

THE NEW ZEALAND HEALTH MONITOR

A TEN-YEAR STRATEGIC PLAN FOR A COORDINATED NATIONAL POPULATION SURVEY PROGRAMME

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EXECUTIVE SUMMARY

This paper outlines a strategic plan for design, funding and management of the national population survey programme run by the Ministry of Health (MoH). Key features are:

- The MoH has a clear mandate under section 3c of the Health Act 1956 for undertaking population surveys. The purpose of such surveys is to provide information to support decision making within the health sector:

“You cannot manage what you do not measure”

- Fulfilling this mandate will require an organised, systematic, coordinated, dynamic and flexible survey programme. This strategy outlines such a programme under the rubric of the *New Zealand Health Monitor*, a ten-year cycle of population surveys.
- The key elements of the proposed New Zealand Health Monitor (NZHM) are:
 - (i) Meeting the information needs for national, DHB and special populations through a population-based, outcomes-focused information system that will address current gaps in health information via a ten-year cycle of surveys comprising: a General Health Survey, a Child Health Survey, a Health Behaviour Survey, a Nutrition Survey (adult and child), a Mental Health Survey and a Rapid Response Survey;
 - (ii) The survey programme recognises Māori as Treaty partners. It also recognises that Māori as tangata whenua have international human rights pertaining to indigenous peoples. It recognises tangata whenua rights do not depend on the numbers of Māori in the population. All surveys carried out under this survey programme will produce information relevant to Māori. Māori will be consulted with for each survey.
 - (iii) These surveys will be fielded using mixed survey modes (face-to-face and telephone-based methods) to maximise cost-effectiveness;
 - (iv) The surveys will gather information on key health information domains (health outcomes, health causes and health services) that cannot be collected by other (nonsurvey) means;
 - (v) Information will be analysed by Public Health Intelligence (PHI) annually as fresh data accumulates;
 - (vi) Data analysis will be underpinned by data integration (survey-survey and survey-nonsurvey), both vertically and horizontally.
- Implementation of the strategy will require a long term funding commitment of at least \$3 million per annum (as agreed by ET in May 2001).

1 Background

1.1 Mandate

A number of national population health surveys have been conducted in New Zealand since the late 1970s (Box 1). These surveys have not been well coordinated and often have not been repeated at regular intervals - a requirement if they are to be useful for monitoring the health of the population.

Accordingly, in May 2001 the Ministry of Health's Executive Team approved:

- A dedicated funding stream of \$3 million annually from the Public Health NDOC (or its successor) to fund a coordinated, multi-year population survey programme;
- The establishment of a dedicated survey capability within PHI to manage this programme. (It is acknowledged that establishment of a dedicated survey capacity to collect information for Māori should include a team member experienced in working with Māori);
- The setting up of a Population Survey Reference Group, including representatives from all MoH directorates and the DHBs, to oversee the programme.

1.2 Process for Developing the Plan

After examining the history and current situation of health surveys in New Zealand, the Population Survey Reference Group instructed PHI to develop a strategic plan for an integrated programme of surveys over a ten-year cycle. This programme of surveys is to be known as the *New Zealand Health Monitor (NZHM)*.

PHI engaged a consultant, Gary Catlin (Director, Health Division, Statistics Canada), to work with a survey statistician seconded from Statistics New Zealand and a small team from PHI to produce this draft plan for consultation.

1.3 Outline of the Plan

The plan is organised into the following topics:

- Context
- Using survey information
- Meeting DHB information needs
- Meeting community information needs
- Content
- Design
- Analysis
- Phasing and transition
- Funding and management
- Consultation
- Next Steps

Box 1 History of National Population Health Surveys in New Zealand

Unlike most developed countries, New Zealand lacked national population health surveys until relatively recently. The first such survey was the *National Dietary Survey* (Heart Foundation, 1978). Similar surveys of adult nutrition status were carried out in 1989 (*Life in New Zealand Survey*, Hillary Commission), which also included measures of physical activity, and in 1997 (*National Nutrition Survey*, MoH).

The first general health survey was fielded in 1993/94 (*Household Health Survey*, MoH), followed by a second in 1996/97 (*New Zealand Health Survey*, MoH), with a third currently being planned for fielding in 2002/03 (*New Zealand Health Survey*, MoH).

Also in 1996/97, Statistics New Zealand conducted the first national disability survey (*Household Disability Survey* and companion *Disability Survey of Residential Facilities*), co-sponsored by the MoH. This was a post-censal survey and has now been repeated following the 2001 Census.

Smoking data has been collected in alternate censuses and in annual surveys of adults since 1983 and of fourth formers since 1997. Data on other drugs including alcohol has been collected via telephone surveys carried out by the University of Auckland on several occasions, most recently in 1995 and 2000.

The University of Auckland also carried out in 2001 a school-based survey of adolescent health. In 1995 the University of Waikato carried out a social survey that included a major women's health component. In 2000, the MoH of Social Policy commissioned a survey of the living standards of older people, which also included a major health component.

Surveys currently in an advanced planning stage and likely to be fielded within the next two to three years, include:

- The first national survey of child nutrition (MoH);
- The first national survey of mental illness and use of mental health services (MoH and University of Auckland).

2 Context for the New Zealand Health Monitor

2.1 Health information

"You cannot manage what you do not measure"

Information is needed to make evidence-based decisions at all levels of the health system, from the clinical encounter to DHB service planning to MoH national policy advice. The WAVE project¹ has provided a plan for development of *service-based* (or patient-based) information systems. These information systems focus on inputs (resources provided or consumed) and throughputs (volumes and times). These sources can provide little information about nonusers (unmet needs, access barriers) and about outcomes (except for clinical care outcomes at the individual patient level).

By contrast, the New Zealand Health Monitor is a *population-based*, outcomes-focused information system that has the capacity to address precisely these gaps in health information. The two information systems (WAVE and the New Zealand Health Monitor) together can potentially provide a complete picture of health and so enable a managed health system at all levels - local, regional and national.

2.2 Purpose of the New Zealand Health Monitor

Is the New Zealand population healthier today than two years ago? Is inequality in health outcomes between Māori and non-Māori widening? Is the gap with Australia closing? Is the absolute five-year risk of a major cardiovascular event (heart attack or stroke) decreasing in advantaged communities but increasing in deprived areas? What explains these trends? As the baby boomers reach old age and life expectancy improves, will health expectancy worsen? How quickly is the national diet changing? Are children becoming more inactive? What are the impacts of these trends on health? Is the health system becoming more responsive to the needs of Māori? Are unmet needs for community mental health services increasing? Is cost a barrier to accessing GP services or filling prescriptions? Are GPs referring patients to acupuncturists more frequently?

These and many similar questions can only be answered through well designed, competently fielded and correctly analysed health surveys. Some examples of actual policy decisions based on previous health surveys are illustrated in Box 2.

¹ From Strategy to Reality: the WAVE Project, MOH, October 2001.

Box 2 Examples of Policies Influenced by Health Survey Information

Obesity as a public health emergency

The availability of three national nutrition surveys spanning twenty years (1978 - 1989 - 1997) made it possible to identify beyond any doubt that an epidemic of obesity began in New Zealand in the 1980s and accelerated further in the 1990s with as yet no sign of slowing. The evidence provided by these three surveys on the increasing trend in obesity contributed to the selection of obesity, nutrition and physical activity as three of the 13 priority objectives for the New Zealand Health Strategy (King 2000).

Cost as a barrier to accessing GP services

The 1996/97 New Zealand Health Survey found that eight percent of adults hadn't consulted their GP (although needing to) because of cost; for Māori and Pacific peoples the proportion was more than double this. These New Zealand Health Survey findings contributed to policy advice regarding primary health care funding which was included in the Primary Health Care Strategy (MoH 2000).

In summary, health surveys provide essential information for both the MoH and DHBs to:

- Formulate and evaluate policies and investment (or disinvestment) decisions;
- Plan and allocate resources to services (or programmes);
- Manage the sector strategically.

Furthermore, as the appetite for evidence-based decision making increases, the need for survey-derived information is likely to rapidly expand.

2.3 Coordination of Surveys

Until now, multi-year commitment to designing, fielding and analysing surveys has been provided on an ad hoc basis for each survey individually. Competing for funding in a process dominated by annual planning cycles has led to:

- High transaction costs;
- Limited public and political understanding and acceptability of surveys;
- Failure to secure funding even for the whole life cycle of individual surveys (resulting in only limited analysis of the data being undertaken);
- Loss of regularity of repetition of surveys and consistency of data definitions and instruments (so compromising the integrity of the time series);
- Unnecessary duplication of content between surveys;
- Gaps in survey coverage;
- Failure to meet multiple information needs.

By contrast, an organised, systematic, integrated and coordinated survey programme (the New Zealand Health Monitor) offers a number of advantages:

- (i) Institutionalising the information system enhances public and political understanding and acceptance, contributing both to sustainability of funding and high response rates (branding as the New Zealand Health Monitor is intended to further assist this process), while simultaneously reducing transaction costs;
- (ii) Integrity of the time series can be better preserved (by ensuring repeated data collection using consistent definitions and instruments), while still allowing flexibility and responsiveness to emergent information needs;
- (iii) Diverse information needs of all users can be met more readily (eg by accumulating sample for DHBs over time), and balanced coverage across all information (sub) domains can be ensured;
- (iv) Opportunities are enhanced for systematic record linkage (so expanding the analyses possible) and for improving timeliness of the estimates;
- (v) Efficiency gains can be made by reducing duplications (as well as gaps) in content across component surveys, as well as by greater use of data integration (both survey-survey and survey–nonsurvey).

The vision, users, and objectives of the New Zealand Health Monitor are summarised in Box 3.

Box 3 The New Zealand Health Monitor

Vision

The New Zealand Health Monitor is an integrated health survey programme operating over ten-year cycles that provides a continuous stream of relevant time series data needed to strategically manage the health sector at both national and district levels.

Data is collected at a frequency that ensures appropriate timeliness. Statistical power (sample size) is sufficient to analyse Māori data at the same degree of differentiation as non-Māori data. Flexibility and responsiveness is maximised through appropriate use of CATI (Computer Assisted Telephone Interview) for data collection.

Duplications and gaps in information content are avoided. Only data that cannot be collected any other way and for which New Zealand-specific estimates are required is collected. Survey data is integrated: vertically to provide dynamic rather than static information, and horizontally to maximise capacity to explain rather than merely describe trends.

Data is analysed using the full capacity of modern epidemiologic and statistical tools and disseminated in a user-friendly way that maximises use of the information as a decision support tool.

Users

Key users of the New Zealand Health Monitor outputs are:

- Minister of Health and the MoH;
- DHBs;
- Iwi and other Māori organisations and communities;
- Other central government agencies (eg MSD, TPK);
- Health NGOs and community groups;
- Researchers and academics;
- Media, politicians and the public.
-

Objectives

How healthy are we?

This question will be answered by:

- Monitoring physical and mental health as well as illness trends through a combination of self report and physical measures;
- Identifying trends in social determinants of health, risk and protective behaviours, physiological and psychological states (including stage of change) and identifying health disparities between social groups;
- Using this information to explain as well as merely describe trends and subgroup contrasts (including understanding how inequalities in health are produced and reproduced);
- Feeding this information into forecasts using appropriate modelling techniques to inform the policy or planning cycle (eg of the MoH and DHBs).

How healthy is the health system?

This question will be answered by:

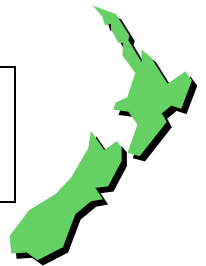
- Monitoring use and nonuse of health services (especially primary care);
- Using this information to understand restrictions in service coverage, barriers to access and unmet need ('hard to reach' or 'easy to ignore?')
- Monitoring the responsiveness of the health system (including respect for persons and client orientation);
- Explaining trends and contrasts between subgroups (in both utilisation and responsiveness), including how inequalities in access and responsiveness are produced and reproduced, and how culturally responsive the health system is;
- Feeding this information into policy and service planning and evaluation.

2.4 Branding

It is important to brand both individual MoH surveys and the ongoing survey programme itself. Branding increases the public profile of the surveys and makes them recognisable as MoH surveys. Branding will lead to an increased response rate. Quite simply, if public participation is not secured we have no survey or survey programme.

Each of the MoHs current surveys is branded in a way that identifies its purpose and scope. For example, the New Zealand Health Survey brand looks like this:

New Zealand Health Survey 2001



The NZHS brand denotes the national scope of the project, situates it in time and place, and gives a consistent look to all material associated with the survey, making it instantly recognisable.

The New Zealand Health Monitor (NZHM) will benefit from being branded in a similar manner. The brand we have suggested to describe the integrated survey programme (*New Zealand Health Monitor*) is an accurate description of the objective of the programme (monitoring public health) and is presented in terms that most people in and outside the health sector will understand.

Special attention will need to be given to the issue of branding in Māori communities.

3 Using NZHM information

3.1 Reporting Cycle

The considerable resource invested in health surveys would be wasted if the information collected were not disseminated to a variety of audiences in a format they can use. Previous health surveys have successfully collected valuable data, but have not always communicated insights about trends or inequalities in health outcomes, risks or services sufficiently clearly for this information to impact significantly on health policy or service planning. The need for reports to be produced in a manner appropriate for and accessible to Māori organisations and communities is especially important.

The NZHM will recognise the information needs of its key users – the MoH, the DHBs, health services researchers, iwi and other māori organisations the public health community and the media/public. The NZHM will enable the production and dissemination of reports and media releases that meet these needs. As discussed later in this plan, meeting the information needs of key users requires:

- an in-house analytical capacity;
- a process for understanding users' information needs and feeding information appropriately into their decision making processes;
- an ability to manage the media and political process.

The MoH intends to publish reports on the NZHM in hardcopy format as well as on the web. Reports will be both internally and externally peer reviewed before publication.

At this stage it is proposed that outputs will be made available mainly in the form of quarterly reports. Each report will comprise an in-depth analysis of one issue, based on analysis of most recent as well as historical survey data, integrated or combined with relevant non-survey data to provide a comprehensive analysis of the issue (Box 4). Where the topic is highly specialised, the analysis will be conducted and the report prepared jointly with appropriate external experts.

Box 4 Record Linkage

The integration of data from household survey data collections with administrative data sources such as hospital records, cancer registrations, and death certificates, can provide unique and valuable new information.

Records can be linked not only horizontally (data collected at the same time) but also longitudinally (data relating to the same person collected at different times), both through passive and active follow up. Longitudinal data can provide a dynamic rather than merely a static picture of health, allowing causal relationships (eg effectiveness of services) to be explored. For example, horizontal and longitudinal record linkage may shed light on what causes differential utilisation of health services adjusted for need across ethnic groups – including both individual (eg socioeconomic status) and service (eg institutional racism) characteristics – and may, in turn, shed fresh light on health equity in New Zealand.

However, record linkage – even if based on anonymous probabilistic matching – raises privacy concerns. These concerns will need to be worked through with the Privacy Commissioner and with key Māori representatives (such as kaitiaki groups). A necessary requirement will be to obtain informed consent of all survey participants for passive follow-up as well as active follow-up (re-contact, usually by telephone) where appropriate. Canadian experience indicates that over 95% of survey participants provide such consent.

3.2 Information Needs Analysis and Analytic Planning

Selection of topics for the quarterly reports will be based on:

- Expressed needs of MoH policy analysts and DHB planners;
- Awareness of Population Survey Reference Group members and PHI staff (whether from analysing NZHM data or from other sources) of emergent issues.

The Population Survey Reference Group will take the lead in defining each year's analytical plan and will approve the annual reporting cycle. Each member of the Population Survey Reference Group will be responsible for consulting with his or her own directorate/DHB and wider network.

The Population Survey Reference Group will be responsible for identifying, collating and prioritising the sector's survey-based information needs. The annual analytical and reporting plan will also be designed to be flexible enough to accommodate changing policy and planning needs.

3.3 Intellectual Property

Data collected through the NZHM will be the property of the MoH. However, when surveys are carried out jointly with Statistics New Zealand (SNZ) datasets may also be held by Statistics New Zealand under the Statistics Act 1975. This will also apply when survey data is integrated with non-survey data collected by SNZ (such as Household Labour Force data). Where universities or other contractors collect data contracts will be signed clearly stating dataset access and publication rights. Provisions for sharing of intellectual property rights with Māori need to be made. (A number of our current surveys already have special provision for Māori with regard to intellectual property rights.)

3.4 Dataset Access

It is critical that academic, independent and community based researchers have ready access to unit record data without in any way compromising the confidentiality of survey respondents. Some groups with a legitimate stake in the information (eg community groups, NGOs) may lack the capability to analyse it themselves. PHI has a responsibility for capacity building to ensure that such organisations can indeed benefit from the data. This will require provision of technical assistance beyond merely disseminating the data.

The MoH will make anonymised unit record files freely available to bona fide investigators. This will be determined by the MoH Population Survey Reference Group and will be subject to the usual safeguards for privacy and confidentiality and any other legal requirement (eg those relating to integrated datasets). Any issues related to the use of Māori data will require advice from Māori workers within the MoH (as well as the Population Survey Reference Group). It is the intention of the PHI to make access free for bona fide researchers. It is also the role of the PHI to ensure responsible use of data.

PHI aims to maximise access to and use of its data both within and beyond the MoH and DHBs.

3.5 Ethical Approval

It is the intention of PHI that all surveys are operated under appropriate ethical approvals.

4. Meeting the Information Needs of DHBs

National surveys have historically been considered of little relevance to DHBs for two reasons:

- Purchaser/provider organisations are traditionally more interested in inputs, throughputs and outputs rather than outcomes (which they cannot fully control);
- Sample size considerations limit the ability to derive useful district estimates from national datasets.

DHBs are however now required under the Public Health and Disability Act 2000 to monitor and improve the health of their resident populations. They therefore have a strong interest in health outcomes, health outcome trends and distributions. Iwi information needs are to be specially considered.

The sample size question does remain intractable. That is, DHBs are generally not sufficiently populated for them to produce a significant sample size when surveyed as part of a national population survey. This will remain the case unless funds are available to massively increase survey sample sizes on a national basis. This problem applies also when iwi organizations seek specific information of relevance to their particular iwi.

Fortunately, a number of partial solutions are offered by the NZHM design:

- Accumulating sample over time

The continuous design of the NZHM (see section 7.1) enables sample from consecutive waves of the General Health Survey (GHS) and the Health Behaviour Survey (HBS) to be pooled. This will have the effect of increasing sample size and providing sufficient power to estimate rates for DHBs. These estimates will mean some loss of temporal resolution (ie it will take longer to detect a change in trend at DHB than at national level). This requires stratification of the survey frame by DHB even if individual waves will not be able to produce estimates at DHB level.

- Boosting sample

Stratification by DHB also allows DHBs to boost the size of the relevant sample for their area, permitting estimation of rates for those DHBs alongside the national estimates.

The extra (marginal) cost of boosting the sample from the frame, fielding the extra interviews and analysing the data both pooled and separately, is much lower than it would cost the DHB to run its own independent survey. Boosting needs to take into account ethnicity and potential information needs for iwi within the sample.

The of use alternative providers (that is, not Statistics New Zealand) does offer sample boosts at a lower cost to participating DHBs or other interested organisations.

- Clustering of DHBs

PHI proposes to examine the possibility of creating three to five analytical clusters of DHBs, comprising districts that are not geographically contiguous but are similar in ways that influence health outcomes (eg age structure, ethnic composition, rurality, socioeconomic status, smoking rates).

Surveys that are insufficiently powerful to produce estimates for 21 DHBs may still be able to produce estimates for three to five “DHB health clusters”. The rates so obtained can then be attributed to each DHB within the cluster. Furthermore cluster rates could be contrasted with each other as well as with the national benchmark.

Representation of DHBs on the Population Survey Reference Group will ensure that the above options are fully explored and the optimal selection made for different purposes.

5 Meeting the Needs of Communities

5.1 Māori

The overall rationale for producing health statistics for distinct populations begins with the Treaty of Waitangi and the Crown's obligations to Māori. Article Two of the Treaty provides for the retention of Māori control over Māori resources, while under Article Three Māori are to be guaranteed "all the Rights and Privileges of British Subjects"². Where the Crown is collecting and producing statistical information for health policy purposes, it must therefore ensure that information is collected and produced in such a way that the information is relevant and reliable so that it can be used for the benefit of Māori health.

To meet the needs of Māori, the NZHM needs to:

- Involve Māori in the development of survey aims, objectives and outputs;
- Consult with a range of Māori communities, groups and iwi;
- Carefully design samples to ensure reliable output for Māori;
- Produce statistical output which is analysed and presented in a relevant and useful way for Māori;
- Develop dissemination strategies and access arrangements, which provide Māori with survey output in a useful and relevant form;
- Develop methodology to increase Māori analytical capacity.

The whole question of the conceptual basis of the measurement of ethnicity (and Māori ethnicity in particular) is vital for a health survey strategy that aims to provide information relevant for Māori. Statistics New Zealand is tackling these issues in its current ethnic statistics review³ to which the MOH is contributing. Māori are not a homogenous group and survey design and output should duly acknowledge the diversity of Māori communities. Questions regarding the presentation of Māori health statistics, such as - the extent to which such statistics should stand alone, or be presented in comparison to non-Māori or the total population, need to be thoroughly debated.

The NZHM also needs to focus data collection efforts on the evolving use of Māori for Māori health services, the non-use of mainstream health services; barriers to primary, secondary and tertiary health care; and the access to services of rural Māori communities.

² Health Research Council, 'Guidelines on Research Involving Māori'

³ www.stats.govt.nz

5.2 Pacific People

Pacific people's health – their health status, risk factor profile, health service use and unmet needs raises different health issues compared with those of Māori or the European population of New Zealand.

To meet the information needs of Pacific people, the NZHM must:

- Involve Pacific people in the development of survey aims, objectives and outputs;
- Consult with Pacific communities;
- Produce carefully designed samples that ensure reliable output for Pacific people;
- Develop statistical output which is analysed and presented in a relevant and useful way for Pacific people;
- Devise dissemination strategies and access arrangements which provide Pacific communities with survey output in a useful and relevant form.

5.3 Other Ethnic Groups

The health survey programme will also provide reliable statistics for the European ethnic group. At this stage provision of statistics for Asian New Zealanders is being considered as a priority. Provision of iwi statistics and statistics for major Pacific communities separately may be a higher priority although it raises issues of small population sizes.

The usual ethnic analysis would be:

- Māori;
- Pacific;
- European;
- Non-Māori;
- Asian;
- Total.

5.4 Age Groups

Age is a critical dimension for health policy and health services. Life cycle stages will be represented in output from the health survey programme:

- Infancy (0)
- Childhood (1-14)
- Youth (15-24)
- Young adulthood (25-44)
- Middle Age (45-64)
- Older people (65+ or 55+ for Maori).

The precise age analysis will depend on the design and information content of each survey. Some surveys may exclude or be restricted to children or youth only (see later).

Inclusion of longitudinal follow-up capability in (aspects of) the NZHM opens the possibility for *lifecourse analysis* as well, a dimension that is becoming increasingly recognised as important in explaining and addressing health inequalities.

The relative youthfulness of the Māori and Pacific populations in New Zealand, and the concept of “accelerated ageing” in deprived or marginalized communities require consideration. A critical age group for health analyses in both these ethnic groups is sometimes considered to be the 45 – 64 year age group.

5.5 National and Regional

The first-order output from the health survey programme will be national. Estimates will be typically for the total population living in private households, although some surveys will also sample the population living in health-related residential facilities. The MoH will liaise closely with DHBs to establish which DHB information needs might be met through the NZHM. This is fully discussed in section 4: Meeting the Needs of DHBs.

5.6 Urban and Rural

Equity of access to health services is an issue for people who live in rural areas compared to those living in urban areas. Statistics from health surveys will include an analysis by an urban/rural variable where appropriate. As only about fifteen percent of New Zealanders live in rural areas analysis by a rural/urban variable may require further design effort. The ‘index of remoteness’ recently developed by PHI may be useful in this regard. The relatively high percentage of Māori living in rural areas will need to be reflected in the design of the surveys.

5.7 People Living in Institutions

People living in institutions – for example, rest homes and continuing care facilities – have very different health experience and trajectories compared to those living in private households. Measures of the health status of the nation are likely to provide an overly optimistic view if they include only those living in private households. Some administrative data exists for people living in institutions and, where possible, this should be integrated as part of the NZHM analyses.

The NZHM will also include, from time to time, separate surveys of people living in health-related institutions (see later). The sampling frame of the Disability Survey of Residential Facilities could be used for this purpose.

The inclusion of this sample frame is currently being considered for the New Zealand Health survey 2002. This would mean that older people are included in a greater way than previously. It is possible that all future national population surveys could include institutions in their sample frame.

6 Information Content of the NZHM

6.1 Inclusion and Exclusion Criteria

Data collected by the NZHM should meet the following criteria:

Policy relevance

Only data needed to inform decisions made by the MoH or DHBs should be collected. Other agencies may purchase space in the data collection programme if available.

Logical data structure

Variables should not be selected on an ad hoc basis, but should be related to an underlying conceptual model of health or to a systems model of health care. The use of a model enables relationships between variables to be explored and so gives the NZHM explanatory rather than merely descriptive power.

A useful model of health is that developed by Evans and Stoddard⁴, which is widely used within the New Zealand health sector. A suitable model of health system performance assessment is that developed by Murray for the WHO.⁵ These models underpin the discussion of information content in this plan. It is recognised that models need to be culturally appropriate for use in New Zealand.

Survey appropriateness

Surveys are relatively slow, expensive and intrusive (although methodological developments such as CATI minimise these disadvantages). The NZHM will collect only data that cannot be collected more effectively and efficiently by other means (surveillance or epidemiological study).

Local specificity

Data for monitoring population health can only be derived from the population itself. However, information about fundamental biological processes (eg risk of developing diabetes given obesity) is better derived from research studies (not necessarily involving the New Zealand population).

Modifiability and impact

The NZHM will focus on variables modifiable through health sectoral intervention. Priority will be given to variables with significant impact on population health (including high prevalence/low severity and low prevalence/high severity conditions), and information that contributes to our knowledge of ethnic and other social disparities. However, key intermediary or 'pathway' variables will be included even if they are not themselves modifiable (eg

⁴ Evans R (ed), 1994. Why are some people healthy and others not? New York: Aldine de Gruyter

⁵ World Health Organisation 2000. World Health Report 2000. Geneva: WHO.

mastery/sense of control, social support) to enhance understanding of causes and hence targeting and evaluation of interventions.

Indicator potential

The NZHM does not focus on a set of predetermined indicators but attempts to collect and analyse data on all variables meeting the criteria listed above. Nevertheless, variables that have been or may be selected as 'indicators' for national policies, in particular the New Zealand Health Strategy, will be given priority.

Core and noncore content

The survey literature is replete with terms such as 'core', 'focus', 'supplementary' and 'optional' content. These terms are confusing and are not used in the NZHM. However, a distinction is made between the planned content of the NZHM surveys ('core' variables) and other data that may be collected if an emergent information need arises or if there is spare capacity to include additional content (paid for separately) ('noncore' variables).

6.2 Information Domains

Based on the underlying models of health and health systems identified above, health surveys are able to tap three major health information domains:

- Health outcomes (health status);
- Health causes (determinants, risk and protective factors);
- Health services (access, utilisation, need, quality, responsiveness, cost).

6.2.1 Health Outcomes

Standard classifications for health outcomes have been developed by WHO, to which New Zealand is a signatory (including the International Classification of Functioning [ICF] and the International Classification of Diseases, now in its tenth revision [ICD10]).

Based on these classifications, four sub-domains may be distinguished:

- Subjective (self rated) health / wellbeing;
- Functional limitation;
- Chronic conditions;
- Injuries.

Subjective health

A variety of scales are available to tap the construct of subjective health, depending on the objective. As a minimum, the global single item self-rated health assessment should be included.

Functional limitation

The ICF, approved by the WHO in May 2001, recognises 21 key dimensions of health (below). Well-known health status instruments such as the SF36 and the HUI3 examine some but not all of these dimensions. However, WHO is currently developing an instrument with wider coverage. The NZHM should aim to collect data on most if not all these key dimensions. In addition, while these dimensions are intended to cover all age groups, additional scales tapping growth and development will be needed for monitoring child health.

Key Dimensions of Health Recognised by the ICF

Health dimensions

- Vision
- Hearing
- Speech
- Digestion
- Bodily excretion
- Fertility
- Sexual activity
- Skin and disfigurement
- Breathing
- Pain
- Affect
- Sleep
- Energy
- Cognition
- Communication
- Mobility
- Dexterity

Health related dimensions

- Self care
- Usual activities
- Interpersonal relations
- Social functioning

Chronic conditions

While estimates of prevalence rates (as opposed to incidence rates) of acute illness and short-term activity restriction are of little policy relevance, estimates of prevalence (and incidence and remission) of chronic physical and mental conditions are becoming increasingly critical as the population undergoes structural ageing and as treatment options for these conditions improve and diversify.

Which chronic conditions (ICD codes) to include in the survey programme depends on the epidemiologic picture and policy options. For example, inclusion of just three conditions - urinary incontinence, stroke and dementia - alongside social support (ie living alone) allows prediction of need for residential care places. Mental illness assessment requires special survey instruments (eg CIDI).

Injuries

Surveys are of limited value for injuries. Information about unintentional injuries (eg repetitive strain injury, late effects of head injury) may usefully supplement data available from surveillance systems (eg ACC claims, LTSA records, hospitalisations, deaths). However, data about intentional injury (other than self inflicted) is better collected through a victimisation survey.

6.2.2 Health Causes

There is no standard classification of health causes. A simple but useful classification is:

- Social determinants;
- Behaviours;
- Physiological and psychological states.

Social determinants

Demographic, socioeconomic and cultural forces are recognised as the ultimate determinants of health in the Evans and Stoddard model. Variables likely to be included in the NZHM dataset are:

- Demographic: age, birth cohort, gender, natality, rurality;
- Cultural: ethnicity, religion, English language competence, acculturation (migrants only), strength of cultural engagement, experience of racism;
- Social: living arrangements, social support/connectedness, housing status, mobility, educational attainment, occupation, labour market status, income, ownership of assets, degree of deprivation of neighbourhood of residence.

Behaviours

Health related behaviours (risk and protective) are important mediators of social inequalities in health outcomes. Variables to be collected include:

Nutrition: dietary pattern, food choices and preparation methods, macro and micronutrient intakes, consumption of supplements and functional foods, household food security;

- Physical activity: active recreation, incidental activity, energy expenditure, and sedentary behaviours;
- Sleep: pattern, duration;
- Stress: in life, at work, job control and satisfaction;
- Drug use: tobacco, alcohol, illicit drugs, prescription drugs;
- Injury risk and protective behaviours: Driving Under Influence, speed, use of protective equipment eg seatbelts, cycle helmets;
- Sexual and reproductive behaviours: including partner relations, contraception, STIs;
- Uptake of clinical preventive services: eg relevant cancer screening.

Some behaviours require special survey methods (eg sexual behaviours, violence). Others overlap with health service utilisation (eg cancer screening, immunisation, contraception).

Physiological and psychological states

A vast universe of biochemical measures is available if blood samples can be collected (especially fasting samples). In view of the cost of such tests and their associated respondent burden, the NZHM may need to rely largely on simple anthropometric and physiological tests including (some or all of):

- Height and weight;
- Blood pressure;
- Spirometry;
- Strength, balance, coordination and joint mobility tests;
- Vision and hearing tests.

A similarly wide range of validated tests is available for psychological states including (some or all of):

- Memory and cognition;
- Self esteem;
- Mastery (sense of control);
- Sense of coherence;
- Optimism;
- Coping style;
- Stage of change.

Stage of change is a key variable for designing, targeting and evaluating health promotion programmes. Barriers to and facilitators of change also need to be monitored.

6.2.3 Health Services

There is also no standard classification of health services. The focus of the NZHM needs to be on primary rather than secondary services, as other data sources are available for the latter. The dimensions of particular relevance in regard to the NZHM are:

- Utilisation and need;
- Responsiveness;
- Cost.

Utilisation and need

A key objective for the NZHM will be to contrast high, average, low and non-users of health services, especially health promotion and disease prevention services. Reasons for both use and non-use should be sought, in relation to perceived need. Patterns of use are important - who was consulted, care pathway and referral and whether there is a regular care provider. Particular attention will be paid to informal and alternative services and remedies, as well as self-medication and use (or non-use) of over the counter drugs and prescription medicines.

Through careful questioning about use and non-use of services in relation to perceived need, social support, and service availability, information may be derived as to effective service coverage ('hard to reach' or 'easy to ignore'); access (including financial, geographic, temporal, physical, and cultural dimensions) and unmet need. An as yet largely untapped dimension is carer/family burden.

Responsiveness

Suitable scales for assessing health system responsiveness have been developed by Murray (WHO). Two subscales are recognised:

- Respect for persons;
- Client orientation.

Respect for persons comprises the dimensions of autonomy, dignity and confidentiality.

Client orientation comprises the dimensions of promptness of attention, quality of amenities, access to social support networks during care, and choice of provider.

Responsiveness reflects survey respondents' personal experience of the health system. It is based on self-report. Subjective perceptions of the state

of the health system in general or satisfaction with care received are not included (these data are available from other sources outside the NZHM).

Cost

Most data relating to health expenditure is collected through administrative resource allocation and billing systems. The Household Economic Survey (SNZ) also collects some data on household expenditure on 'medical' consumption. By contrast, the NZHM will focus on just two dimensions of cost:

- Private health insurance (needed to understand service use patterns);
- Out-of-pocket expenses (as these relate to financial barriers to access).

7 Design and Structure of the NZHM

7.1 Continuous Data Collection, Analysis and Reporting

The proposed design for the NZHM is a continuous data collection, analysis and reporting process. The advantages of such a process over the conventional periodic survey approach are:

- Smoothing of annual expenditures, facilitating the MoH's budgeting process;
- Maintenance of survey infrastructure (instead of having to repeatedly dismantle and rebuild it eg retrain interviewers) with consequential efficiency gains;
- Greater public awareness may be achieved, translating into higher response rates;
- Seasonal effects mean that much health data has to be collected over a twelve month period anyway - the continuous design is simply an extension of this;
- Accumulation of sample over time is possible, allowing rates for sub-national populations (eg DHBs, ethnic minorities) to be calculated;
- Output is more timely and changes in trend can be detected more quickly;
- Flexibility and responsiveness to emergent information needs is enhanced;
- Consistency of data definitions and survey methods is easier to maintain, better preserving the integrity of the time series (and so making trend analysis possible).

7.2 Survey Frames, Sampling Protocols and Sample Sizes

Achieving the continuous design envisaged for the NZHM will only be possible if dual frame sampling is used, combining both telephone and face-to-face interviews when sampling households, and including schools and health related institutions in the frame when necessary. Some design effort will be required initially to develop such multi-frame surveys.

Computer-assisted telephone interviewing (CATI) is needed to reduce costs so that sample sizes can be increased as required by the continuous design. This design will have a spin-off benefit - a Rapid Response Facility - as will be discussed later. Experience with the 1996/97 Disability Survey indicates that eighty percent of general health interviews may be done by CATI (although this proportion is lower for some subgroups), with the remainder being done face-to-face (statistically combining the data can be done in ways that adjust for cross-mode bias). For more complex surveys (eg mental health, nutrition), only face-to-face interviewing (CAPI) is appropriate.

Household samples will provide the foundation of the NZHM. Sampling of the population resident in health-related facilities (rest homes, nursing homes, long-stay hospitals) will be added when required. Similarly, school-based sampling could be used to capture the twelve to fourteen age groups when appropriate. Younger children may be better accessed through household samples, as caregivers are needed as proxy respondents. Older adolescents (15+) are included in the general sample.

In summary, the NZHM will make effective and efficient use of dual sample frames and multiple sampling protocols. Sampling frames will have to be adjusted to adequately cover changes in New Zealand Demographics especially with Pacific peoples and possibly the Asian community in the future.

While precise numbers cannot be pre-determined, the General Health Survey (see below) is anticipated to require a sample size of approximately 7500 per wave. By contrast, Mental Health, Children's Health and Nutrition Surveys may have smaller sample sizes of about 5000 per cycle, which should also be adequate for each wave of the proposed Health-related Behaviour Survey.

7.3 From Static to Dynamic Surveys

The NZHM is designed to enable analysis of *transitions* (changes in state) as well as population (or subgroup) state distributions. For example, serial cross sectional surveys can identify increases in the prevalence of heart failure, but cannot provide estimates of incidence. Yet to make an appropriate policy response the MoH needs to know whether the emerging epidemic of heart failure results from increased incidence or reduced case fatality (longer survival of people with the condition, as a result of better treatment).

There are three ways of estimating transitions:

- Record linkage;
- Follow up;
- Modelling.

NZHM will request consent from all survey participants to passively link their information to subsequent health events (hospitalisation, cancer registration, diabetes registration, death) using the NHI. The Canadian experience is that over 95% of participants consent.

However, record linkage will not provide data on many transitions such as the incidence of and remission/recovery from many chronic diseases; movement from one level of disability to another; shift from high to low risk status or vice versa. There is no substitute for active follow-up and recontacting of survey participants although modelling can sometimes be used to estimate transition probabilities. Long-term follow-up of people is expensive and losses to follow-up inevitably occur, potentially biasing the results.

Fortunately, the equivalence of person-years (following 10 people for 10 years is the same as following 100 people for one year) means that, for population health monitoring purposes, use can be made of the relatively large sample sizes involved in surveys to limit the follow up period to as little as one to two years. The NZHM proposes to follow up participants in the GHS for 24 months only.

7.4 Structure of the NZHM

The structure of the NZHM is based on two criteria:

- Compatibility with the content requirements and design features discussed above;
- Building, as far as possible, on recent or current surveys to ensure a smooth transition from the 'old' to the 'new'.

On the basis of these criteria, an appropriate structure for the NZHM is as follows:

- General Health Survey (GHS);
- Age Specific Health Surveys (ASHS);
- Nutrition Survey (effectively separate child and adult subsurveys);
- Mental Health Survey; (MHES)
- Health Behaviour Survey;
- CATI Rapid Response Facility.

Surveys linked to the NZHM, but not part of the NZHM, include:

- Sport and Physical Activity Survey (Hillary Commission or its successor);
- Disability Survey (SNZ);
- Victimisation Survey (DOJ).

Each constituent survey is based on an existing survey, sometimes with some change in design and content. A brief description of each proposed survey is provided in Box 6. Phasing of the constituent surveys is described later.

Box 6 Structure of the New Zealand Health Monitor

The NZHM will consist of a number of component surveys carried out over a ten-year period. These are outlined below:

Proposed survey	Related recent or current survey	Information domains tapped	Design	Age range and Sample size	Frequency per 10 year cycle and special features
General Health Survey	NZ Health Survey 1996/97	Health outcomes Health causes Health services	Dual frame Household plus institutional (every second wave)	15+ - 5000 per wave 0-14 - 2500 per wave	5 waves (ie once every two years) Longitudinal dimension - half of each wave followed to or included in next wave
Age Specific Health Surveys	None	As above, but age appropriate for children/elderly	CAPI only Household plus school (for 12-14 year olds)	0-14 - 5000	Three times (ie three or four or yearly)
Mental Health Survey	Mental Health Epidemiology Study 2004	Mental illness (CIDI) Use of/need for mental health services	CAPI only Household plus institutional	15+ - 5000	Once (ie eight to ten-yearly)
Adult Nutrition Survey (subsurvey of the Nutrition Survey)	National Nutrition Survey 1997	Nutritional status Food security Health examination	CAPI only Household only	15+ - 5000	Once (ie eight to ten-yearly)
Children's Nutrition Survey (subsurvey of the Nutrition Survey)	Child Nutrition Survey 2002	As above, but for children	CAPI only Household and school (12-14 year olds)	0-14 - 5000	Once (ie eight to ten-yearly)
Health Behaviour Survey	National Drug Survey 1998, 2001 Fourth Form smoking survey (annual)	Drug use Sex and reproductive health Injury risk Suicide Sleep Stress	CATI and CAPI Household (CATI) and school (12-14 yrs, CAPI)	12 + - 2500 per wave	5 times (ie two yearly)
CATI Rapid Response Facility	None	Emergent information need (eg problem gambling)	CATI (re-contact recent GHS and HBS participants; administer to current sample; recruit additional sample; mix of above)	15+ not predetermined	As needed

Box 6 cont. Structure of the New Zealand Health Monitor

General Health Survey (GHS)

The General Health Survey forms the foundation of the NZHM. The GHS collects data from all age groups on health outcomes, causes and services. Although the GHS has depth only in the first domain (health outcomes/status), it allows cause and service variables to be linked directly to outcomes. More detailed information on child health and adolescent risk taking is collected through other surveys.

Data is collected for 12 months at a time in alternate years. Waves can therefore be easily combined to allow sub-national and subgroup comparisons. Dual frame sampling is used. Every second wave the population living in residential facilities is sampled as well as the household population. Sample size per wave is anticipated to be around 7500 (5000 adults and 2500 children).

The GHS alone includes a longitudinal dimension. All respondents are passively followed until death. In addition, half or all of each wave is actively followed up 24 months later on average, in the next wave. The follow up interviews are largely CATI and are shorter than the baseline interviews, since only limited data (relating to key transitions) need be collected.

Age Specific Health Surveys for (ASHS)

The survey programme includes two sets of age-specific surveys, one for children and one for the elderly. The Children's Health Survey (CHS) supplements the GHS for children. Issues of relevance to child health are given more attention (eg growth, development and socialization outcomes; family dynamics and relationships; parenting style). The Survey of Health Among the Elderly (SHAE) will focus on health issues specific to those over 65 years of age.

The sampling frame is entirely household, with questionnaires being administered exclusively by CAPI.

The survey is fielded at approximately five to six yearly intervals, and each wave is anticipated to have a sample size of about 5000, spread across infants, preschool children and school age children.

Mental Health Survey (MHES)

The mental health status of the population is measured in the GHS. The MHES is more accurately described as a mental illness survey. The MHES uses diagnostic instruments such as the CIDI and aims to collect data on common mental illnesses and use of mental health services. Data on physical health and independence, and on health risk and protective factors, is also collected to enable the information to be more comprehensively interpreted. There are close links to both the GHS and the HBS.

Box 6 cont. *Structure of the New Zealand Health Monitor*

MHES is fielded ten-yearly with a sample size of approximately 5000 – 6000 (adults only) using a dual household and residential facility sampling frame and CAPI data collection mode. It therefore includes the institutionalised population.

Nutrition Survey

The Nutrition Survey comprises separate adult and child components. Each component is fielded approximately ten-yearly (more frequently if possible). As well as nutritional information (nutritional status, household food security, stage of change) there is a physical examination component. The physical examination component comprises mainly simple anthropological measurements (weight and height) and physiological measurements (blood pressure, spirometry) and includes only minimal blood, saliva and urine sampling.

Sample size for each of the two sub-surveys (adult and child) will probably be about 5000. Waves will be eight to ten-yearly, using both household and school based frames (the latter for the 5-14 age group) with data being collected by CAPI and direct measurement.

Health Behaviour Survey

The Health Behaviour Survey will collect detailed information about health related risk and protective behaviours, including but not restricted to drug use (tobacco, alcohol, illicit and prescription drugs). Children aged 12-14 years and youth (15-24 years) will be over-sampled. Except for the child sample, CATI will be the mode of data collection from a household sample.

The survey will collect data over a 12-month period (because of seasonal effects) every second year with waves being pooled to increase sample size as required. Each wave will probably involve about 2500 respondents. Longitudinal follow-up of some or all the sample is desirable to enable monitoring of behaviour initiation and cessation rates, but has not been included in the plan at this stage.

Rapid Response Facility

The CATI infrastructure will enable additional data to be collected at short notice to meet any emergent information need. Turnaround time from need identification to provision of a report of three months is envisaged. Data could be collected through an appropriate mix of:

- Callback of respondents who have recently (past 6 months) completed either the GHS or the HBS;
- Inclusion of additional questions in the survey instrument being administered to the current sample of GHS and/or HBS respondents;
- Recruitment of additional sample (eg from a pool of telephone numbers of people who have been pre-contacted and agreed to participate if called upon).

8 Analysis of NZHM data

8.1 Data Integration

The NZHM is envisaged as providing annual analysis of data. Statistical methods are available to continually update (multivariable) analyses as fresh data accumulates. In the case of the proposed GHS and HBS, waves can be pooled as required to permit regional and subgroup estimates.

Much of the analysis will be underpinned by data integration, both vertically and horizontally. The longitudinal design of the GHS (both in terms of active follow-up and passive record linkage) allows estimation of incidence and remission/recovery rates, as well as of the more usual cross sectional prevalence rates. This analysis therefore provides a dynamic rather than merely a static picture of health, and so provides a foundation for forecasting - a key input into evidence-based planning.

Horizontal integration of survey-with-survey and survey-with-nonsurvey datasets increases the range and scope of explanatory variables available for inclusion in statistical models. This helps to disentangle the complex interactions between multiple determinants, varying risk factors, and multiple outcomes (co-morbidities and co-disabilities), acting both simultaneously and with varying lags.

8.2 In-House Analytic Capacity

The NZHM will be analysed using PHI's in-house analytic capability. This capability (as opposed to contracting out the analytical work) confers the following advantages:

- Analytic plan can be fed forward into survey design, so ensuring that the design (eg sample size) is appropriate for the policy questions that need to be answered;
- Results can be interpreted in the wider context of health information and MoH policy;
- Responsiveness to MoH and DHB analytic needs can be enhanced;
- MoH/DHBs can be supported in responding to queries from politicians, the media and the public;
- Use of survey data in the broader context of spatial analysis, modeling and forecasting – as required to fulfill PHI's mandate to monitor the health of the population (including inequalities, trends, and causes) – would be more readily achieved;
- Liaison with DHBs so that relevant, useful information can be provided as required;
- Close relationships with health policy (both personal and public health directorates) so that survey outputs can be fed effectively into policy and programme development work.

9 Phasing of the NZHM: the Ten-year Cycle

The NZHM is planned to operate over a ten-year cycle. Phasing is set out below:

Survey	Year									
	1	2	3	4	5	6	7	8	9	10
General Health Survey (GHS)	*		*		*		*		*	
Health Behaviours Survey (HBS)		*		*		*		*		*
Age Specific Health Surveys (ASHS)		*			*				*	
Nutrition Survey (NS)				*						
Mental Health Survey (MHS)						*				

Notes:

General Health Survey (GHS)	Up to 80% CATI, 20% CAPI Includes institutions every second wave
Health Behaviours Survey	100% CATI for household-based sample 100% CAPI for school-based sample
Age Specific Health Surveys	100% CAPI
Nutrition Survey	100% CAPI
Mental Health Survey	100% CAPI

10 Transition to the Standard Cycle

The NZHM programme requires a planned transition from the current ad hoc to the coordinated survey programme.

A managed transition, as outlined below, which builds on surveys currently in the field, or at an advanced stage of planning.

This process is intended to provide a smooth transition to the New Zealand Health Monitor with no disruption to current work. Surveys currently in progress (or in an advanced stage of planning) become the first surveys of the NZHM (whose initial cycle therefore departs slightly from the standard cycle illustrated below:

New Zealand Health Monitor Transition Plan

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Survey																				
(Field work)		<i>NZHS</i>	<i>NZHS</i>		GHS		GHS*		GHS		GHS*		GHS		GHS*		GHS		GHS*	
	<i>4th FS</i>	<i>4th FS</i>	<i>4th FS</i>																	
				HBS		HBS		HBS		HBS		HBS		HBS		HBS		HBS		HBS
	<i>D & A</i>		ASHS			ASHS				ASHS			AHS			ASHS			ASHS	
		<i>CNS</i>						NS												
			<i>MHES</i>	<i>MHES</i>										MH						

KEY

NZHS	New Zealand Health Survey
4th FS	Fourth Form Smoking Survey
GHS	General Health Survey
GHS*	General Health Survey which includes institutions
HBS	Health Behaviour Survey
CNS	Children's Nutrition Survey
NS	Nutrition Survey
MHES	Mental Health Epidemiology Study
MH	Mental Health Survey
ASHS	Age Specific Health Surveys
D & A	Drug and Alcohol Survey

Note:

Italics denotes surveys current planned and funded

11 Funding and Management of the NZHM

11.1 Funding

The NZHM is designed to fit within the envelope of \$3 million per year assured by ET (from the Public Health NDOC).

11.2 Governance

No change in governance is proposed from that agreed by ET in May 2001 (ie Population Survey Reference Group with representatives from all directorates and DHBs; recommendations of Population Survey Reference Group signed off jointly by DDG Sector Policy and Public Health).

11.3 Management

PHI has been given responsibility by ET for the day-to-day management of the NZHM. Despite outsourcing the actual fielding of component surveys to one or more specialised survey provider, day-to-day management is a complex task, involving most if not all of the following critical activities:

- Setting specific objectives for each phase and component of the integrated survey programme;
- Selecting, customising and field testing the survey instruments;
- Maintaining and updating data dictionaries, classifications and definitions, data standards and datasets;
- Record linkage and data integration;
- Assisting survey provider(s) with sample frames, protocols and sample sizes;
- Supporting survey provider(s) as issues arise during fielding (eg additional publicity may be required to boost response rate);
- Preparing datasets for analysis;
- Conducting ongoing analyses of the data, sometimes in collaboration with academic researchers;
- Preparing and publishing reports on the web and in hardcopy format;
- Maintaining relationships with survey provider(s), including developing and managing contracts.

These functions represent a major ongoing commitment for PHI and an essential input into PHI's other tasks (surveillance, spatial analysis, modeling and forecasting) and hence to population health monitoring and evidence-based decision making in the health sector.

11.4 Survey Providers

Three options are suggested as possible survey providers:

- Statistics New Zealand;
- University or market research firms;
- Competitive contracts for individual surveys.

Statistics New Zealand (SNZ) offers some advantages: the Household Labour Force Survey provides a ready-made infrastructure for the household component of the NZHM; a pool of highly trained interviewers is available; survey expertise and quality control are unsurpassed in New Zealand; the Statistics Act 1975 provides important protections; SNZ surveys have high public and political acceptability. Disadvantages include high cost and concerns about access to data (which should be resolvable).

There are a number of university groups who also have considerable experience and expertise with complex survey design, fielding and analysis. Advantages of working with these groups would include superior understanding of the health context and more opportunities for joint analytical work. For surveys involving specialised instruments or methods (the Nutrition Survey and possibly the Mental Health Survey) there may be no realistic alternative provider. Disadvantages may be cost and lesser certainty of meeting turnaround times and response rate targets.

Some of the leading market research firms may be able to provide the quality, consistency and reliability required to undertake at least a part of the NZHM. In particular, CATI methods – especially in the context of the HBS – may be appropriate for such a provider. The main advantage would be the relative low cost.

Competitive tendering and contracting for each component survey (or wave) would create high transaction costs and risk inconsistency of methods over time, so potentially compromising the time series.

Instead, the best option may be a consortium approach combining both SNZ and university providers, and even a market research company, for appropriate segments of the NZHM. The key requirement would be to maintain the same set of providers over time to build up experience and retain consistency for the time series.

12 Next Steps

12.1 Summary

The purpose of the NZHM is to improve the coverage, scope, timeliness and dynamic nature of survey-based health information and make this information more relevant and useful to both the MoH and the DHBs.

These aims will be achieved by combining the current ad hoc, stand-alone surveys into an organised and integrated programme capable of operating over the long term and so producing useful trend (time series) information. The continuous design will allow sample accumulation, so permitting sub-national (DHB) and subgroup analysis. Clustering of DHBs will also help achieve this.

The longitudinal design of the GHS will enable a dynamic rather than merely a static picture of health to emerge. While seeking to ensure the continuity and preserve the integrity of the time series, flexibility and responsiveness to emergent information needs is also built in, through the CATI facility. Innovative dual frame sampling designs, involving more extensive use of CATI while still retaining CAPI where necessary, enable this added value to be achieved without increase in total programme cost.

12.2 Where to From Here?

A number of issues will need to be addressed in more detail. It is suggested a detailed implementation plan be written to supplement this strategic plan.

This implementation plan will need to address such issues as

- Consultation plan;
- Approval processes;
- Dual frame survey sampling protocol;
- Data integration protocol;
- Detailed estimation of costs and sample size requirements;
- Negotiation with potential survey providers;
- Strengthening of programme management and analytical capacity within PHI.

12.3 Acknowledgments

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