website at [www.washingtongroup-disability.com](http://www.washingtongroup-disability.com)

## K10

The Kessler Psychological Distress Scale (K10) is an internationally validated instrument used to screen for non-specific psychological distress in a population. Psychological distress refers to a person's experience of symptoms such as nervousness, restlessness, fatigue, or depression in the past four weeks.

The K10 was developed to identify severe non-specific psychological distress in population surveys (Kessler et al 2003). It is not a diagnostic tool, so it is not used to measure the prevalence of mental health conditions in the population.

The K10 was included for the first time in the 2006/07 NZHS.

### K10 scoring

Each of the 10 questions 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'. For the NZHS, the response to each question was coded to allow scoring 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, that is, 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

## Life satisfaction and family wellbeing

Subjective (personal) wellbeing has at least three dimensions: evaluative, eudemonic (relating to a sense of meaning and purpose in life) and affective experience. The OECD guidelines on measuring subjective wellbeing recommend that subjective wellbeing indicators include at a minimum a measure of life evaluation then, in descending priority, affect measures and domain-specific life evaluations followed by eudaimonia (OECD 2013).

In 2021/22, an overall life satisfaction question was added to the NZHS, sourced from the NZGSS. Life satisfaction was added to the survey to capture an aspect of positive mental health. Mental health is more than the absence of mental illness. Rather, mental health is ‘a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community’ (WHO, 2001b, p1). People can have a mental illness and be satisfied with life, and vice versa – this is the dual continuum model of mental health and illness (Keyes 2007).

The family wellbeing evaluation question was added to the NZHS for the first time in 2021/22, to reflect the importance of family and whānau to New Zealanders, and particularly Māori and Pacific peoples. Often, for Māori and Pacific peoples, for an individual to be well their families need to be well (Kukutai et al 2017).

The family wellbeing question was sourced from the 2016 NZGSS conducted by Stats NZ. Whānau wellbeing was first asked about in the 2013 Te Kupenga survey: the first nationally representative survey of Māori wellbeing, conducted by Stats NZ. The word ‘whānau’ was replaced with ‘family’ when this question was added to the 2016 NZGSS. Both ‘family’ and ‘whānau’ are self-defined by the respondent.

The life satisfaction and family wellbeing questions appear near the beginning of the questionnaire, after the initial demographics and before the long-term conditions sections. In the 2022/23 survey, these questions were made self-complete so respondents could get used to the self-completing process with some less personal questions. As with other self-complete questions, these will revert to face-to-face if the respondent cannot self-complete.

## Loneliness

Loneliness was included in the adult 2016/17 mental health and substance use module and then again in a module in the 2020/21 NZHS because of growing concerns that COVID-19 restrictions would lead to an increase in loneliness. It became a core question in 2021/22.

Loneliness is a feeling that most people will experience at some point in their lives. However, prolonged and extreme exposure to loneliness can seriously impact an individual's wellbeing and their ability to function in society. Research shows loneliness is linked to poor physical and mental health, and poor personal wellbeing (Office for National Statistics 2018). Loneliness is not the same as social isolation. Loneliness is a negative subjective state related to having less social contact than desired (Peplau and Perlman 1982). The phrase 'social isolation' describes the state of having minimal contact with others. Social isolation can lead to loneliness in some people, while others can feel lonely without being socially isolated.

The question about loneliness is administered face to face after the K10 questions. This question was sourced from the NZGSS conducted by Stats NZ.

## Adult mental health and substance use module

Good mental health is an essential part of overall good health and wellbeing. Mental health conditions can have a large impact on a person's life. They can affect a person's ability to perform everyday tasks, have healthy relationships and cope with anger or stress.

Mental illnesses that commonly require support and treatment include schizophrenia; manic depression (bipolar disorder); other depressive disorders; personality disorders; anxiety disorders; addictions and drug-induced psychoses.

The mental health and substance use module includes:

- the Patient Health Questionnaire (PHQ-9) – a measure of depressive symptoms
- the Generalized Anxiety Disorder scale (GAD-7)
- the ASSIST
- service use questions.

The adult mental health and substance use module was also included as a module in the 2016/17 and 2021/22 surveys.

Adults aged 15 years and over self-completed the module. Due to the sensitive nature of the module questions, respondents were excluded from the module questions if their interview was being conducted with cognitive or language assistance from a family member, caregiver or one of their friends.



## The Patient Health Questionnaire – Anxiety and Depressive Scale

The Patient Health Questionnaire Anxiety and Depression Scale (PHQ-ADS) is a validated instrument that screens for the presence and severity of depression and anxiety disorder (Kroenke et al 2016).

The PHQ-ADS combines the following screeners into one instrument:

- PHQ-9, which measures depressive symptoms over the past two weeks, using yes/no responses
- GAD-7, which measures anxiety symptoms over the past two weeks, using a set of severity-scale panic questions about the respondent's experience of anxiety attacks over the past four weeks.

The PHQ-9 also has a patient-rated difficulty item (in relation to any reported problems): 'How difficult have these problems made it for you to do your work, take care of things at home or get along with other people?'

All the screeners have severity scales with cut-off points for mild, moderate, moderately severe and severe provisional diagnoses. The PHQ-9 also has an alternative scoring scheme for the provisional diagnosis of major depressive disorder.

The PHQ-9 and GAD-7 questions and scoring information are available at: <https://www.phqscreeners.com>.

While the PHQ-ADS is not a diagnostic instrument per se, scores on its PHQ-9 and GAD-7 components are highly correlated with depressive disorder and anxiety disorder diagnoses.

## The Alcohol, Smoking and Substance Involvement Screening Test

The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) screens adults for risky use of tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants, inhalants, sedatives or sleeping pills, hallucinogens, opioids and 'other drugs'. It also asks about injecting drugs.

Respondents are asked about frequency of use in the last three months and whether they have experienced problems with any substances they have used, including:

- a strong desire to use
- health, social or legal problems
- failing to do what was normally expected
- a friend or relative expressing concern
- trying and failing to cut down.

Some of the drug names in the ASSIST were modified to make them appropriate for the New Zealand context. Synthetic cannabis was listed as an example of cannabis in the 2016/17 NZHS but as an example of 'other' drugs in the 2021/22 and 2022/23 NZHS.

Scoring involves calculating a risk score for each drug, and respondents are categorised into low-, moderate- and high-risk categories by drug. According to the instrument guidelines, for alcohol, a score of 11–26 is considered moderate risk and 27 or more high risk. For other substances, a score of 4–26 is considered moderate risk and 27 or more high risk.

Scores should be interpreted as estimating the risk of problematic use not actual disorder prevalence (although the instrument has been found to be reasonably good at discriminating between non-problematic use and substance abuse).

The ASSIST manual, which covers the scoring system, is available at: [www.who.int/substance\\_abuse/activities/assist/en/](http://www.who.int/substance_abuse/activities/assist/en/)

## Service use

Service use questions ask respondents what types of services and treatments they have used (if any) for concerns about their emotions, behaviour, stress, mental health or substance use. The respondents are then asked whether they have felt a need to get professional help but didn't receive that help and if they didn't receive help, why that was. Questions are modified versions of questions used in Te Rau Hinengaro, The New Zealand Mental Health Survey, conducted in 2003/04 (Oakley-Browne et al 2006), and the Canadian Community Health Survey (2012).

There were minor wording changes between the version of the module questions used for the 2016/17 NZHS and the version of the module questions used for the 2021/22 and 2022/23 surveys, as follows.

- The word 'use' in the context of a telephone helpline was changed to 'call or text'.
- The word 'internet' in the context of resources to get help was changed to 'online', and the category 'mental health and wellbeing app' was added.
- The term 'peer support worker' was added to the question on which of the following people were consulted about concerns about emotions, stress, mental health or substance use.
- Three additional barriers were added to the reasons for unmet need for professional help:
  - time taken to get an appointment too long
  - available services did not meet cultural or language needs
  - health professionals unhelpful or unwilling to help.

# Child behavioural and developmental problems module

The 2022/23 survey marks the seventh year that the NZHS has included specific instruments for monitoring children’s development. The 2022/23 NZHS also repeated questions asked in the 2016/17 and 2021/22 surveys’ module on contact with health professionals and other people for concerns around a child’s emotions, behaviours, stress, mental health or substance use.

The module includes the Strengths and Difficulties Questionnaire (SDQ), questions about parental stress and service use questions. Parental stress deserves attention as it can relate to children’s emotional and behavioural problems. The COVID-19 pandemic has caused multiple challenges for many families in New Zealand, and these demands have likely impacted on children’s wellbeing and parents’ stress levels.

Parents/caregivers of children aged 2–14 years self-completed the child module. Due to the sensitive nature of the questions, respondents did not answer if their interview was being conducted with language assistance from a family member or one of their friends.

## Strengths and Difficulties Questionnaire

The SDQ is a brief emotional and behavioural screening questionnaire developed specifically for use with children and adolescents. It consists of 25 questions and has five subscales: emotional symptoms, conduct problems, hyperactivity, peer problems and prosocial behaviour (Goodman 1997), as Table 8 shows. It has been used in over 40 countries and, in New Zealand, it has been a part of the B4 School Check programme for four-year-olds since 2009. It has also been used as an outcome measure in mental health services, so including this instrument in the NZHS provides population norms. The Strengths and Difficulties Questionnaire was previously included in the child development module in 2012/13, 2014/15 and 2015/16 and also in the behavioural and developmental problems module in 2016/17, 2021/22 and 2022/23. It has been validated internationally to screen for child and adolescent psychiatric disorders.

**Table 8: SDQ questions**

Scale	Not true	Somewhat true	Certainly true
<b>Emotional symptoms scale</b>			
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
<b>Conduct problems scale</b>			
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
<b>Hyperactivity scale</b>			
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
<b>Peer problems scale</b>			
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
<b>Prosocial scale</b>			
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

Source: (c) Robert Goodman 2005

## Scoring of SDQ

A total difficulties score can be calculated by totalling the emotional symptoms, conduct problems, hyperactivity, and peer problems scales, which can indicate the overall risk of mental health problems. 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](http://www.sdqinfo.org)). Exact proportions vary according to country, age and gender.

## Parental stress

The parental stress section contains five questions for the parent or caregiver on how they felt while caring for their child and whether they have access to day-to-day emotional support for raising children. The questions were included in the NZHS for 2012/13, 2014/15, 2015/16, 2016/17, 2020/21, 2021/22 and 2022/23.

These questions are originally taken from the National Survey of America's Families, 1997, revised for the United States National Study of Children's Health in 2007.

## Service use

Parents/caregivers of children aged 2–14 years are asked service use questions about what types of services and treatments their child has used (if any) for concerns about that child's emotions, behaviour, stress, mental health or substance use in the past 12 months. They are then asked whether they have felt a need to get professional help for their child but did not receive that help and, if they did not receive help, why that was. If the child had seen a Māori health service or community mental health or addictions service, parents/caregivers were asked: (1) if they had received emotional or practical support in their role as a parent and (2) who attended the last visit to the service.

There were minor wording changes between the version used in the 2016/17 NZHS and that used in the 2021/22 and 2022/23 surveys for the module questions, as follows.

- The word 'use' in the context of a telephone helpline was changed to 'call or text'.
- The word 'internet' in the context of resources to get help was changed to 'online', and the category 'mental health and wellbeing app' was added.
- Three additional barriers were added to the reasons for unmet need for professional help:
  - time taken to get an appointment too long
  - available services did not meet cultural or language needs
  - health professionals unhelpful or unwilling to help.

## Household food security

This comprises an eight-item food security questionnaire developed by Winsome Parnell from the Department of Human Nutrition at the University of Otago. The items were developed from both a review of the literature and focus group research. The focus groups aimed to ensure the statements reflected the experience of Māori, Pacific and low-income households faced with difficulties accessing appropriate food (Parnell et al 2001).

These questions measure the extent to which New Zealand households have access to nutritionally adequate and safe foods. The questionnaire has internal and external validity (Parnell 2005) and was previously used in the child NZHS for 2012/13, 2014/15

and 2015/16, the adult and child NZHS for 2019/20, the child NZHS from 2020/21 onwards as well as the:

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

One of the items in the food security questionnaire is used to produce the percentage of children living in households reporting that food runs out often or sometimes, which the Government notified as a child poverty-related indicator under the Child Poverty Reduction Act 2018 in 2019.<sup>6</sup>

## Household food security scoring

A summary index can be derived from answers to the items, providing an estimate of the severity of food insecurity a household is experiencing. Respondents can be categorised, based on this summary index, as one of the following: mostly to fully food-secure; moderately food-insecure; or severely food-insecure (Ministry of Health 2019).

## Sociodemographics

Health status, health risks and health service utilisation are strongly influenced by socioeconomic, cultural and demographic forces. Understanding the sociodemographic structure of a 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 NZGSS. In addition to self-reported variables (eg, age, gender, ethnicity, education, employment status, income, housing and household composition), the NZHS records variables derived from the census area unit/ primary sampling unit of the household (eg, area deprivation and rurality). Questions on health insurance are also included in the sociodemographic section of the adult questionnaire.

A question on sexual identity was added in the 2015/16 NZHS. This question is self-completed by the respondent because of its sensitive nature. From 2016/17, the sexual identity question was not asked for respondents whose interview was being conducted with cognitive or language assistance from a family member, caregiver or one of their friends. This was to ensure these confidential responses were not revealed to people with whom the respondent has a personal relationship. From the 2022/23 survey, this question was no longer skipped for everyone using cognitive or language assistance from a family member, caregiver or one of their friends. It is still a self-complete question but reverts to face-to-face if the respondent cannot self-complete.

<sup>6</sup> 'Notification of Child Poverty Related Indicators Identified Under the Child Poverty Reduction Act 2018'. New Zealand Gazette, 2 September 2019, 16:38.

In the 2022/23 survey, the question on gender was changed for both adults and children by adding an answer category of 'another gender – please specify'. A question was also added for adults asking what their sex was recorded as at birth, with response options of 'male', 'female' and 'another term'. Both of these questions were made self-complete for adults in the 2022/23 survey but revert to face-to-face if the respondent cannot self-complete.

## Health measurements

The 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.

The measurement of adults' body size was added to the NZHS core content in 2002/03 and extended to include children in 2006/07. The measurement of adults' blood pressure was added to the NZHS core content in 2012/13.

Biomedical measurements (adults only) were included as a module in the 2014/15 NZHS.

Health measurements were not collected in the 2021/22 NZHS due to COVID-19 restrictions. Collection of health measurements resumed in the 2022/23 survey, except for the measurement of blood pressure.

## 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- and long-term health consequences (WHO 2000).

Self-reporting height and weight is unreliable compared with measuring these factors (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. The 2022/23 NZHS included module questions for adults on self-reported height and weight so we can understand the difference between self-reported and actual measurements in the New Zealand population. This is particularly important for when we cannot conduct face-to-face interviews, such as during the COVID-19 restrictions in the 2021/22 survey year. The 2022/23 NZHS also included an

adult module question on perceived weight to understand respondents' perception of their own weight.

For the NZHS, height and weight are measured for respondents from the age of two years and over, and waist measurements are taken for respondents from the age of 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 – apart 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, a 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, such as type 2 diabetes, associated with increasing BMI rather than being 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.

Usually, no symptoms are associated with high blood pressure, so self-reporting will underestimate its prevalence. 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. It was removed in the 2017/18 and 2022/23 surveys to allow more time for the questionnaire portion of the survey and was not collected in the 2021/22 survey due to COVID-19 restrictions.

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 a 1-minute pause between measurements.

## Consents

Prior to the 2021/22 NZHS, participants signed informed consent forms to participate in the survey. From the 2021/22 NZHS onwards, participants provide informed consent verbally, which is stored as part of the questionnaire. Consent or assent is provided by:

- adults aged 15 years and over
- people with enduring power of attorney or welfare guardians for adults unable to provide consent
- parents or legal guardian of respondents aged 15 years (alternatively to those respondents answering for themselves)
- parents or legal guardians of children under 15 years.



From the 2021/22 NZHS onwards, verbal consent is collected as part of the questionnaire, for permission for:

- the survey supervisor to contact them again for audit purposes
- NZHS researchers to contact them again within the next two years about the possibility of answering other health-related questions of importance to the Ministry
- their survey data to be combined with other information already routinely collected by government agencies.

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