

NEW ZEALAND HEALTH STRATEGY

DHB TOOLKIT

Obesity

To reduce the rate of obesity

2001



Edition 1: October 2001

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Executive summary

Objective: to reduce the prevalence of obesity and overweight

- Evidence is emerging to suggest that the prevalence of overweight and obesity is increasing worldwide at an alarming rate. New Zealand is no exception, with more than half the adult population already either overweight or obese.
- Obesity is associated with heart disease, diabetes, stroke, high blood pressure and some cancers.
- The problem appears to be increasing rapidly in children as well as in adults with the result that the true health consequences may only become fully apparent in the future.
- Overweight and obesity are more prevalent in lower socioeconomic groups and among Maori and Pacific peoples.
- The estimated cost of obesity in New Zealand is \$135 million per year.
- In overseas reports and strategies on obesity prevention, the main themes stress the need for a comprehensive and intersectoral approach using multiple strategies and interventions that:
 - address the problem at local, regional and national levels
 - are sustained over a long period
 - have a wide view of prevention as requiring interventions at a range of levels including the environment, the whole population and specific population groups (eg, Maori, Pacific peoples, socioeconomically disadvantaged), as well as in both public and primary health settings.
- District Health Boards (DHBs) are well placed to ensure comprehensive, integrated and intersectoral prevention and management services are in their region.
- There is a lack of evaluated interventions that appear to reduce the prevalence of obesity. DHBs should therefore include evaluation within their interventions.
- DHBs are expected to work in accordance with the principles of the Treaty of Waitangi and involve Maori at all levels of service delivery in the prevention and management of obesity.
- The DHB accountability indicator to reduce obesity for 2001/02 relates to the development of linkages and networks within the DHB's area. The second indicator relates to assessment of the prevalence of obesity within its area.

Introduction

The New Zealand Health Strategy¹ has identified 13 priority areas for population health. District Health Boards (DHBs) will be required to report annually on progress towards each of these priority areas. The Minister of Health will then report to Parliament on overall progress in these areas (New Zealand Public Health and Disability Act 2000 s 8(4)). One of the 13 priority areas is *to reduce the rate of obesity and overweight*.

This toolkit has been developed to provide guidance to DHBs on the importance of obesity as a public health issue and the most effective ways they can work to reduce obesity in their region. It briefly outlines some of the key service areas and issues that DHBs should consider when planning how to address this important health priority area.

This toolkit has been developed with reference to national and international research and literature on obesity prevention and treatment. It has been guided by an expert reference group.

This is a draft document. It will be finalised for DHBs in September 2001, following consultation with DHBs and further input from the expert reference group. As new evidence appears, this toolkit will be refined and updated.

This toolkit:

- outlines the extent of the problem of obesity
- provides evidence of the most effective ways DHBs can work to prevent further increases in, and reduce current obesity levels
- provides guidance to assist DHBs in their planning and purchasing for their local population
- provides baseline data for indicators
- provides indicators to monitor progress towards identified targets.

Linkages

As obesity is a major risk factor for many chronic, debilitating diseases, this toolkit has clear linkages to other health priority areas and their toolkits. In particular, it has linkages with these toolkits:

- improve nutrition
- increase the level of physical activity
- reduce the incidence and impact of cardiovascular disease
- reduce the incidence and impact of diabetes
- reduce the incidence and impact of cancer.

This toolkit does not replicate material in these toolkits. Rather, to ensure service plans are well integrated, DHBs are expected to be familiar with all relevant toolkits. Where possible, cross-references to other toolkits will be made.

In addition to this toolkit, information on specific population groups will be available within:

- the Maori Health Strategy
- the Pacific Health Action Plan
- the Youth Health Strategy
- the Inequalities Strategy
- the Health of Older People Strategy.

¹ King A. 2000. *The New Zealand Health Strategy*. Wellington: Ministry of Health.

Obesity has strong relationships with socioeconomic status and physical activity, as well as with nutrition. Therefore one of the key roles of the health sector is to increase access to a balanced diet for people on low incomes and to promote physical activity. For the prevention and management of obesity there are considerable linkages among public, primary and child and family health services.

To reduce the incidence of obesity or prevent any further increases, key partners outside the health sector need to include:

- non-government organisations, eg, Agencies for Nutrition Action, Heart Foundation, Te Hotu Manawa Maori, Cancer Society, New Zealand Nutrition Foundation, Diabetes New Zealand
- government agencies, eg, Child, Youth and Family Services, the Hillary Commission (also known under its new working title as Recreation and Sport Agency), Te Puni Kokiri (capacity building programmes), the Ministry of Youth Affairs, Pacific Affairs, Transport, Housing and Education
- the media
- local councils
- researchers
- Pacific health initiatives and Pacific church groups
- the food and weight-loss industries.

The Ministry of Health is developing a national plan of action for nutrition, physical activity and healthy weight. It is envisaged that the plan of action will be completed in 2001/02 and that future toolkits will be informed by this comprehensive document, to be entitled *Healthy Food – Health Action*.

Development of the toolkit

This toolkit has been developed with reference to national and international research and literature on obesity prevention and treatment. It has been guided by an expert reference group (see Appendix 4 for membership details).

Comment and input were also received from DHBs, as the primary audience of this document, to ensure that it meets their needs.

This toolkit is a living document. Over time and as new evidence appears, it will be refined and updated.

The context for action: obesity as a public health problem

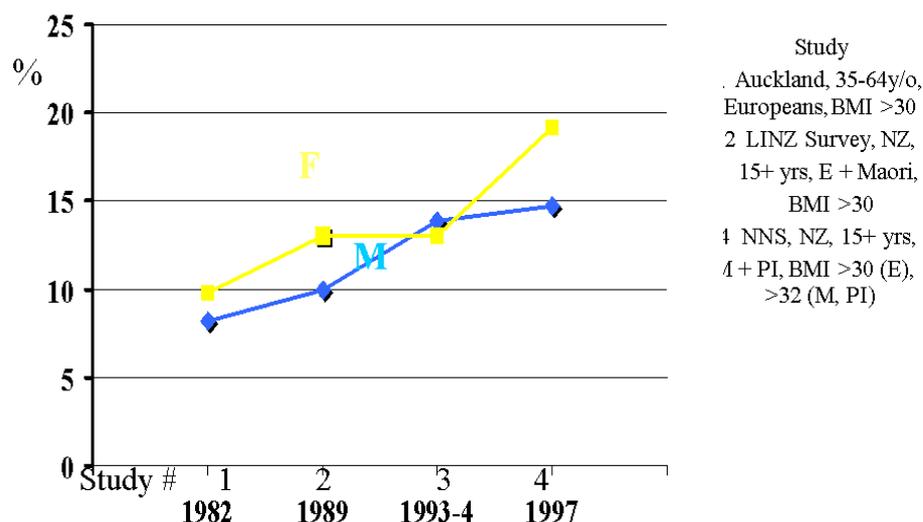
This section summarises some of the important patterns, rates and health implications of obesity in New Zealand. For more detailed information see *NZ Food: NZ People, Key results of the 1997 National Nutrition Survey*.²

Key facts

- New Zealand, along with many other westernised countries, is in the throes of an obesity epidemic.
- More than half of New Zealand adults are now overweight or obese.
- Seventeen percent of all New Zealand adults are obese. An additional 35 percent of all adults are overweight.
- There are no data on rates of obesity in New Zealand children. However, overseas data suggest that obesity in children is increasing.
- Obesity in New Zealand increased by 55 percent between 1989 and 1997 (see Figure 1).
- Based on current data, obesity will increase by an estimated 73 percent by 2011, to 29 percent of all adult New Zealanders.
- Rates among Maori are higher than those for the general population: 27 percent of adult men and 28 percent of women are obese. A further 30 percent of all Maori adults are overweight.
- Obesity in Pacific adults is also very high compared with the general population: 26 percent of men and 47 percent of women are obese. An estimated 75 percent of Pacific peoples in New Zealand are overweight.
- Obesity is an equivalent risk factor for many chronic disease including type 2 diabetes, heart disease, hypertension and stroke, gallstones and some cancers.
- In 1996 the annual cost of obesity was conservatively estimated to be \$135 million. This figure excludes downstream health costs from chronic diseases that result from obesity.
- The health care cost of diabetes alone is an estimated \$280 million per year. The cost of coronary artery disease was an estimated \$306 million to \$467 million in the early 1990s.
- More than 1,000 New Zealanders die each year from obesity-related diseases – double the annual road toll.

² Russell D, Parnell W, Wilson N et al. 1999. *NZ Food: NZ People, Key results of the 1997 National Nutrition Survey*. Wellington: Ministry of Health. Available online at <http://www.moh.govt.nz>

Figure 1: Percentage of obese New Zealanders, 1982–1997



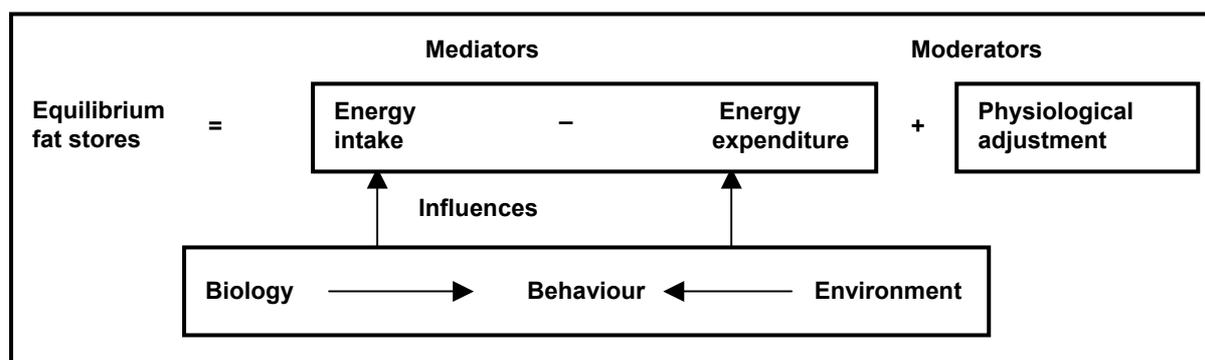
What causes overweight and obesity?

Traditionally, health professionals and the general public alike have viewed obesity as a condition of overeating corrected by a reduction in the quantity of food ingested.

As a result of this oversimplification, obesity has been neglected as a health issue. Obesity is a complex disorder with multiple interactive causes. It is associated with many chronic, debilitating diseases with important health care costs.

The causes of obesity are still incompletely understood. However, Egger and Swinburn³ have proposed an ecological model to aid the understanding of obesity and overfatness. Figure 2 gives an overview of this model. Its specific elements are described below.

Figure 2: The ecological model of the causes of obesity



Source: Egger G, Swinburn B. 1997. An 'ecological' approach to the obesity pandemic. *British Medical Journal* 315.

Mediators

At a population level, physical energy usage has fallen by more than food energy intake. The result is a large energy imbalance with excess energy being stored as fat.

³ Egger G, Swinburn B. 1997. An 'ecological' approach to the obesity pandemic. *British Medical Journal* 315: 477–80.

Moderators

‘Physiological adjustments’ are changes that follow an imbalance between energy intake and energy expenditure. A response to loss of weight may be an appetite increase or a physical activity may decrease.

The resting metabolic rate may decline until a new energy balance is achieved.

A lower metabolic rate means that a person would then need less food (energy intake) to remain the same weight.

Biological influences

Factors known to influence body weight and fat levels include:

- ethnicity – some population groups appear to have a greater genetic predisposition to weight gain
- gender – women carry more fat than men
- age – maintenance of a healthy body weight becomes more difficult with age
- hormonal factors
- genetics.

These biological influences explain the variance in body fat in individuals but do not explain why obesity has recently increased so significantly at a population level.

Behavioural influences

Eating behaviour is the result of complex physiological, psychological and cultural factors including habits, emotions, conditioning and attitudes.

Environmental influences

Probably the most important cause of the rapid global rise in obesity rates lies in the profound and rapid changes to the environment and society now affecting large parts of the world.

Modernisation, urbanisation and changing occupational structures are creating societies in which physical activity is low and the availability of high fat, high sugar, energy dense foods has increased. Populations now live in environments that inadvertently promote sedentary lifestyles and overconsumption of energy dense foods. Maintaining a healthy weight and optimal fat stores requires considerable effort, which is difficult to maintain in an unsupportive environment.

Measurement of obesity

Indices developed to measure obesity are:

- body mass index (BMI)
- waist to hip ratio (WHR)
- waist circumference.

BMI (defined as weight kg/height m²) is the mostly widely used. The cut-off point for obesity is >30. BMI generally correlates highly with adiposity, although misclassification can occur in non-Caucasian populations. Polynesians tend to have a lower fat percentage than Caucasians at any given BMI⁴ (see Appendix 3 for more details).

It is not only the amount of body fat but also its distribution that determines the risk associations of obesity. Abdominal or visceral fat (android obesity) is associated with the cardiovascular risk

⁴ Swinburn BA, Ley SJ et al. 1990. Body size and composition in Polynesians. *International Journal of Obesity* 23: 1178–83.

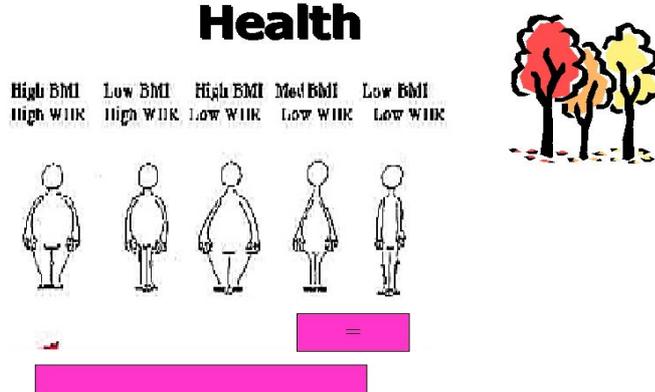
equivalent, including type 2 diabetes, hypertension and dyslipidaemia. Men and postmenopausal women have an increased tendency to abdominal fat deposition.

WHR is used as a measure of abdominal obesity. In Caucasians a WHR >1.0 for men and WHR >0.85 for women are used to identify those with abdominal fat accumulation. Figure 3 illustrates how WHR and BMI translate to body fat distribution.

Waist circumference is a convenient and simple measurement that correlates with BMI and WHR. Unrelated to height, it is an approximate index of intra-abdominal fat mass. Changes in waist circumference reflect changes in risk equivalents for cardiovascular disease and other chronic diseases. Suggested cut-offs for obesity using waist circumference are men > 102 cm and women > 88 cm.

Figure 3: Body fat distribution as measured by body mass index and waist to hip ratio

“Ideal” Body Fat Distribution for Health



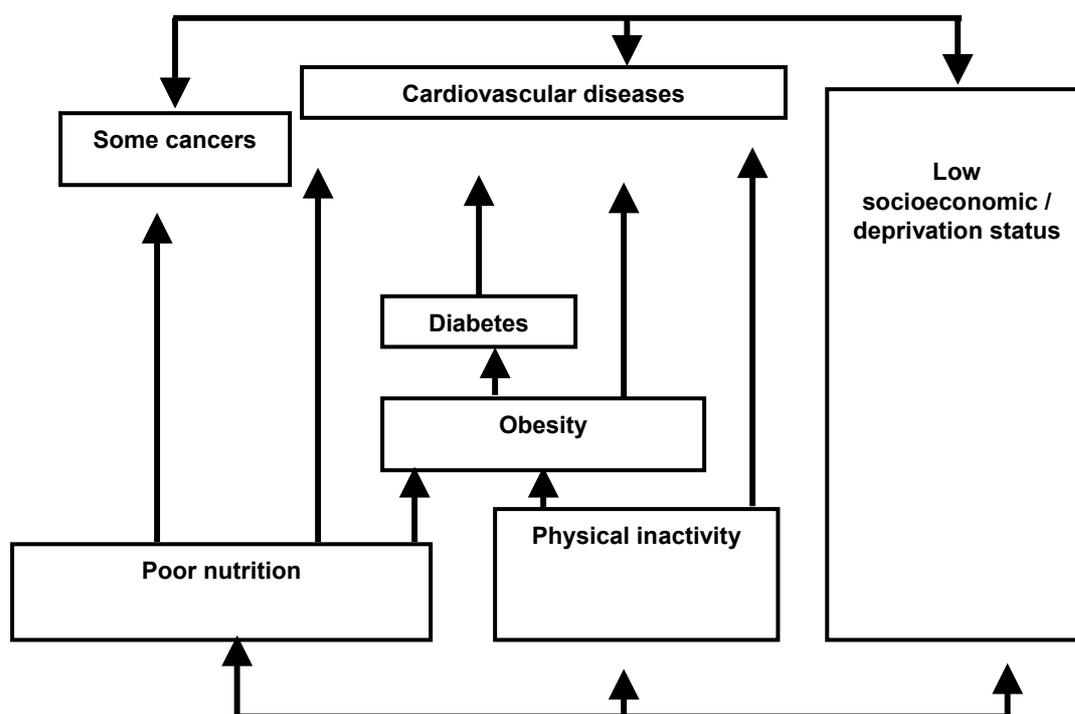
Who is at risk?

Key points

- Socioeconomically disadvantaged groups have to bear disproportionately high obesity rates (Figure 4).
- Obesity among Maori exceeds that among the general population. According to the 1997 *National Nutrition Survey*, 27 percent of Maori men and 28 percent of Maori women are obese.
- Within Pacific populations, the prevalence of obesity is 26 percent for men and 47 percent for women.⁵ An estimated 75 percent of Pacific peoples in New Zealand are overweight.
- As people age, overweight and obesity increase. This increase is partly due to physiological factors and partly a consequence of reduced physical activity.
- Other at-risk groups are people who consume an energy dense diet (ie, a diet high in fat and sugar), people who do not engage sport or sufficient physical activity, and children, particularly those with a genetic predisposition to obesity.

⁵ Russell D, Parnell W, Wilson N et al. 1999. *NZ Food: NZ People, Key results of the 1997 National Nutrition Survey*. Wellington: Ministry of Health. Available online at <http://www.moh.govt.nz>

Figure 4: Relationships among socioeconomic deprivation, obesity and non-communicable disease



Obesity and disease

Overweight and obesity are associated with a number of threats to health and wellbeing. Both conditions are major risk factors for a wide range of medical and psychosocial problems including:

- **chronic, non-communicable diseases**, which lead to disability and death, eg, heart disease, type 2 diabetes, hypertension, stroke and some cancers
- **debilitating conditions**, which can drastically reduce quality of life and are costly in terms of absence from work and use of health resources eg, osteoarthritis, gallbladder disease, respiratory difficulties, infertility and skin problems
- **psychological problems**, eg, clinical depression, lowered self-esteem, job discrimination and other forms of social stigmatisation.

Table 1 identifies the degree to which obesity increases the risk of developing such health problems.

Table 1: Relative risk of health problems associated with obesity

Greatly increased (relative risk greater than 3)*	Moderately increased (relative risk 2–3)*	Slightly increased (relative risk 1–2)*
NIDDM (type 2 diabetes)	CHD	Cancer (breast cancer in postmenopausal women, endometrial cancer, colon cancer)
Gallbladder disease	Hypertension	Reproductive hormone abnormalities
Dyslipidaemia	Osteoarthritis	Polycystic ovary syndrome
Insulin resistance	Hyperuricaemia	Impaired fertility
Breathlessness		Low back pain due to obesity
Sleep apnoea		Increased anaesthetic risk
		Foetal defects associated with maternal obesity

Note: *All relative risk estimates are approximate

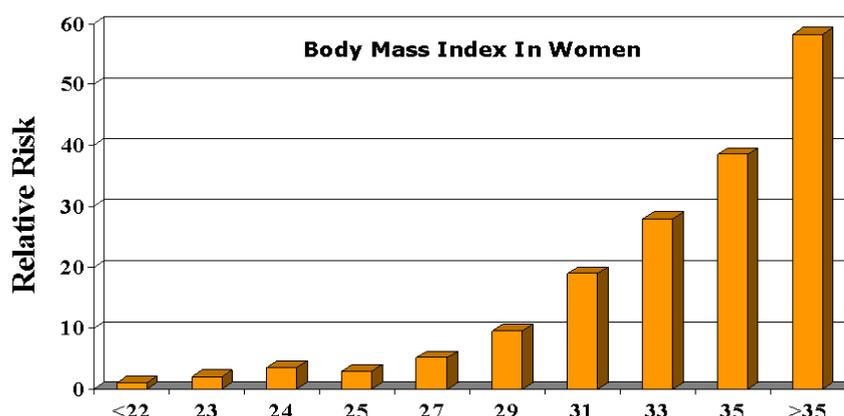
Source: Agencies for Nutrition Action. 2001. *Healthy Weight New Zealand*, p 14

One of the most prevalent consequences of overweight and obesity is type 2 diabetes. The likelihood of developing type 2 diabetes rises steeply with increasing body fatness. Approximately 85 percent of people with diabetes can be classified as type 2; of these, 90 percent are obese. People with type 2 diabetes are at high risk of a range of disabling conditions (eg, heart disease, hypertension, amputation, stroke, renal failure and blindness). Figure 5 illustrates the relative risk of diabetes in women based on their BMI.

The World Health Organization estimated that in the year 2000, around 154 million adults had diabetes. This figure is expected to rise to 300 million by 2025.

Figure 5: Relative risk of diabetes in relation to BMI in women

(8y f/u; 826,010PY; Colditz Am J Epi 1990 132 501-13)



Source: Colditz. 1990. *American Journal of Epidemiology* 132: 501–13.

Cost of obesity

The economic cost of overweight and obesity is an important issue for health care providers. To date, there have been only a few attempts to quantify the economic burden of obesity-related illness and death. In addition, few studies have assessed the relative cost-effectiveness of alternative interventions aimed at either preventing or treating obesity.

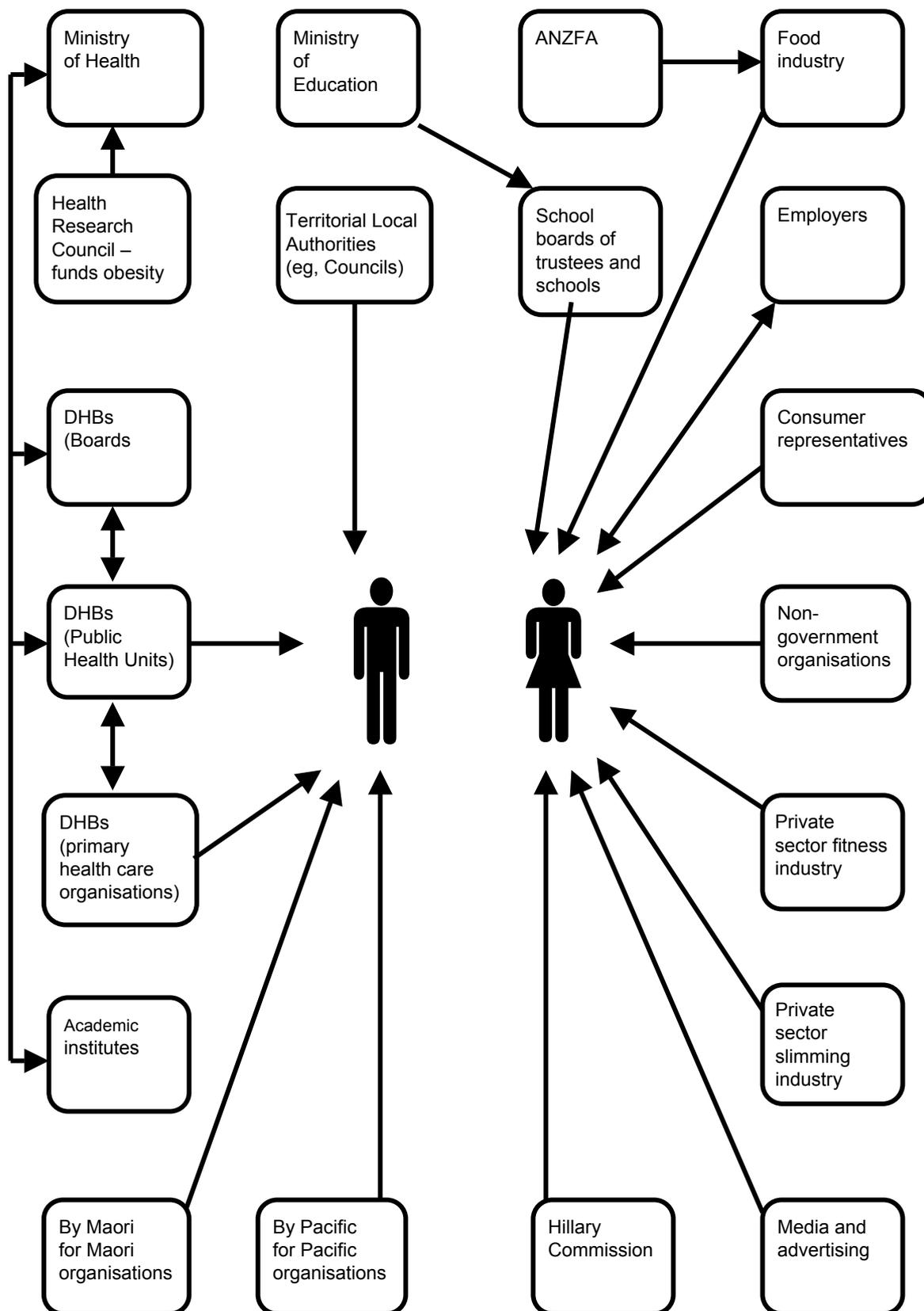
The economic cost of obesity is made up of three main components:

- **direct costs** to the individual and the service provider associated with treating obesity
- **opportunity costs** to the individual, ie the social and personal loss associated with obesity, generally arising from premature death or attributable morbidity
- **indirect costs**, usually measured as lost production due to absenteeism from work and premature death.

According to the World Health Organization report on obesity,⁶ the economic costs of obesity as assessed in several developed countries are in the range of 2 to 7 percent of total health care costs. Although these are conservative estimates based on variable data, they clearly indicate that obesity represents one of the largest items of expenditure in national health care budgets.

⁶ WHO. 2000. *Obesity: preventing and managing the global epidemic*. Report of a WHO Consultation. Geneva: World Health Organization.

Figure 6: Public and private sector stakeholders with the potential to influence lifestyle and bodyweight



Tackling the problem

As Figure 6 shows, a wide range of stakeholders, in both the public and private sector, can influence lifestyle, bodyweight and thus obesity in the New Zealand population.

Public and primary care approaches

Action is urgently needed to first to halt and then reverse the increase in overweight and obesity. We need strategies that:

- prevent people becoming obese
- manage those people who are already obese.

Until recently, obesity prevention and obesity management were perceived as two distinct processes. Management, with the aim of weight loss, was seen as the role of the clinician. In contrast, prevention, aimed at preventing weight gain, was considered to be the domain of health promotion or public health departments.

However, it is now realised that obesity management covers long-term strategies ranging widely from prevention through weight maintenance and the management of obesity co-morbidities, to weight loss. The individual strategies are interdependent, so that truly effective obesity management must address all of them in a co-ordinated manner and in a variety of settings. We therefore have to tackle the problem on both an individual (primary care) and population (public health) levels.

The **public health** population approach focuses on influencing and reducing exposure to causative agents and environments.

National, local and individual services need to be purchased to reduce the consumption of high fat high sugar foods and to promote habitual physical activity. The **primary care** approach:

- considers the individual and their community
- employs weight maintenance through individual treatment programmes for the management of obesity.

A prevention and management approach improves co-operation as part of the national effort to counter obesity. To this end, it:

- fosters closer collaboration between the Ministry of Health and DHBs
- fosters closer co-operation between primary care and public health at both Ministry and DHB levels
- fosters closer collaboration among government agencies (Health, Education etc) at national and local levels
- better co-ordinates national public health nutrition programmes
- increases sustainability of public health nutrition/obesity/physical activity strategies
- strengthens the public health nutrition infrastructure and capacity
- facilitates contributions from all providers
- facilitates a two-way exchange between public and private sector stakeholders to develop practical strategies for achieving the desired outcomes
- enhances capacity by closer co-operation among public health and primary care groups in the DHB environment
- improves data, research and evaluation outcomes.

Prevention strategies

Public health and clinical strategies to address the obesity epidemic must begin with weight maintenance for the adult population, weight maintenance for the obese, and increased physical activity for all.⁷

Strategies aimed at the prevention of weight gain should be easier, less expensive and potentially more effective than those aimed at treating obesity after it has fully developed, for the following reasons.

- Obesity develops over time and, once it has developed, is difficult to treat. Indeed, a number of studies have shown that many obesity treatments fail to achieve long-term successes.
- The health problems associated with obesity are the result of the cumulative metabolic and physical stress of excess weight over a long period and may not be fully reversible by weight loss.
- The proportion of the population that is either overweight or obese in many developed countries is now so high that health care resources are no longer sufficient to offer treatment to all.

Effectiveness of prevention strategies

Despite the strong justification for prevention strategies, there has been little comprehensive research on the effectiveness of such strategies. Furthermore, the rapid and unchecked rise of obesity rates in almost all part of the world casts doubt on whether it is even possible to prevent excessive gains in body weight in the long term.

Indirect evidence that obesity prevention strategies can play a positive role in combating the escalating problem of obesity is therefore of particular importance. This evidence comes from a variety of sources.

Obesity rates are still low in several populations around the world and many people are able to control their weight successfully over long periods. Furthermore, although obesity rates have consistently increased in most countries, the extent of such increases often varies between sexes and social classes. These variations suggest environmental conditions as well as genetic factors can protect populations, and individuals within populations, from excessive weight gain.

It is also of interest that the dramatic increase in obesity rates has followed the pattern of similar epidemics of non-communicable diseases (NCDs) such as coronary heart disease, which are now abating in countries where preventive strategies have been adopted. Comprehensive obesity prevention programmes have been introduced very recently in Singapore and a few other countries, but insufficient time has elapsed for any evaluation of their long-term success to be possible.

Finally, a number of researchers have shown that the effective management and support of overweight and obese children can significantly reduce the number who continue to have weight problems into adulthood. The long-term prevention of weight gain in their studies was achieved during the difficult transition periods of childhood and adolescence when weight gain can be a major problem. Furthermore, in a study in which children were treated together with their parents, the children were successful in reducing and maintaining their weight loss while over time the adults returned to their previous body weight.

It is important to recognise that the concept of obesity prevention does not simply mean preventing normal-weight individuals from becoming obese. Rather, it encompasses a range of strategies that aim to prevent:

⁷ Koplan JP, Dietz WH 1999 Calorific imbalance and public health policy *Journal of the American Medical Association*, 1999 282(16): 1579–81

- the development of overweight in normal-weight individuals
- the progression of overweight to obesity in those who are already overweight
- weight regain in those who have been overweight or obese in the past but who have since lost weight.

A fundamental aspect of planning is to consider which of the many possible interventions or actions should be incorporated into local strategies and plans. Decisions will be based on various factors, including:

- evidence of effectiveness
- cost-effectiveness
- available resources
- timeframes
- organisational and political pressures.

Framework for interventions: using a public health approach

Evidence

The evidence for the effectiveness of many of the suggested interventions is inconclusive due to a lack of well-evaluated interventions as well as evaluation difficulties. Nevertheless, there is general agreement that in a comprehensive approach to obesity prevention and management, interventions must address the following:

- provision of supportive environments
- health promotion of healthy eating and increasing physical activity
- effective, sympathetic and accessible services for obese people
- trained staff skilled in obesity prevention and weight management
- credible publicity about healthy food intake and practical physical activity
- in co-operation with the food industry, reduction in the availability of high fat/high sugar foods
- development of awareness of the childhood risk of obesity and development of strategies to manage and support families with obese children
- regional data collection, information dissemination and research
- a framework for community action
- a well-structured programme for monitoring and evaluation.

Interventions: public health

Public health services, which are delivered to communities or population groups rather than individuals, aim to prevent illness or injury, or to protect the public health. Public health interventions targeting food consumption and an increase in physical activity – both of which impact on obesity – are delivered to communities or population groups in a variety of settings. Important settings for obesity intervention are:

- the media (which influence people's food purchasing and nutrition knowledge)
- food consumption environments (schools, worksites, homes)
- the food service industry (restaurants and takeaways)
- the food industry (which influences food composition and marketing)
- communities (which influence cultural food consumption patterns).

Also important are transport services and community facilities, which influence energy output and therefore weight management. For details of interventions to increase physical activity, refer to the [physical activity toolkit](#).

The framework most commonly used for public health nutrition interventions is that of the Ottawa Charter. The five areas of intervention as defined by the Charter are:

- build healthy public policy
- create supportive environments
- strengthen community action
- develop personal skills
- reorient health services.

Interventions: settings

Setting 1: The media environment

RATIONALE

Many personal, family, social and environmental factors influence food choice and eating habits.⁸ One such influence comes from the mass media. Through reporting, advertising and marketing, media such as radio, television, newspapers and magazines have the potential to communicate positive or negative, accurate or inaccurate messages about food and nutrition.

Within the field of advertising, marketers use extensive market research to gain an in-depth understanding of what motivates our food choices and develop advertising strategies to affect the buying decisions. The advertising message is meant to inform and persuade.

Soft drink manufacturers provide one example of successful marketing using mass media. Evidence from the United States demonstrates the success of marketing and its health consequences. Obesity rates have risen in tandem with soft drink consumption. In addition, heavy consumers of soft drinks have been found to have higher energy intakes than the intake of any other group. In New Zealand, non-alcoholic beverages contributed approximately 10 percent of the energy intake in young adults (15–24 years). In addition, those who consume the most snack foods and takeaways high in fat, salt or sugar are in the 15–19 year age group. Much marketing of soft drinks and snack foods targets this group.

Approaches to using the media as a vehicle for behaviour change can be diverse. Factual information about obesity and weight reduction can be included in television and radio documentaries or highlighted in news stories. Articles can be written in newspapers and resources can be developed to support those wishing to modify deleterious lifestyle behaviours. Partnerships can be formed with industry groups to promote healthy eating messages in conjunction with suitable food products.

One example of using the media as a vehicle to carry nutrition messages comes from the partnership formed between Auckland Healthcare (A+) and the staff of the TV2 Maitime programme. This programme targets predominantly Maori and Pacific youth.

The project involved giving nutrition training to both the on air presenters and the directors producers of the programme. They then used the information they had gained to incorporate healthy eating messages into their programme.

Another A+ initiative using the media involved a partnership between A+, the New Zealand Nutrition Foundation and the producers TV1 whereby the topic for the junior section of the NZ ad awards for 2001 was *Healthy Eating*, whereby schools vied to produce the best television advertisement for the promotion of a healthy diet. Both of these examples fulfil several Ottawa Charter requirements; to improve personal skills and to create supportive environments. The Maitime example also had the effect of building healthy policy as the team then went on to develop their own policy guidelines.

These policies extended to behaviours of the presenters in public situations not only programme making, using celebrity status for best effect to model healthy eating in real life contact with the audience

Within the field of reducing smoking in New Zealand, one successful approach has been social marketing.

Appendix 2 provides further examples of possible interventions using the mass media.

⁸ Maskill C, Jones S, Wyllie A, Casswell S. 1996. *Influences on the Eating Patterns and Food Choices of New Zealand Pakeha Adolescents: an overview*. Alcohol and Public Health Research Unit, University of Auckland.

What DHBs can do

Mass communication is a powerful vehicle for changing behaviour. DHBs can:

- work at a policy level to advocate for codes of practice that protect against misinformation
 - use the media themselves for social marketing campaigns
 - work with media groups to increase their awareness of the issues
 - work with Maori media (radio, TV, print) in partnership to increase awareness and develop policy and strategy to promote healthy weight.
-

Settings 2 and 3: Food consumption environments (homes, schools, worksites, restaurants etc)

RATIONALE

There have been major changes in food consumption patterns over the last two decades. Some of these changes may have contributed to the epidemic of obesity.

Evidence from the United States indicates that between 1977 and 1995, home-cooked foods improved in nutritional quality more than foods eaten away from home. For example, while the fat content of meals cooked both within the home and outside the home has declined, the decline in fat was much greater in home-cooked foods than in foods bought either in restaurants or takeaways.⁹ The proportion of meals cooked and eaten in the home has declined sharply, while the proportion of meals eaten away from home – either bought from takeaway and fast food bars or eaten in restaurants – has increased.

The New Zealand pattern is similar to the United States trend. On average only three meals per week are cooked in the home. The average time spent cooking the main meal is 30 minutes.¹⁰ Since the trend of frequently eating out is expected to continue, strategies to improve the diet must address consumers' food choices when eating out.

To build a food environment conducive to the maintenance of a healthy weight, it is necessary to address the energy contribution of 'empty calories' from high fat and high sugar foods eaten both at home and outside the home, as well as the cost of fruit and vegetables and portion size.

New Zealand data¹¹ reveal that those who consume the most high fat, high salt takeaways (meat pies, sausage rolls and pizza) are people in the 15–24 year age group, Maori and Pacific peoples (compared to New Zealand Europeans), and people from lower socioeconomic groups (compared to higher socioeconomic groups). As mentioned above in regard to the media setting, soft drinks (and even fruit juices) can contribute considerable amounts of energy (calories) to the diet. Among those who consume a high proportion of these beverages are Pacific peoples and Maori.

Interventions are being undertaken in schools by the Heart Foundation but further work is necessary. Evaluation of overseas interventions is limited and of mixed success. The report of the New Zealand Health Technology Assessment (NZHTA) group, published in January 2001,¹² recommends involving parents and other caregivers in the interventions. An interventions study targeting children and their families from a low decile intermediate school is currently under way

⁹ Lin B-H, Frazao E, Guthrie J. 1999. Away from home foods increasingly important to Americans. *Agriculture Information Bulletin* No 749, Jan.

¹⁰ AC Nielsen Survey data 1999.

¹¹ Russell D, Parnell W, Wilson N et al. 1999. *NZ Food: NZ People, Key results of the 1997 National Nutrition Survey*. Wellington: Ministry of Health. Available online at <http://www.moh.govt.nz>

¹² Hider P. 2001. *Environmental Interventions to Reduce Calorie Intake or Density: a critical appraisal of the literature*. New Zealand Health Technology Assessment report (in draft).

through UNITEC (Auckland). This programme includes both Maori and Pacific children and their families and consists of dietary advice and a physical activity programme. Inconsistent results came from four overseas studies of the effectiveness of interventions based in worksite cafeterias. However, mixed environmental and educational interventions were found to sometimes improve dietary habits. One workplace study in Auckland,¹³ which offered a mixed intervention, showed that intervention at worksites can improve health behaviours and nutrition knowledge.

See Appendix 2 for further examples of possible interventions in food consumption environments.

What DHBs can do

Support the consumption of healthy, low fat meals and snacks and work to remove fat and sugar from the environment by:

- working at a policy level to advocate for healthy options in restaurants, worksite cafeterias, schools marae and fono
- introducing courses on low fat cooking into chef training programmes
- training takeaway bar workers in best practice methods to reduce fat uptake in takeaway foods
- re-introducing cooking classes in schools
- lectures and short courses to teachers and school boards of trustees to raise awareness of the issue of increasing obesity in children.

Setting 4: Food production, manufacturing and retailing

RATIONALE

At many points along the food chain, intervention could reduce obesity. The most obvious point is during the manufacture of processed foods. Some food companies have already produced low fat or low sugar versions of their products; however these versions (eg, lite potato chips) tend to be more expensive than the standard product. At the DHB level there are already some interventions that address this level. For example, Auckland Healthcare is exploring the reduction of fat in sausages and pies. The Heart Foundation also has programmes focusing on reducing fat in food products.

The composition of most high fat or high sugar foods can potentially change. In addition, it may be possible to process and package healthy, low calorie foods such as fruits and vegetables in a way that increases their acceptability, shelf life and therefore consumption. Many food companies employ nutritionists and dietitians for advice. These companies already provide nutrition information and nutrition education materials but in recent consultation expressed concern at their inability to access Maori and Pacific groups with appropriate nutrition education. To increase access to foods that are high in vitamins and minerals and low in fat and sugar such as breads and cereals and fruit and vegetables, support for initiatives such as community markets and co-operatives can be encouraged.

¹³ Cook C, Simmons G, Swinburn B, Stewart J. 2000 Changing risk behaviours for non-communicable disease in New Zealand working with men: is workplace effective? *New Zealand Medical Journal* 114(1130): 175–8.

Supermarkets can be used as a setting for imparting knowledge and information on healthy eating and the prevention and management of obesity. In evaluating environmental interventions to reduce energy intake or density, the NZHTA report¹⁴ notes that, in general, supermarket interventions are effective in influencing people's food choices. Moreover, it is relatively easy for them to employ environmental interventions to influence the sales of selected items. The report also notes that some studies it evaluated reported significant improvements in general nutrition knowledge of supermarket shoppers as well as an increase in purchases of low fat foods.

See Appendix 2 for further examples of possible interventions in food production, manufacturing and retailing settings.

What DHBs can do

Collaborate with food manufacturers, food technologists and retailers to increase the production and promotion of low fat, low sugar foods by:

- advocating for the manufacture of more low fat, low sugar products
- advocating for nutrition signposting in supermarkets
- increasing technologists' awareness of obesity and exploring with them avenues to increase access to fruit and vegetables through better technology and packaging
- work in partnership with the food industry to promote healthy eating and healthy weight among Maori and Pacific groups.

Setting 5: Communities

Community-based interventions can be undertaken in specific ethnic communities or in geographical communities. Some overseas studies (Healthy Bergeyk¹⁵ in Holland, North Karelia in Finland¹⁶ and the Grampian Health Board in Scotland¹⁷) have demonstrated that interventions can be effective in reducing fat intake.

Community interventions to reduce obesity can include components such as cooking classes and demonstrations, nutrition classes, physical activity classes (aerobics etc) or environmental campaigns such as developing shelf signs for foods, labelling of foods or healthy eating policies. Communities would be an ideal setting for the employment of a dietitian or nutritionist; alternatively they could invite the services of a member of the weight-loss industry such as Weight Watchers.

Within New Zealand, there have been nutrition interventions within Maori communities.¹⁸ Marae-based nutrition training has been undertaken at four sites around New Zealand and evaluation demonstrated their success at achieving their stated objectives in addition the national provider Te Hotu Manawa Maori operates the National Nutrition and Physical Activity Service which is a 'train the trainer' intervention programme.

¹⁴ Hider P. 2001. *Environmental Interventions to Reduce Calorie Intake or Density: a critical appraisal of the literature*. New Zealand Health Technology Assessment report (in draft).

¹⁵ Van Assema P, Steenbakkens M, Kok G et al. 1994. Results of the Dutch community project 'Healthy Bergeyk'. *Preventive Medicine* 23: 394–401.

¹⁶ Pietinen P, Nissinen MD, Vartiainen MD et al. 1988. Dietary changes in the North Karelia Project (1972–1982). *Preventive Medicine* 17: 183–93.

¹⁷ Lean MEJ, Anderson AS, Coubrough HA. 1988. Towards NANCE: improving eating habits in a Scottish health board. *European Journal of Clinical Nutrition* 42: 177–84.

¹⁸ Two interventions are called Te Taro o te Ora – one run by te Runanga a Turanganui a Kiwa (Marae Craft) and the other run by Hiki Pihema (Te Runanga o Ngati Porou). The other two are Kai Oranga Tinana mo Waipereira (Auckland) and Te Pataka o Te Taitaokerau.

See Appendix 2 for further examples of possible interventions in community settings.

What DHBs can do

Support community-based interventions to reduce obesity by:

- exploring the concept of community action zones for example the Ranui Action Project in West Auckland which brings together the Ranui community government agencies, volunteer groups and the council to improve the health and well-being outcomes in Ranui through the Ranui Community Centre
 - developing links with different communities and establishing ways of collaborating
 - assisting communities in the development, implementation and evaluation of appropriate obesity reduction.
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Interventions: primary care

Managing obesity in general practice

General practice is important in the management of overweight and obese people as this setting is often the first port of call for people seeking help. General practice is where most people, obese or not, come into contact with the medical services. It also has the potential to tackle issues of being overweight or obese, possibly as part of a consultation not initially related to weight problems.

Within the primary care setting, general practitioners may see patients, either directly because of overweight and obesity problems, or because of the associated illnesses, or indeed because of some condition unrelated to overweight. Practice nurses, dietitians, health visitors and school nurses can also play a valuable role in identifying patients with weight problems and providing advice and support on weight control and lifestyle change in a more relaxed environment.

In the management of obesity in general practice, the first objective is to prevent further weight gain. Once weight is stabilised, the second objective is to achieve some level of weight loss. Weight loss goals should be realistic and achievable. For many obese people, achieving a BMI in the ideal range and within a reasonable time is hard.

Even moderate weight loss can have health benefits. For example, a weight loss of 5 kg is equivalent to a loss of some 6 percent in body weight for a man or woman of average height with a BMI of 30, on the boundary between the overweight and obese categories. This degree of weight loss can reduce back and joint pain, breathlessness, and the frequency of sleep apnoea, as well as improving lung function. It may also result in psychological benefits, such as the alleviation of depression and anxiety.

In a 1998 report, the British College of Physicians¹⁹ lists the following potential benefits that can accrue from a slightly greater weight reduction. Namely, with a 10 percent fall from an initial weight of 100 kg in those patients with associated diseases, there can be:

- a substantial fall in systolic and diastolic blood pressure
- a fall of 10 percent in total cholesterol
- a reduction in the risk of developing diabetes by more than 50 percent

¹⁹ Royal College of Physicians London 1998. Clinical management of overweight and obese patients with particular reference to the use of drugs.

- a 40–50 percent fall in obesity related cancer deaths
- a 20–25 percent fall in total mortality.

In a recent British survey²⁰, 1,200 general practitioners and 1,200 practice nurses were sampled using a postal questionnaire. The responses showed that the management of obesity within general practice consists of three broad types, depending on the degree of obesity and the extent of clinical complications. In ascending order of the degree of intervention, these forms of management are:

1. general advice within the surgery, and personal advice on weight control, diet and physical exercise aimed at influencing lifestyle
2. personal advice on weight loss and lifestyle change supported by drug therapy prescribed by the general practitioner
3. onward referral to a weight loss specialist, possibly involving drug therapy and, in extreme cases, surgery.

Key population interventions and priority settings

- advice on weight control, diet and physical exercise (by GP or practice nurse)
- advice on how to modify diet and lifestyle in order to build in more physical activity
- the provision of specialised diets and diet plans
- referral to exercise programmes such as through the Green Prescription
- ongoing support including goal setting and weight monitoring
- promoting healthy eating and physical activity through general information.

What DHBs can do:

- facilitate the interface between public health nutrition obesity intervention services and general practitioner organisations
 - facilitate the interface between general practitioner organisations and community groups
 - advocate for general practitioners to do courses to increase their knowledge and understanding of the problem of obesity
 - support increased training in obesity by public health nutritionists and dietitians to GPs, practice nurses, midwives, nurse practitioners, Plunket nurses and other community-based staff.
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²⁰ Tackling Obesity in England 2001. Report by the Comptroller and Auditor General. National Audit Office

APPENDIX 1:

Key documents

This toolkit relies heavily on the following documents

- Agencies for Nutrition Action. 2001. *Healthy Weight New Zealand*. A consultative document towards a National Strategy to increase the proportion of the New Zealand population who maintain a healthy weight throughout their lives.
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APPENDIX 2:

Examples of interventions

Public health interventions

Setting	Examples of opportunities for intervention
Media	<ul style="list-style-type: none"> • Regulate food advertising and marketing aimed at children • Increase promotion of low energy foods (eg, fruit and vegetables) • Provide information on foods and healthy living in a manner that recognises everyday life and concerns • Encourage media role models to lead by example • Counter misinformation by running courses for media workers, particularly copywriters and TV/radio hosts • Enlist the support of radio/TV hosts by encouraging them to act as nutrition role models
Schools	<ul style="list-style-type: none"> • Promote walking/cycling to school • Increase and reorient physical education in the curricula • Promote extracurricular physical activity • Improve access to healthy food at school • Encourage (and reward) choice of healthy food and drink options • Integrate food and nutrition into the curricula • Limit purchase of confectionery and other energy dense snacks inside and outside school grounds • Regulate sponsorship and advertising by food companies
Worksites	<ul style="list-style-type: none"> • Promote walking/cycling to work • Provide exercise and changing facilities • Provide flexible working arrangements • Incorporate healthy nutrition and physical activity into worksites • Improve access to healthy food in canteens • Introduce price differentials (subsidies) on healthy food choices • Provide obesity and weight control management by inviting a weight loss company to run programmes
Homes	<ul style="list-style-type: none"> • Promote the production and consumption of fruit and vegetables through home gardening • Use interactive videos and programmes to get children to become active when watching television • Promote home gardens to increase fruit and vegetable consumption • Advocate for the use of frozen or canned fruit and vegetables as a relatively inexpensive way of increasing fruit and vegetable intake • Promote the consumption of more fresh fruit and vegetables • Promote the use of low fat cooking methods • Promote the consumption of water over non-alcoholic beverages • Educate parents on low fat, low sugar snack foods for the family (including school lunch boxes) • Assist parents to access nutrition resources and information and advice on preventing or managing overweight children

Setting	Examples of opportunities for intervention
	<ul style="list-style-type: none"> • Inform parents as to the benefits of physical activity and the detrimental effects of excess television watching and computer games • Promote family physical activity
Food retailers and service outlets	<ul style="list-style-type: none"> • Promote healthy food choices • Arrange product demonstrations of low fat cooking • Use healthy local produce • Encourage nutrition signposting and information in supermarkets • Encourage nutrition labelling information in supermarkets
Local health care and health promotion	<ul style="list-style-type: none"> • Utilise existing health promotion opportunities to disseminate information about healthy weight management, eg, antenatal and postnatal classes • Integrate weight management advice into clinical services for conditions related to overweight and obesity
Restaurants and takeaways, fast food outlets, dairies and caterers	<ul style="list-style-type: none"> • Develop reduced fat and reduced energy food products • Promote low fat foods • Provide nutrition information (eg, nutrition labelling, regulation of health claims, point of purchase information) • Use monetary incentives to promote healthy food provision • Develop and implement appropriate nutrition standards and policy guidelines for catering establishments (public and private), eg, serving vegetables within the cost of the main meal, providing a free salad bar • Train catering staff in low fat food preparation and encourage development of low fat recipes • Advocate for labelling of healthy choices in restaurants (US E+) • Train chefs in deep frying methods that minimise fat uptake • Advocate for lower amounts of fat and sugar to be added to fast food and restaurant food • Reward dairy owners for stocking fruit and other low fat snack food • Advocate against 'upsizing' in fast food chains • Advocate for the inclusion of salads in fast food chains • Assist caterers in developing low fat, low sugar, high vegetable menus for feasts and festivals • Provide nutrition training in all chef and caterers courses • Introduce healthy eating accreditation schemes for restaurant and food outlets
Health system	<ul style="list-style-type: none"> • Run national campaigns to promote physical activity and healthy eating using social marketing • Run public awareness campaigns on the need to maintain an healthy weight throughout life • Provide training in obesity management and prevention for health professionals including GPs, practice nurses, rest home staff • Educate/encourage GPs to identify (and report) obesity as a disease and to intervene before the onset of further disability (eg, CVD, CHD, diabetes)
Health insurance	<ul style="list-style-type: none"> • Address insurance risk ratings • Link health insurance with health promotion
Sports / leisure industry	<ul style="list-style-type: none"> • Promote cycling and walking for sightseeing • Encourage healthy catering at sports events

Setting	Examples of opportunities for intervention
Transport system and urban/ rural development	<ul style="list-style-type: none"> • Modify building design to encourage use of stairs instead of elevators
Government and regional / international organisations	<ul style="list-style-type: none"> • Develop an integrated policy for nutrition and physical activity

Primary care interventions

Form of intervention	Pathway to the intervention
Advice on weight control, diet and physical exercise (by GP, practice nurse, nurse practitioner)	<ul style="list-style-type: none"> • Advise on how to modify diet and lifestyle in order to build in more physical activity • Provide specialised diets and diet plans • Refer to exercise programmes or weight loss programmes, such as Green Prescription and Weight Watchers • Provide ongoing support including goal setting and weight monitoring
Promote healthy eating and physical activity through general information	<ul style="list-style-type: none"> • Public health units to supply nutrition and physical activity resources • Public health units to supply training to GPs, practice nurses and nurse practitioners
Increase awareness among GPs	<ul style="list-style-type: none"> • Clinical Training Agency to run intraining courses for GPs on obesity prevention and management
Develop linkages with other groups engaged in the prevention and treatment of obesity	<ul style="list-style-type: none"> • Develop links with community health workers and community groups, public health nutrition groups, healthy cities groups, to form network

APPENDIX 3:

New Zealand Health Strategy indicators for obesity

The Ministry of Health has negotiated accountability agreements with District Health Boards that contain indicators related to NZHS priority areas. Indicators directly related to obesity have not been included in this year's accountability agreements and will not be included until funding for public health has been devolved to DHBs.

Some consideration has been given to some useful indicators and these are shown below.

Indicator 1	Map existing providers and personnel responsible for provision of programmes targeting obesity
Rationale	<p>It is important to identify the groups, individuals and organisations with direct and indirect interests in the prevention and management of overweight and obesity.</p> <p>International evidence suggests that preventing obesity requires, for many people, substantial changes across many aspects of their life. These include changes to exercise patterns, car and transport use, shopping and cooking habits, the organisation and choice of the composition of meals and snacks and their use of leisure time (see also physical activity and nutrition toolkits).</p> <p>Comprehensive strategies are needed both for the prevention of population weight gain and for the management of individuals with existing weight problems.</p> <p>Strategies should include a mix of strategies, from those that target individual behaviour to those aiming to change the 'obesogenic' environment.</p> <p>Usually overweight and obese people only receive medical treatment when they develop associated illness (see diabetes and cardiovascular toolkits). By this stage, there is only the possibility of limited success.</p> <p>Effective programmes require a concerted effort across different societal sectors, which may not have direct links with one another – from central government responsible for transport policy, food standards and overall nutrition policy to local authorities or other community-based groups responsible for parks and recreation, safe streets and other site-specific initiatives.</p> <p>General support is needed from a range of industries with very different commercial perspectives, from supermarkets to smaller local shops and markets, the food and catering industry, advertising, customer care businesses and the media.</p> <p>Reducing obesity is consistent with the National Plan of Action for Nutrition (1994–5).</p> <p>This indicator is selected based on the likelihood that a map of existing providers and programmes will enhance the organisation's ability to identify and resolve capability issues in the pursuit of reducing the level of obesity in the local population.</p> <p>Evidence suggests that to reduce obesity in populations, a strategic, multisectoral approach is required that establishes links and alliances among public health providers, primary care providers and other key stakeholders, by adopting health promotion approaches and interventions that address the wider determinants of health in a variety of settings (health care, schools, workplaces, community). (See Appendix 2 on interventions for a list of the most likely settings and stakeholders.)</p>

Indicator 2	Assessment of current situation
Rationale	To assess the overweight and obesity situation, DHBs will need to rely on national data (see 'The context for action' above). However, there will be different rates of obesity depending on the diversity of the population.

APPENDIX 4:

Measuring obesity and overweight

The body mass index (BMI) is the most frequently used measure of body size. It is determined by dividing weight (in kilograms) by height squared (in metres). Adults of European origin who have a BMI of 30 or more are deemed obese. Overseas studies suggest that a BMI of 20–25 is the ideal weight range in relation to subsequent mortality.

The BMI benchmarks are not appropriate for all groups, particularly children, athletes, Pacific peoples and Maori.

The World Health Organization definitions based on BMI are as follows.

Underweight	below 18.5
Healthy weight	18.5 – 24.9
Overweight (grade 1 obesity)	25.0 – 29.9
Obese (Grade II obesity)	30.0 – 39.9
Morbid obesity (Grade III obesity)	40 or above

(BMI = Weight kg / Height m²)

Waist to hip ratio

Waist to hip ratio (WHR) is a measure of body fat distribution. It is particularly useful as a measure of central obesity (accumulation of abdominal fat), which is a good indicator of risk for some diseases such as diabetes. A WHR of 0.8 for males and 0.9 for females is considered to indicate cardiovascular risk.

WAIST CIRCUMFERENCE

Studies have shown that waist circumference is a sensitive yet simple measure for identifying people with high BMI and central fat distribution. In local health initiatives targeting excess weight and obesity, this approach may be useful for measuring baselines and monitoring change.

The simple measurement of waist circumference can determine risk of this syndrome. In a study of Dutch men and women, the following waist circumferences were found to be associated with a substantially increased risk of metabolic complications.

APPENDIX 5:

Web site resources

www.ana.org.nz/ Agencies for Nutrition Action

www.dhs.vic.gov.au/nphp/signal Eat Well Australia strategy for nutrition, physical activity and healthy weight

www.nzhta.chmeds.ac.nz/ New Zealand Health Technology Assessment

www.cdc.gov/diabetes/ USA Centres for disease control web site

www.cdc.gov/nccdphp/dnpa/. Centres for disease control web site

www.iotf.org/ International Obesity Taskforce

www.eatright.org/ American Dietetic Association

www.nutrition.org.uk/ British Nutrition Foundation

www.nutritionaustralia.org/ Nutrition Australia

www.dietitians.org.nz/ New Zealand Dietetic Association

www.navigator.tufts.edu/ Nutrition Navigator

www.moh.govt.nz/ Ministry of Health website.