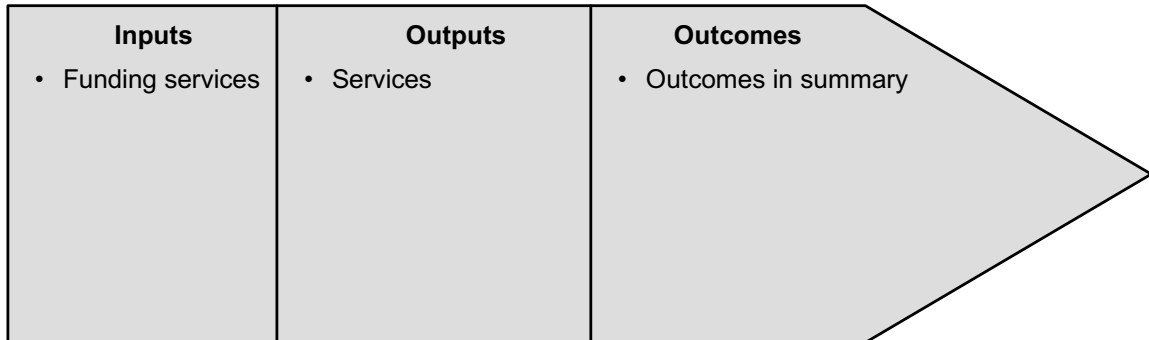


# Chapter 4: Health and Disability Status – Selected Health Priorities

## Obesity, nutrition and exercise



This section focuses on the prevention of the disease, disability and death associated with poor diet, low levels of physical activity and obesity.

### Nutrition

Poor nutrition is important in the development of cardiovascular disease, cancer and many other diseases. Improving nutrition in New Zealand would make a substantial contribution to reducing inequalities in health, as well as reducing morbidity and mortality.

Achieving good nutrition is a complex matter, influenced by many social, economic, and environmental factors. The Ministry of Health's Food and Nutrition Guideline series provides advice on nutrition recommended for a healthy lifestyle.

#### Iodine status

New Zealand soils are low in iodine, so all locally produced foods are poor sources of iodine.<sup>48</sup> Iodine deficiency can result in goitre, and in severe cases stunted growth and mental retardation in children. In the late 1800s and early 1900s, goitre was very common. Goitre had virtually disappeared by the 1950s, following the fortification of table salt with iodine.

Since the late 1980s intakes of iodine have decreased and may be reaching levels inadequate for optimum health. There are at least three reasons for this:

- the dairy industry has replaced iodine-containing cleaning compounds (a previous source of iodine in people's food) with other compounds
- there has been an increase in consumption of ready-to-eat and pre-prepared foods, which are low in iodine as almost none of the salt used in processed foods is iodised
- people are generally adding less salt to meals.

<sup>48</sup> Iodine is a trace element essential to human health.

## **Selenium status**

Selenium is an essential trace mineral for humans and animals. New Zealand soils are generally low in selenium, and as a result dietary intakes and body selenium levels have been low. However, over the past decade intakes have increased substantially in the North Island because of an increase in imported high-selenium wheat for use in bread and flour. In the South Island selenium intakes have remained lower as the wheat is mostly grown locally, and is therefore low in selenium.

To date there is no proven link between our low selenium levels and intakes to adverse health effects. There is uncertainty about the optimal dietary intake of selenium and this remains an active area of research, especially in relation to selenium and cancer.

## **Folic acid intake**

Inadequate folate intake by women before conception and during early pregnancy has been linked to the birth of infants with neural tube defects. Intakes of dietary folate in New Zealand remain low. Addition of folic acid to the diet reduces the incidence of neural tube defects. In addition, preliminary studies indicate that increased intakes of folic acid may also reduce the risk of some other diseases.

It is recommended that women take folic acid for four weeks prior to conception and for 12 weeks after conceiving to reduce the risk of neural tube defects in infants. However, about half of pregnancies are unplanned, meaning supplementation prior to conception will not occur.

## **Continuing action on iodine, selenium and folic acid**

The Ministry of Health continues to monitor iodine and selenium intakes. The Ministry also works closely with a number of university researchers who are monitoring biochemical selenium and iodine status and investigating any possible links with adverse health outcomes. Later this year it is expected that recommended dietary intakes will be reviewed.

## **Physical activity**

One-third of New Zealand adults are not physically active at levels sufficient to benefit their health. Thirty minutes of physical activity of moderate intensity on most, if not all, days of the week can benefit health (Ministry of Health 2001a).

In addition to the obesity-related issues discussed below, physical activity is important in the prevention of osteoporosis, falls in older people, and depression and anxiety.

## **Obesity**

Levels of obesity in New Zealand have been increasing rapidly during the last decade (a more than 50% increase in adult obesity).<sup>49</sup> Driving what has been called the 'obesity epidemic' (WHO 2000) are high-energy intakes and decreased levels of physical activity. We live in an environment that encourages us to eat more and exercise less.

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<sup>49</sup> The National Nutrition Survey found obesity levels had increased from 11% in 1989 to 17% in 1997 (Russell 1999). 'Obese' means a body mass index (BMI) greater than 30 for New Zealand European/other, or greater than 32 for Māori and Pacific peoples. BMI is a frequently used measure of body size. It is calculated by dividing weight in kilograms by height in metres squared.

The health impact of obesity is set to escalate, with the overall prevalence of obesity estimated to increase from 17% in 1996 to as much as 29% in 2011 (Ministry of Health 2002).

### **What is causing the obesity epidemic?**

There have been increases in levels of obesity in many industrialised countries. In the US the rise in obesity has been noted since the 1980s, with the recognition of a crisis since the 1990s. The speed with which the prevalence of obesity has increased has led the World Health Organization to describe it as an epidemic (WHO 2000). Many developed (as well as some developing) industrialised market economies share environments that encourage people to eat more and exercise less.

Obesity is the result of an imbalance between energy input and output. Although some people are more genetically susceptible to obesity than others, the rapid increase in obesity during the past two decades has occurred too quickly to be explained by genetic changes. Most experts agree that the principal causes of the obesity are a combination of sedentary lifestyles and excess consumption of energy-dense foods and drinks.

Food choices are influenced by food industry advertising. International data suggest that soft drinks may be displacing milk consumption among children and adolescents (French 2001). In New Zealand, male and female 15–24-year-olds derive 8% and 10% of their total energy intake respectively from non-alcoholic beverages (Russell et al 1999).

People are increasingly eating in fast-food outlets and restaurants, and the use of pre-prepared meals and snacks is increasing. Many manufactured foods contain hidden fat, salt and sugar, a technique used by food manufacturers to increase palatability (WHO 2000). The portion size of 'away from home' foods has also increased (French 2001).

The New Zealand Health Survey found 39% of adults to be physically inactive and 15% to be sedentary (Ministry of Health 1999). Sedentary leisure activities are popular. Television viewing and computer use often consume a lot of time, depriving people of time for physically active recreational activities and exposing them to unhealthy food and beverage advertising.

For many people with sedentary jobs in an urban setting there are few incentives for physical activity as part of daily life. For example, building designs often encourage use of elevators rather than stairs; public transport provisions and a lack of safe cycling and walking routes encourage commuting to work by car.

Socioeconomic factors and cultural-historical factors both contribute to the distribution of obesity. Although these dimensions are inextricably intertwined in people's lives, it is helpful to separate them conceptually.

### **Socioeconomic factors**

The availability and price of healthier foods such as fruits and low-fat cuts of meats may be relative barriers to people with low incomes. The National Nutrition Survey found that 22% of respondents were currently trying to reduce the consumption of high-fat foods, and 14% were trying to increase the amount of fruit eaten. Cost was one of the frequent difficulties cited by those trying to increase their fruit and vegetable intake (Russell et al 1999). In addition, access to supermarkets may be low through lack of transport.

Those living in more deprived areas may have fewer safe places for children to play and for adults to walk (in terms of crime, lighting and traffic). Poorer neighbourhoods may have less space suitable for adolescents to play sports, and fewer recreational facilities. This is an illustration of the cross-sectoral impacts on health status.

### **Cultural and historical factors**

Māori and Pacific peoples have high levels of obesity. This is contributed to by being over-represented at the lower end of the socioeconomic spectrum compared to other New Zealanders. In addition, cultural and historical factors are associated with decreasing levels of physically demanding work, and changes in diet.

Māori have experienced the expropriation of land and disruption of social structures. Traditional foods have often been displaced by a European diet. The move away from a rural agriculturally based society, especially since the 1960s, has meant a shift to a predominantly automobile-based environment less conducive to physical activity.

The diverse Pacific communities in New Zealand share a migration and assimilation history that often includes urbanisation and dislocation of social structures. In both Māori and Pacific cultures, food sharing has an important role in tying people together. However, it appears that the traditional Pacific association of obesity with attractiveness and social status is being displaced with physical attractiveness now related to smaller body size (WHO 2000), and the traditional attractiveness of obesity is not thought to be an important explanatory factor (McMurray and Smith 2001).

### **Health effects**

Unhealthy diet, physical inactivity and obesity are each important contributors to the development of three major diseases, namely diabetes, cardiovascular disease and cancers.

### **Type 2 diabetes**

The risk of developing type 2 diabetes rises steeply with increasing body fat. Improvements in diet and increases in physical activity, and the associated weight loss, have been found to reduce the risk of developing diabetes in at-risk individuals, and are likely to also have an important role for those with established diabetes (Pinkney 2002).

An increasing level of obesity is the principal reason for the increase forecast<sup>50</sup> in diabetes (Ministry of Health 2002g).

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<sup>50</sup> Close to one-third of the forecast increase in diabetes prevalence is due to increasing levels of obesity. A smaller independent driver of increasing levels of type 2 diabetes is declining levels of physical activity (modelling diabetes).

Diabetes is a cause of cardiovascular disease,<sup>51</sup> blindness, kidney disease, and vascular insufficiency of the legs, sometimes leading to amputation of lower limbs.

It is estimated<sup>52</sup> that in 1996 5.5% of deaths were due to diabetes. Māori and Pacific peoples have much higher mortality due to diabetes: 20% for Māori and 16% for Pacific peoples (Ministry of Health 2002g). People with diabetes have shorter life expectancies than people who do not have diabetes (Europeans seven years, Māori and Pacific peoples 12–13 years shorter life expectancy).

Further increases in diabetes are expected. Type 2 diabetes is now being diagnosed in overweight and obese adolescents where it had previously been mostly confined to adults.

### Cardiovascular disease

Unhealthy diet, physical inactivity and obesity contribute to the development of cardiovascular disease in the following ways.

- Saturated fat intake is an important modifiable determinant of high blood cholesterol, which is a key risk factor for ischaemic heart disease and ischaemic stroke.
- Vegetables and fruit protect against cardiovascular disease by being low in energy (which may help prevent weight gain), rich in antioxidants (which reduce the oxidation of cholesterol) and high in soluble fibre (which has a favourable effect on blood lipids).
- High intakes of salt are associated with increased blood pressure, leading to an increased risk of stroke and ischaemic heart disease.
- Physical activity protects against cardiovascular disease by increasing cardiovascular fitness, improving blood lipid profiles and insulin sensitivity (associated with reducing blood pressure), and helping to control body weight.
- Obesity is often associated with hypertension, unfavourable blood lipids, diabetes, and other effects that in turn increase the risk of cardiovascular disease.

Although cardiovascular mortality has been decreasing steadily since the 1960s, it remains the leading cause of death among New Zealanders. The decrease has been attributed to improved medical management and reductions in risk factors such as tobacco smoking, blood cholesterol and blood pressure. It is likely that the decreasing trend in cardiovascular disease mortality will slow or reverse if the prevalence of obesity and diabetes continues to increase.

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<sup>51</sup> Cardiovascular diseases account for approximately three out of every four deaths in people with diabetes.

<sup>52</sup> The number of deaths with diabetes as the underlying cause must be estimated, as this information is not provided by death certificates. For example, deaths of people with diabetes certified as due to heart disease could be considered to be ultimately due to diabetes (which increases the risk of heart disease).

## Cancer

The three factors of nutrition, exercise and obesity are all significant in the development of cancer. There is now convincing evidence indicating that inadequate consumption of vegetables and fruit is a risk factor for aero-digestive tract cancers, as well as gastric, colorectal and lung cancer.<sup>53</sup> Physical inactivity increases the risk of breast and colon cancer (IARC report, **Weight control and physical activity**, 2002). And being overweight or obese increases the risk of cancers of the colon, post-menopausal breast, endometrium, kidney and oesophagus (IARC).

### Funding services to combat unhealthy diet, physical inactivity, and obesity

Funding of obesity, nutrition and physical activity public health activity makes up about 4% of all public health funding for 2001/02.

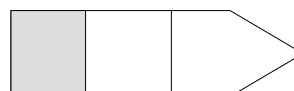
Approximately 51% of funding in 2001/02 for services to address obesity, poor nutrition and physical inactivity was directed to District Health Boards' (DHBs') public health units.

**Table 4.1:** Nutrition-related public health funding (GST incl.), 2001/02

	Actual dollars	Percentage	No. of contracts
National	922,000	15	6
Regional	3,553,000	57	20
District	922,000	15	16
Local	885,000	14	18
<b>Total</b>	<b>6,283,000</b>	<b>100</b>	<b>60</b>
<b>Type of provider</b>			
Public health units of DHBs	3,175,000	51	25
NGOs	1,757,000	28	15
By Māori for Māori	1,239,000	20	18
By Pacific for Pacific	111,000	1	2
<b>Total</b>	<b>6,283,000</b>	<b>100</b>	<b>60</b>

Note: Financial data rounded to nearest \$1000.

<sup>53</sup> The Ministry of Health is currently determining the burden of cardiovascular disease, diabetes and cancer attributable to overweight/obesity, high blood cholesterol, high blood pressure, low vegetable and fruit intake and physical inactivity. Results will inform priorities for actions arising from **Healthy Eating – Healthy Action**.



## **Services to combat unhealthy diet, physical inactivity and obesity**

Efforts to address obesity, poor nutrition and physical inactivity include central regulatory and inter-departmental activity, as well as work at a local level. Action at all levels is appropriate because lifestyles are determined more by societal factors and the environment within which choices are made than by individual will.

### **Strategy**

To improve nutrition, increase physical activity and reduce obesity are three of the 13 priority areas for population health in the **New Zealand Health Strategy** (Ministry of Health 2001a). Nutrition also has relevance to four other population health objectives: to reduce the incidence and impact of cardiovascular disease, diabetes, cancer and oral health. Toolkits providing guidance to DHBs on the most effective ways they can implement aspects of the strategy have been developed for each of the 13 priority areas.

The New Zealand Health Strategy objectives for nutrition, physical activity and healthy weight are being further developed through a consultation document, **Healthy Eating – Healthy Action** (Ministry of Health 2002b).

### **Recommended dietary intakes**

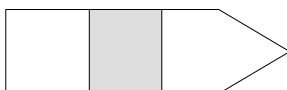
In order to monitor the adequacy of a population's nutrient intakes and provide informative food labelling, recommended dietary intakes are needed. Such standards need to be up to date, relevant for the population of the country and based on current scientific knowledge. New Zealand has completed technical reports proposing recommended dietary intakes for selenium and iodine.

### **Monitoring**

Data on the prevalence of obesity in the population and other information regarding nutrition and physical activity can often only be obtained through national surveys. The Ministry of Health's 10-year strategic plan for a co-ordinated national population survey programme, the New Zealand Health Monitor, proposes that the New Zealand Health Survey be conducted every two years and nutrition surveys be conducted every 8–10 years.

Surveys currently under way include the following.

- The Children's Nutrition Survey 2002: this survey is the first national survey of children's (5–14 years) nutrition. The survey includes a 24-hour dietary recall of food and nutrient intakes; measurement of height, weight, and waist skin-fold; and biochemical measures of nutritional status such as cholesterol, iron, zinc and iodine. There are also questions regarding physical activity levels, household food security, and self-reported dental health status. Data will be collected by December 2002, and results are expected in 2003/04.



- The New Zealand Health Survey 2002/03: this survey is similar to the 1996/97 New Zealand Health Survey, but has been expanded to include actual measurements of height and weight so that the prevalence of overweight and obesity can be compared to the 1997 National Nutrition Survey. The survey also includes questions on nutrition (vegetable and fruit consumption) and leisure time physical activity, as well as factors related to nutrition and physical activity such as high blood pressure, high blood cholesterol, heart disease, stroke, diabetes, osteoporosis and cancer. Data collection will begin in late 2002, and results are expected in 2003/04.

Agencies other than the Ministry of Health also contribute survey data. For example, Sport and Recreation New Zealand is altering the physical activity component of their New Zealand Sport and Physical Activity Survey to provide a better measure of the prevalence of physical activity in the New Zealand population. Information will be collected on activity performed in a wide variety of settings.

Monitoring of nutrient intakes requires knowledge of the nutrient composition of the foods and beverages consumed by survey respondents. The Ministry of Health contracts the Institute of Crop and Food Research to develop and maintain the New Zealand Food Composition Database.

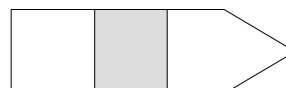
### **National health promotion campaigns**

National campaigns include green prescriptions and the Pick the Tick programme.

A green prescription is a primary care practitioner's written advice to a patient to be physically active as part of the patient's health management. As at May 2002:

- 65% of GPs were prescribing green prescriptions
- green prescriptions were prescribed mainly to women (74%), and mainly to lose weight (60%); walking was the most commonly prescribed activity (83%)
- six months after it was prescribed, 49% were still following the green prescription and 52% were more active than before their green prescription
- over 40% said they felt better, had lost weight, were fitter/stronger and more mobile
- 59% had changed their food and beverage intake since being given a green prescription.

The National Heart Foundation introduced the Pick the Tick nutrition labelling programme in 1991. Food manufacturers whose products meet defined nutritional criteria may display the logo on the packaging of approved products. The programme was found to have influenced food companies to reduce salt in breads, breakfast cereals and margarine in order to participate in the programme (Young 2002). About 60% of shoppers used the tick in assisting them to make food choices.



### Strengthening community action

Many local policy decisions impact on health, and are influenced by health sector advocacy, including:

- public health units in DHBs and non-governmental organisations (NGOs) monitor local government policy for impact on health, and, for example try to influence town planning (such as advocating safe cycle routes)
- the National Heart Foundation promotes the use of the **Food and Nutrition Guidelines** in schools, early childhood, the food industry and workplace settings.

### Developing personal skills

In addition to modifying environmental factors, the development of personal skills is an important component of the prevention of obesity. The following programmes take this approach.

- A breastfeeding advocate has been appointed in Auckland to promote breastfeeding in the region, with some national work as well.
- Māori and Pacific providers report strong interest from communities in regular hikoi and aerobic sessions that cater to different levels of participant fitness, with groups of up to 80 attending regularly.
- The Healthy Heart Award, developed by the National Heart Foundation for use in early childhood centres, is now being implemented nationally. The programme includes the development of nutrition and physical activity policies within a centre, professional development for teachers, menu guidelines, curriculum-linked activities and parent and whānau education. It is an example of an integrated, broad approach that reaches adults through their children.
- The walking school bus, an Energy Efficiency Conservation Authority initiative, promotes groups of students walking to school. For example, in the Wellington and Hutt Valley region, 10 walking school buses have been established this year.
- Hikoi 2002 encourages walking for health benefit. Modelled on the National Heart Foundation's Stroll, Strut, Stride programme, the Hikoi programme has been going for five years. Last year the number of teams participating increased from 50 to 82, with approximately 10 members per team.

### Primary care management of diabetes

Type 2 diabetes, which can be considered a complication of obesity, can in turn cause disabling complications. Preventing the adverse outcomes associated with diabetes is the aim of the Get Checked programme. The programme includes free annual checks from GPs and primary care nurses (through primary care organisations, including Māori or Pacific provider organisations).



People with diabetes are checked for risk factors and complications. Individual treatment plans, including referrals to a dietician and ophthalmologist where appropriate, are updated.

### Outcomes in summary

Many different measures are needed to build up a picture of developments in obesity, nutrition and physical activity. Measures reported in Ministry of Health publications<sup>54</sup> include obesity and overweight, prevalence of diabetes, blood cholesterol, percentage participation in physical activity, adequate vegetable and fruit consumption, dietary fat intake, and diabetes-related lower-limb amputations. A comprehensive picture is not provided by any one measure.

Obesity is the focus here, because it can be regarded as a summary measure reflecting both nutrition and physical activity.

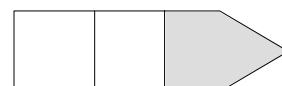
Obesity levels have increased by 50% between 1989–90 and 1997. In 1989–90 obesity was found in 10% of males and 13% of females (Hillary Commission 1991). In 1997 15% of males and 19% of females were obese (Russell et al 1999).

The 1997 National Nutrition Survey found a strong relationship between obesity and socioeconomic status as measured by NZDep96<sup>55</sup> for females. This is shown in Figure 4.1. The relationship was not significant in males.

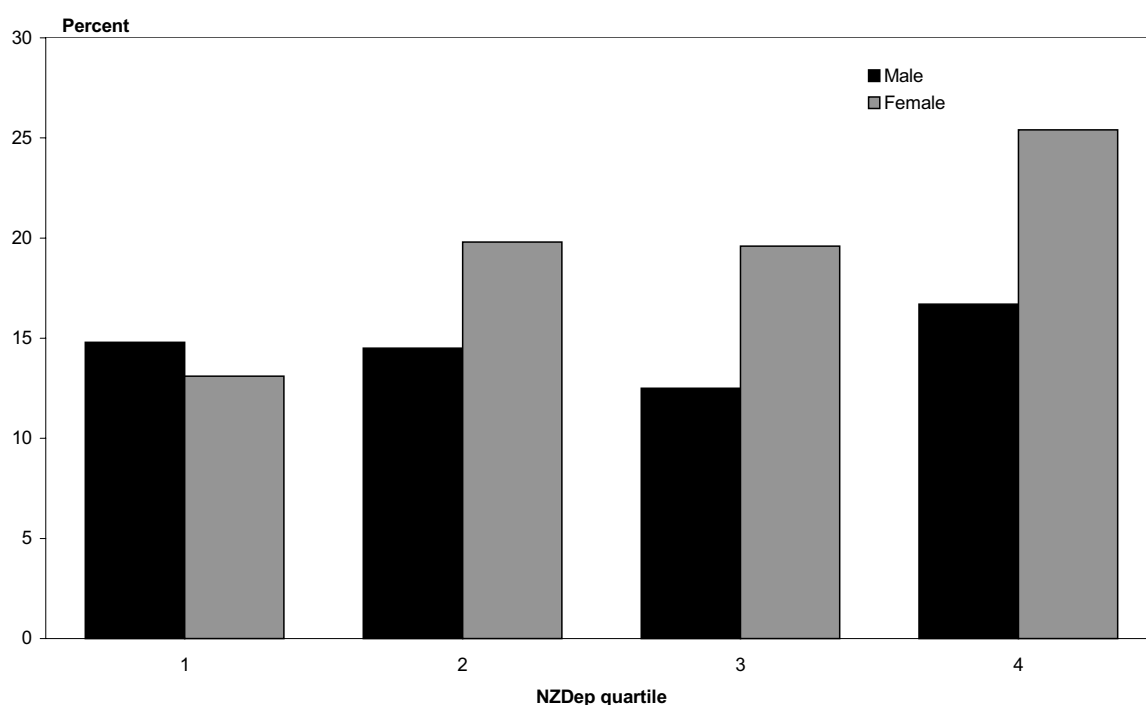
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<sup>54</sup> For example, **Progress on Health Outcome Targets, An Indication of New Zealanders' Health, NZ Food: NZ People, Taking the Pulse**, and the various DHB toolkits – cancer control, cardiovascular, diabetes, nutrition, obesity, oral health, and physical activity.

<sup>55</sup> NZDep 96 measures the level of deprivation in the area in which a person lives (Salmond et al 1998).



**Figure 4.1:** Percent of adults (age over 15) obese, by NZDep quartile, 1996/97



Source: Ministry of Health 1999

Note: Rates are adjusted for age and sex. NZDep quartile 1 represents the least deprived areas with 25% of the New Zealand population and NZDep quartile 4 represents the most deprived areas with 25% of the New Zealand population.

In 1997 27% of Māori males and 28% of Māori females were obese. For Pacific peoples, 26% of males and 47% of females were obese. European and Other males had 13% obesity, and 17% of females were obese.

**Table 4.2:** Percentage of adults (age over 15) obese, 1997

	Māori (RR)	European/other	Pacific people (RR)	Total
Male	27.0%	12.6%	26.2%	14.7%
Female	27.9%	16.7%	47.2%	19.2%

Source: Ministry of Health 1999

Notes: Rates are adjusted for age and sex. RR = risk ratio.

## Summary

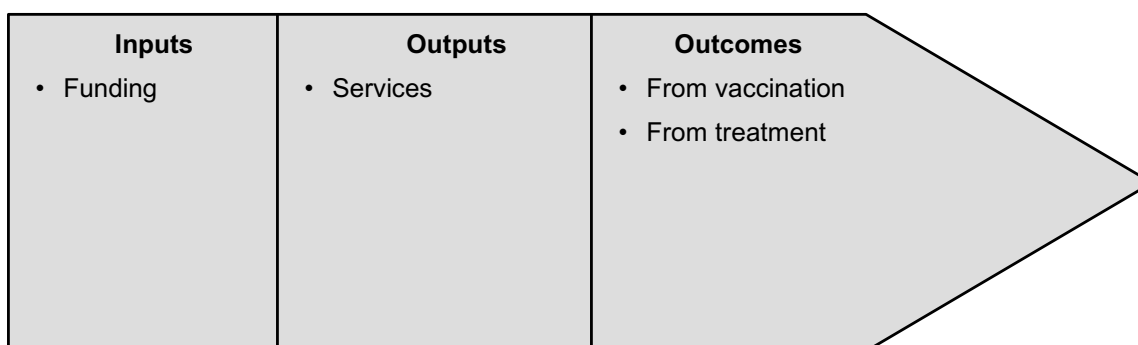
Poor nutrition, low physical activity levels and the resulting high rates of obesity are expected to lead to increasing rates of disease, disability and death through type 2 diabetes, cardiovascular disease and some cancers. In addition, nutrition and physical activity impact on health independent of obesity.



Remedying these problems must include ongoing nutrition and physical activity monitoring, and responding to emerging issues. Health sector activities aimed at promoting healthy eating and healthy action are also required.

For action to be effective, the drivers of the so-called obesity epidemic must be addressed. Health sector leadership must facilitate national and local policies conducive to healthy eating and physical activity by engaging government departments, regional and city councils, and other sectors such as education and the food industry.

## Meningococcal disease



### Introduction

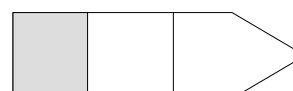
New Zealand has been experiencing an epidemic of meningococcal disease since 1991. Meningococcal disease is New Zealand's most serious communicable disease problem.

Meningococcal disease causes more hospitalisations and fatalities than any other notifiable disease. In approximately 10–20% of cases, serious life-long disability (including loss of limbs, brain damage, deafness and skin damage requiring massive skin grafts) will occur. On average in New Zealand 4–5% of cases will result in death. Research indicates that many meningococcal disease survivors also suffer long-term disability across all health, developmental and behavioural categories, especially in the areas of learning and neuromotor function.

New Zealand has been experiencing an epidemic of a strain of group B meningococcal disease since 1991, for which a candidate vaccine (MeNZB) is being clinically trialed for use in an immunisation campaign. Immunisation programmes have successfully controlled previous outbreaks of group A and C meningococcal disease.

It is estimated that out of every 100 people who contract meningococcal disease:

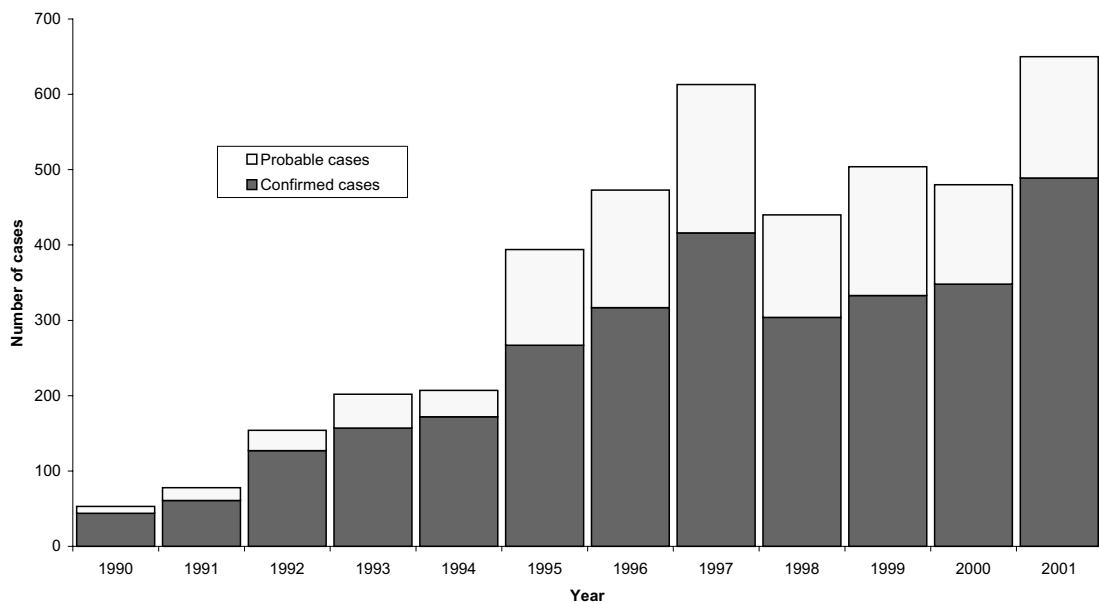
- 60 survive undamaged
- 5 die
- 5–20 have severe brain damage, lose limbs or suffer deafness
- 25 suffer long-term learning or psychological effects.



The New Zealand rate of disease is approximately 12 times the rate for most other developed countries. This is expected to continue for at least a further 10 years if left unchecked.

To date there have been 4688 recorded cases, including 197 deaths, since the epidemic began (to 25 October 2002). The incidence of the disease in New Zealand last year was 17.4 per 100,000. The epidemic shows no sign of abating and is very high again this year. To 25 October 2002, 487 cases have been reported, with 13 deaths, which is similar to the rates recorded at the corresponding period in 2001. Figure 4.2 shows the trend.

**Figure 4.2:** Confirmed and probable meningococcal disease cases, 1990–2001



Source: Institute for Environmental Science and Research Limited (ESR), Ministry of Health

Pacific peoples and Māori have high meningococcal disease rates compared to European/ others: about 2.5 times higher for Māori and five times higher for Pacific peoples. In all ethnic groups rates of disease were particularly high among those under five years of age.

Meningococcal disease is a national issue, although areas consistently worst hit during the epidemic are in Northland, Auckland and the Bay of Plenty. Māori and Pacific peoples make up a significant part of the population in these areas.

### Cost of meningococcal disease, and funding services in response

Over the last 10 years meningococcal disease has resulted in high costs to the health system, some of which are ongoing due to the long-term effects of the disease. Up to 25 October 2002 4688 cases had been recorded. About 98% of cases need hospitalisation. Each case spent between two and 50 days in hospital and cost an average of \$10,000 in direct hospital treatment.



It is estimated that the current and future treatment and rehabilitative costs will total \$300 million in today's dollars, discounted at 5% per year over the next 80 years. Corresponding costs to society (which include loss of production from patients and caregivers) are estimated at around NZ\$630 million. Costs to society do not include the human cost due to the deaths and loss of quality of life from the long-term effects of the disease. Internationally, mass vaccination campaigns targeting under-20s have been shown to control similar epidemics. The consequences of not proceeding with such a campaign include continued deaths, illness, long-term disability and ongoing societal and tertiary health costs of the disease for at least another 10 years.

Cabinet allocated funding in 1997 of \$6 million to carry out clinical trials to assess an appropriate vaccine. The majority of this funding has been used since 2000 to select a manufacturer to produce and clinically trial a 'tailor-made' vaccine against the epidemic strain of meningococcal disease present in New Zealand.

In December 2001 Cabinet appropriated up to \$200 million to cover completion of the clinical trials and implementation of a mass vaccination campaign, unless clinical trials prove unsuccessful or regulatory approval is not given.

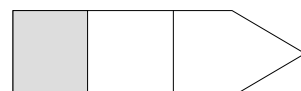
Since the start of 1998 approximately \$160,000 has been spent on health education resources and professional resources for GPs and other health professionals. As part of the planned roll-out of the group B meningococcal vaccine, up to \$6.7 million will be spent on a comprehensive communications and advertising campaign to inform, educate and encourage involvement in the target population.

### **Services to combat meningococcal disease**

A national prevention and control plan for meningococcal disease has been in place since 1995 and has a number of components:

- intensified epidemiological surveillance
- promoting public awareness to encourage early medical intervention
- promoting professional awareness to encourage early diagnosis and treatment
- prevention of secondary cases by notification, contact tracing and offering prophylactic antibiotics
- a three-year case control study to identify modifiable risk factors (completed 2001)
- a search for a suitable monoclonal serogroup B meningococcal vaccine.

Ongoing surveillance, awareness by professionals and the public are integral to reducing the ill effects and mortality caused by this disease.



There are a number of interventions that assist with primary and secondary prevention of meningococcal disease: health education/promotion, prevention with appropriate drug use, and improving housing conditions. Current initiatives continue to improve housing environments and reduce transmission of infectious diseases. However, these initiatives alone will not control the meningococcal epidemic.

The search for a safe and effective serogroup B meningococcal vaccine is a complex but important part of the national strategy. A tailor-made vaccine currently being clinically trialed is expected to prevent the majority of invasive disease cases caused by the epidemic strain.

Mass vaccination offers the best prospect of controlling the epidemic by raising the immunity of the most affected groups in the population.

## **Outcomes**

### **From treatment**

New Zealand has one of the lowest case-fatality rates in the world because of our level of awareness of the disease and the success of our treatment programmes.

### **From vaccination**

At this stage the candidate vaccine (MeNZB) is still undergoing clinical trials to assess its safety and immunogenicity. The benefits and outcomes expected from its successful introduction will have a positive impact on communities currently at high risk of infection, particularly Māori and Pacific peoples.

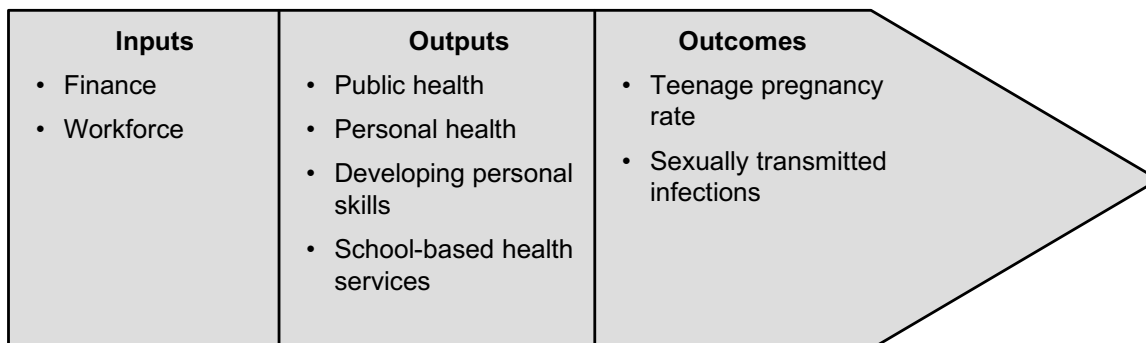
Most vaccines do not confer 100% protection, and it is not expected that MeNZB will be 100% protective. However, the greater the population at risk that is targeted, the more likelihood that 'herd immunity' will be achieved. Herd immunity refers to the added resistance of a community to invasion and spread of meningococcal disease because of the high proportion of individual members of the group being immune to meningococcus organisms. This means that even if a proportion of people are non-immunised, they are less susceptible to transmitting the disease, and the occurrence of an infectious disease is further lessened in that community. It is also believed that by targeting all under 20s a degree of cross protection will occur to the other 15% of meningococcus isolates which are not the predominant B:P:1.7b,4 meningococcus epidemic strain.

Significant benefits are expected from the meningococcal vaccination campaign. Illness will be avoided for individuals who would have otherwise contracted the disease. Not only will this benefit the individual, in terms of good health, but it will also reduce the cost of hospitalisations and other health care that would have occurred. In addition it will considerably reduce fear for parents and whānau.

The meningococcal vaccine programme has the added potential of promoting immunisation in general through the increased public presence of trained community vaccinators and the immunisation message.



## Adolescent sexual health



### Introduction

New Zealand, like other developed countries, has undergone a socio-sexual transformation that necessitates societal action to ensure positive sexual and reproductive health. Improving sexual and reproductive health requires openness and sensitivity to the differing perspectives that communities bring to these issues.

Sexual health in young people<sup>56</sup> is the focus of this section. Young people are a vulnerable group who experience many of the adverse consequences that can be associated with sexual activity. Two measures of young people's sexual health status will be used as indicators: sexually transmitted infections (STIs) and teenage pregnancy.

### Sexually transmitted infections

STIs are a direct measure of sexual health status, and are common among young people. A study undertaken in 1993 and 1994 found that by the age of 21 years, approximately 9% and 17% of sexually active males and females respectively had experienced an STI (Dickson et al 1996).<sup>57</sup> Adolescents are more likely to contract STIs than older people (ESR 2001).

Various factors may contribute to the rate of STIs in young females being higher than in young males.

- The study reported by Dickson et al (1996) found that young women are less likely to report protection with condoms than young men.
- Transmission of STIs from men to women is more efficient than vice versa.
- Young women generally have older, more sexually experienced, partners.

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<sup>56</sup> Although 'young people and adolescents' here generally refers to the 15–24 years age group, some of the information regarding STIs and births to teenage mothers concerns different ages, as indicated in the tables and figures.

<sup>57</sup> The study reported experiences of the 1972–73 birth cohort followed in the Dunedin Multidisciplinary Health and Development Study.

STIs include genital warts, chlamydia, genital herpes, gonorrhoea, syphilis and AIDS. Herpes simplex virus can cause long-term pain and distress. Human papilloma virus can result in cervical cancer. Infections can result in infertility, chronic pelvic pain and ectopic pregnancy.

### **Teenage pregnancy**

Teenage pregnancy rates provide an indirect measure of sexual health status. Teenage pregnancy often constitutes a disadvantage for both the parents and the child.<sup>58</sup>

Teenage parenthood is strongly associated with subsequent educational under-achievement, unemployment and poverty (UNICEF 2001). While young mothers with adolescent conduct problems, poor school achievement, and family adversity (Woodward et al 2001)<sup>59</sup> may be more likely to become teenage mothers, teenage pregnancy often represents an additional disadvantage. Becoming a teenage mother can be associated with reduced educational opportunities, socioeconomic disadvantage, welfare dependence and less competent parenting.

Children born to teenage mothers are at greater risk of adverse health outcomes, including low birthweight, perinatal mortality and eventual behavioural problems and educational under-achievement (Woodward et al 2001). The adverse health outcomes of the child are due both to the maternal characteristics that predispose to teen pregnancy, and to the child's family circumstances independent of the mother's characteristics (Jaffee 2001).

Growing up in families with parental instability and single motherhood predisposes to becoming a parent at an early age (Woodward et al 2001).

### **The socio-sexual transformation**

Insights into societal influences on sexual health are provided by the very different teenage pregnancy rates of industrialised countries that have low overall fertility rates.

By adding abortions and births, approximate<sup>60</sup> pregnancy rates can be calculated. New Zealand has a teenage pregnancy rate (56 per 1000) about five times higher than that of countries with the lowest rates (Japan 11/1000 and the Netherlands 12/1000) (UNICEF, 1996 data). However, New Zealand's rate is similar to that of the UK (51/1000), and much lower than that of the US (86/1000) (Figure 4.3).

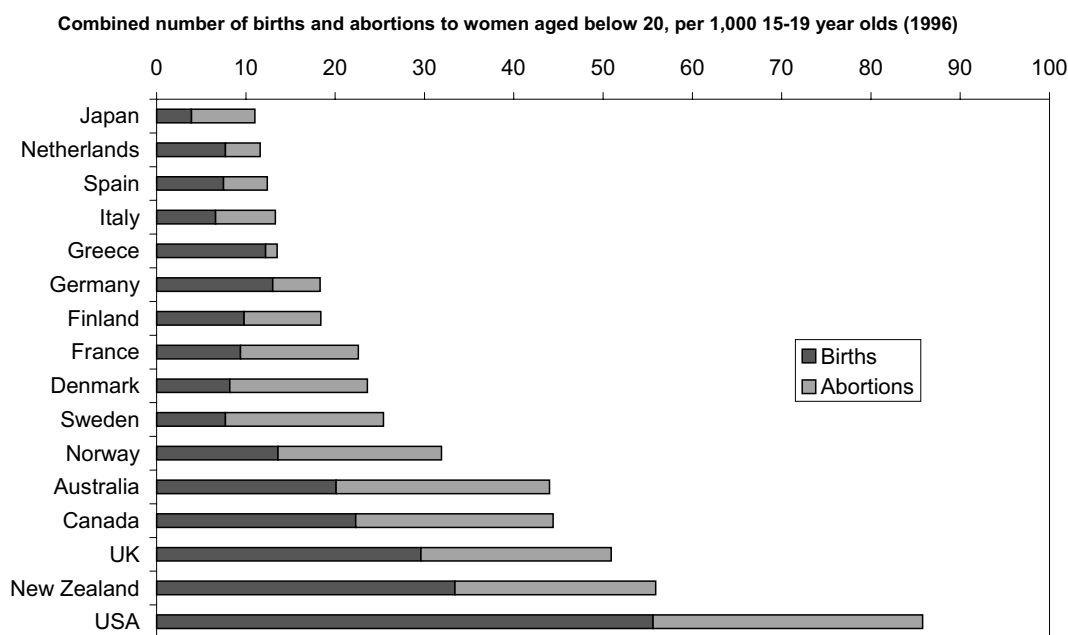
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<sup>58</sup> Because teenage pregnancy particular affects mothers, mothers will be mentioned in the following text even though fathers are also affected by teenage pregnancy.

<sup>59</sup> The study reported experiences of the 1977 birth cohort followed in the Christchurch Health and Development Study.

<sup>60</sup> This excludes the small number of stillbirths and early miscarriages, and also does not allow for the possibility of under-reporting of abortions in some countries.

**Figure 4.3:** Approximate pregnancy rates among females under 20, 1996\*



Source: UNICEF 1996 data

Part of the explanation for differing teenage pregnancy rates is provided by countries' transition from traditional values associated with an expectation of early marriage and childbearing, to values associated with delayed motherhood and many births to unmarried women.

In general, New Zealand young people are not expected to marry and become parents at early ages. During the 1980s and 1990s there was a strong trend towards later initial childbirth. The percentage of first births to unmarried mothers in New Zealand has risen steadily from 20% in the 1960s to over 50% in 1998 (Statistics New Zealand 2001). Sole parenting is not stigmatised as it was prior to the 1960s.

This at least partly explains the difference between New Zealand's teen pregnancy rate and, for example, that of Japan. Japan's low rate may be partly due to an expectation of early marriage and childbearing, with most teenage births in Japan being to married women (UNICEF).

Countries with delayed motherhood and many births to unmarried women include those with low (eg, the Netherlands) as well as high (eg, US) teenage pregnancy rates.

At least two further factors appear to play a part: a society's inclusiveness and the availability of contraception.

### Society's inclusiveness

UNICEF (2001) has linked income equality and the percentage of 15–19-year-olds in education with teenage birth<sup>61</sup> rates. New Zealand, the UK, and the US share high income inequalities, low percentages of 15–19-year-olds in education, and high teenage birth rates. Society needs to create the environment where teenagers are:

**strongly motivated to avoid early parenthood because they feel that they have an expectation of reasonable education and employment, and of being included in the opportunities and advantages of living in an economically advanced society (UNICEF).**

### Contraceptive knowledge

Sexual imagery and messages increasingly pervade the information and entertainment environment (UNICEF 2001).<sup>62</sup> Many adolescents are sexually active. For example, a 2001 study in Christchurch found that 49% of (mostly 16–18-year-old) high school students were sexually active (Corwin 2002).

The more open attitude towards sex and sex education (including contraception) in the Netherlands is considered to contribute to that country's low teen pregnancy rate.

Young people need support to grow up in our sexualised society. This may involve several approaches, including the promotion of more open attitudes to sexuality through education, access to contraceptives, as well as nurturing young people's self-esteem and confidence.

### Māori and Pacific peoples

Although fertility rates have fallen for Māori and Pacific women, rates remain higher than that of other New Zealand women.<sup>63</sup> Māori and Pacific women also have children earlier than do European and Asian women (Statistics New Zealand 2001). The relatively high Māori and Pacific teenage fertility rates may, therefore, partly reflect the higher fertility and earlier childbearing of these ethnic groups.

Māori adolescent sexual health status follows international trends of indigenous peoples' low health status, reflecting the impact of colonisation, and the social and economic disadvantage experienced by these communities.

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<sup>61</sup> As shown by Figure 4.3, high teenage birth rates are generally associated with high teenage pregnancy rates.

<sup>62</sup> Other factors may also be relevant (eg, the trend from 1995 to 2000 of increases in the average volume of alcohol consumed by youths on a typical drinking occasion (Ministry of Health 2002)). Alcohol consumption has been linked to sexual activity (Ministry of Health 1996).

<sup>63</sup> The low fertility rates experienced by many developed countries have been linked to low infant mortality rates, high female participation in the waged labour force, and the state increasingly caring for the old. Delayed childbearing has been linked to increasing longevity (Statistics New Zealand).

## Finance

The total amount spent in 2001/02 on sexual health promotion services for population groups was approximately \$7 million. Services included sexuality education (including teacher training), HIV/AIDS awareness-raising activities, and Māori and Pacific health promotion activities.

The total amount expended on sexual health services for individuals is estimated at around \$50 million. In addition to GPs,<sup>64</sup> New Zealand Family Planning Association services provide sexual health services (approximately \$4.5 million annually), public hospital-based services (approximately \$9 million), and smaller contracts with youth health centres and union health clinics (approximately \$4 million). Contraceptives (including condoms) are made available through prescription (approximately \$8 million per year).

## The workforce and the services delivered

### Public health

Most of the DHBs' public health units employ health promotion staff with responsibilities for sexual and reproductive health promotion. In addition, public health nurses may deliver puberty education to children in schools.

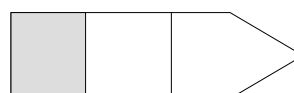
A range of Māori, Pacific and mainstream organisations deliver sexuality education at a regional level. This workforce is generally skilled in health education and health promotion.

Public health providers, funded by the Ministry of Health, provide specialist training and support for school teachers, assistance with programme development and, in some cases, actual classroom delivery of education. In addition, some public health nurses deliver puberty education sessions to schools, or assist teachers to do so.

Sexuality education for young people in New Zealand is primarily the responsibility of schools. The Ministry of Education's Health and Physical Education Curriculum outlines the responsibilities of schools to develop and deliver appropriate programmes for young people.

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<sup>64</sup> A substantial component of sexual health services is provided by GPs. The 1994 Waimedca Study calculated 14% of GP care was related to sexual and reproductive health. On that basis, approximately \$25 million per annum is expended on GP consultations relating to sexual and reproductive health.



## Personal health

GPs are the health professionals most frequently consulted by young people for general health issues. However, young people may prefer not to see their family doctor in relation to sexual health issues.<sup>65</sup> Partly in response to this, there is an increasing number of school and community-based youth health centres where public health nurses and other allied professionals combine with GPs to provide comprehensive primary health care.

Family Planning Association doctors and nurses provide sexual and reproductive health advice and services through clinics around the country and through outreach services, some of which are based in schools.

In the larger centres, hospital-based sexual health services provide free care with backup by specialist physicians.

## Developing personal skills

A number of providers around the country deliver peer sexual health programmes. These programmes provide intensive training and support for a small number of selected secondary school students, who are then available to their peers for information about contraception and preventing STIs, information about access to services and in some cases, free condoms.

Another approach has been youth educator programmes, which train and employ young people of various ethnicities to work directly with young people, often from their own ethnic grouping. This approach is often adopted by Māori and Pacific providers and has proven to be effective in reaching young Māori and Pacific students and school leavers.

In addition, HIV/AIDS prevention programmes are run by a number of providers, who deliver specialised education, information and advocacy services for those considered at higher risk of contracting infection (eg, men who have sex with men, sex workers and refugee communities). An HIV/AIDS information hotline is available free and refers those who seek further support to counselling services.

Community-based approaches include poster campaigns targeting venues frequented by young people, media campaigns, and education sessions as components of health hui, or delivered through theatre.

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<sup>65</sup> The study reported by Dickson et al (1996) found that of those adolescents who reported an STI, 47% and 51% of males and females respectively obtained treatment at a general practice, and lesser percentages reported using sexual health clinics, family planning clinics, student health clinics, or other treatment options.



## School-based health services

The number of school-based health centres is steadily increasing around the country. Many of these are joint initiatives between schools, local general practices, and public health services. Schools report a high uptake of these services among students, who have the opportunity to get advice and care across the whole range of health issues. Some schools are already reporting a drop in the number of unwanted pregnancies and an increase in safer sex practices among pupils, along with a reduction of the impact of health problems on learning.

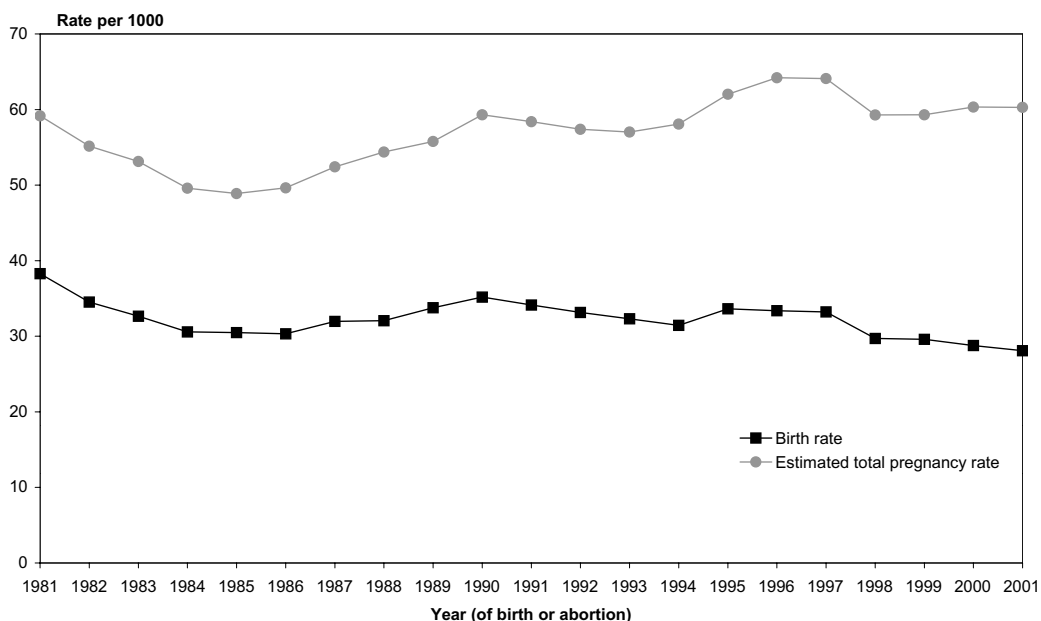
## Outcomes

Teenage pregnancy rates and information collected on STIs do not indicate any improvements in teenage sexual health.

Māori, and to a lesser extent Pacific peoples, have higher teenage pregnancy rates than non-Māori, non-Pacific adolescents.

## Teenage pregnancy rate

**Figure 4.4:** Birth and estimated total pregnancy rates among females aged 15–19 years, 1991–2001



Source: Statistics New Zealand 2001

Note: The total pregnancy rate includes live births, still births and abortions, and an estimate for the number of early miscarriages (assumed to be 10% of abortions plus 20% of live births) (Dickson et al 2000).



**Table 4.3:** Estimated teenage (10–19 years) total pregnancy rate per 1000 population, by ethnicity, 2000

	Māori	European/ other	Pacific	Asian	Total
Live births	40.3	5.1	19.7	3.2	14.5
Stillbirths	0.3	0.0	0.1	0.0	0.1
Estimated early miscarriages	9.1	2.0	5.0	1.7	4.1
Abortions	10.8	9.4	10.5	10.5	12.1
Estimated total pregnancy rate	60.6	16.5	35.3	15.4	30.7

Source: Statistics New Zealand and NZHIS births data

Notes: 2001 Census data used as denominator (unadjusted for undercount). The estimated number of early miscarriages is assumed to be 10% of abortions plus 20% of live births (Dickson et al 2000).

### Sexually transmitted infections

Data available suggest that the incidence of STIs may be increasing. For example, information from laboratories for the Waikato and Bay of Plenty regions shows increasing rates of chlamydia infections over the 1998–2001 period (Institute of Environmental Science & Research Ltd (ESR) 2001).<sup>66</sup>

Sexual health, family planning and student and youth health clinics provide another source of information. Clinic-based information does not capture all STI diagnoses; for example, it does not include diagnoses made in general practices (ESR 2001). Infections caused by Chlamydia are the most common bacterial infections diagnosed in New Zealand's sexual health clinics. The majority (73%) of confirmed chlamydia cases reported by sexual health clinics were aged under 25 years. The mean age of women diagnosed was 21 years, versus 25 years for males (ESR 2001).

A 2001 study in Christchurch found that 2.0% of sexually active high school students (mostly 16–18-year-olds) have asymptomatic chlamydia infections (Corwin 2002).

### Summary

In New Zealand, adolescent sexual health appears better than that in the US, similar to that in the UK, and worse than that of many European countries (as indicated by teenage pregnancy rates).

Improvements in the sexual health status of socioeconomically disadvantaged population groups, and Māori and Pacific people will contribute substantially to improving New Zealand's health status in this area.

<sup>66</sup> This information is based on samples referred to laboratories by all the health care providers in the Waikato and Bay of Plenty regions (eg, GPs, sexual health clinics and family planning clinics).



Moving towards improved sexual health includes creating a more inclusive society, with more open attitudes towards sex education and contraception.

The Youth Health Guide to Action was launched in September 2002.

The sexual health-related action plans that are being developed and released provide a significant opportunity for improving adolescents' sexual health status.

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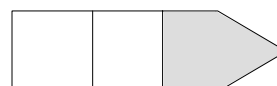
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