

**Primary Prevention**  
**Report of the Primary Prevention**  
**Expert Working Group to the Cancer**  
**Control Steering Group**

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# Abbreviations

ACC	Accident Compensation Corporation
ALAC	Alcohol Advisory Council of New Zealand
ANA	Agencies for Nutrition Action
ASH	Action on Smoking and Health
ATAK	Apārangi Tautoko Auahi Kore
DALY	Disability Adjusted Life Years
DHB	District Health Board
FSANZ	Food Safety Authority New Zealand
GRx	Green Prescription
HbsAg	Hepatitis B surface antigen
HFA	Health Funding Authority
HIV	Human Immune Deficiency Syndrome
HPV	Human Papilloma Virus
HSNO	Hazardous Substance and New Organism Act 1996
IDU	Injecting Drug User
IV	Intravenous
LTSA	Land Transport Safety Authority
MAF	Ministry of Agriculture and Forestry
MFAT	Ministry of Foreign Affairs and Trade
NDP	National Drug Policy
NHC	National Health Committee
NIDDM	Non-insulin dependent diabetes mellitus
NIWA	National Institute of Water and Atmospheric Research
NODS	Notifiable Occupational Disease System
NSE	Needle and Syringe Exchange Programme
NZBS	New Zealand Blood Service
OSH	Occupational Safety and Health
SIDS	Sudden Infant Death Syndrome
SPAN	Smokefree Pacific Action Network
SPARC	Sport and Recreation New Zealand
STI	Sexually Transmitted Infection
TPK	Te Puni Kokiri
UV	Ultraviolet



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## Background

Cancer was the leading cause of death in New Zealand in 1998, with 7582 deaths. The main causes of cancer death were cancer of the lung, prostate, breast and large bowel. Māori males had a cancer death rate that was 51 percent higher than the non-Māori rate, while the Māori female rate was 78 percent higher than the non-Māori female rate (NZHIS 2001). There are about 17,000 new registrations of cancer each year, with the highest rates in the middle and older age groups (Ministry of Health 2001).

Cancer control has been identified as one of the 13 health priority areas in the New Zealand Health Strategy (King 2000). To address this priority, the Ministry of Health and the New Zealand Cancer Control Trust formed a Cancer Control Steering Group to oversee development of a cancer control strategy for New Zealand.

The primary aim of the New Zealand Cancer Control Strategy is to reduce the incidence and impact of cancer for all New Zealanders. The strategy encompasses prevention, screening and early detection, treatment, support and rehabilitation, and palliative care. Expert Working Groups were established to identify the aims and objectives, and priority areas and actions within each of the five sectors.

The strategy will include a high-level enduring framework, a set of priority actions, and mechanisms for monitoring progress and periodic review. An important component of the strategy is a 'set of evidence-based, cost-effective priority actions for the short term, which best reflect the objectives and principles in the framework, and are based on best practice'.

Overarching these service areas are the principles of collaboration, equity, co-operation and integration in all aspects of cancer control.

A paper on issues influencing access of Māori to health care services, particularly cancer services has been prepared by Dr Keri Ratima, a member of the Cancer Control Steering Group. This paper provided background information to the expert working groups.





# Introduction

This paper was written by Dr Harriette Carr in discussion with the Primary Prevention Expert Working Group.

Cancer was the leading cause of death in New Zealand in 1998, with 7582 deaths. However, an estimated 75–80 percent of cancers may be preventable (Colditz 2002). The aim of the Primary Prevention section of the New Zealand Cancer Control Strategy is to reduce the incidence of cancer in the New Zealand population.

The seven priority areas that are important if we are to reduce the incidence of cancer in New Zealand are:

- tobacco
- physical activity and obesity
- nutrition
- ultraviolet radiation exposure
- alcohol
- infectious diseases
- occupation-related cancers.

Within each of these priority areas, a number of actions have been suggested. The Cancer Steering Group at a meeting in September 2002 accepted the priority areas. The proposed actions are consistent with other relevant Ministry of Health strategies and guidelines, and will provide a basis for the consultation phase of the Cancer Control Strategy.

All seven areas require a comprehensive approach broadly based on the Ottawa Charter (WHO 1986): policy/legislation, strengthening communities, supportive environments, improving personal knowledge and skills, and reorienting health services. Overarching these components are a number of generic actions/areas that have also been identified. These are leadership, workforce development, data collection, a consumer focus, monitoring and surveillance, research and evaluation, and joint planning and funding.

Strategies and programmes currently exist in most of the seven areas, accompanied by campaigns, brands, and projects, many of which have been evaluated and demonstrated to be making a difference. The inclusion of the seven primary prevention areas within the Cancer Control Strategy will have outcomes at various levels.

- Within the primary prevention areas, different strategies, programmes and services can work together to reduce the incidence of related cancers (while recognising the benefits on other health conditions). Approaches may include identifying cancer-specific messages and guidelines that might differ from current recommendations. For example, alcohol, where cardiovascular evidence suggests that small amounts of alcohol are protective, while for cancer, even small amounts of alcohol increase the risk of cancer.
- Between the primary prevention areas, links can be identified with cancer incidence. These include linked behaviours, obesity (physical activity and nutrition), occupational physical inactivity, and occupational exposure to tobacco.

- In the wider Cancer Control Strategy there will be increased awareness amongst stakeholders involved in cancer detection, treatment, rehabilitation, and palliative care of the role of primary prevention. For example, there is a link between primary prevention and early detection in the area of skin cancer awareness and education.

While this paper focuses on the relationship between cancer risk and each of the seven priority areas, we must realise that gains in any of these areas will also benefit other health conditions. For example, an increase in physical activity and improved nutrition can reduce the risk of colon and breast cancer, and reduce the risk of obesity and heart disease.

The comprehensive approaches outlined in this paper can be directed at specific subgroups or at the general population. Within each area, priority populations have been identified. The burden of cancer is not equally distributed amongst the population. In 1998, Māori males had a cancer death rate that was 51 percent higher than the non-Māori rate, while the Māori female rate was 78 percent higher than the non-Māori female rate (NZHIS 2001b). Primary prevention of cancer provides a way to close the gap between Māori and non-Māori because Māori are more exposed to many of the risk factors such as cigarette smoking. Underpinning the primary prevention areas is a need to address the wider determinants of health, such as housing, education, employment and income. Making progress in the primary prevention areas therefore requires an intersectoral approach. We must all work together, sharing resources, experiences and knowledge, and recognising the contribution of other people if we are to reduce the incidence of cancer.

Finally, the aim identified by the Primary Prevention Expert Working Group is a long-term aim, to reduce the incidence of cancer in New Zealand. A long-term commitment is therefore required. However, short-term and medium-term outcomes can be identified to demonstrate progress and justify efforts (for example, an increase in reported physical activity levels, a reduction in the prevalence of obesity, or an increase in the number of smokefree environments).

# Priority Area 1: Tobacco

## Problem

Exposure to tobacco smoke is a strong risk factor for the development of lung cancer and many other cancers. Lung cancer is an important cause of morbidity and mortality in New Zealand particularly among Māori who have rates three times higher than non-Māori. Whereas 24 percent of the population smoke, this rises to over 50 percent in Māori. Tobacco smoke is also an important risk factor for cardiovascular disease and respiratory illness.

## Aim

To reduce the number of New Zealanders developing tobacco-related cancers.

## Objective

To reduce exposure to tobacco smoke through a comprehensive tobacco control programme that includes increased health promotion, advocacy, cessation services, legislation, and support for international tobacco control efforts.

## Expected outcomes

- A reduction in the gap between Māori and non-Māori with tobacco-related cancer.
- Fewer young New Zealanders and Māori taking up smoking.
- Increased quitting, particularly among Māori.
- A reduction in the number of people exposed to second-hand smoke.
- A reduction in the burden of tobacco on the health system through fewer tobacco-related hospital admissions, tobacco-related cancers (particularly lung cancer) and deaths.

## Epidemiology

Lung cancer is the leading cause of cancer death in males and second in females. The rates of lung cancer are almost three times higher in Māori compared with non-Māori. There is very strong evidence that exposure to tobacco smoke causes lung cancer. Tobacco smoke is also a major cause of cancers of the larynx, oral cavity and oesophagus. Public health initiatives aimed at discouraging smoking and warning people of the dangers of smoking have contributed to a decline but 24 percent of the population continues to smoke. The prevalence of smoking among adolescents has changed little in the last 10 years. As tobacco is a key causal factor in health inequalities experienced by Māori compared with non-Māori, the Primary Prevention Expert Working Group has identified reducing exposure to tobacco smoke as an important area for action to reduce the burden of cancer on New Zealand society.

## Lung cancer statistics

- Lung cancer accounts for 17,919 Disability Adjusted Life Years (DALYs) lost per year (11,034 in males and 6885 in females).
- There is an upward trend in cancer registrations for the trachea, bronchus and lung sites in females (from 526 in 1993 to 602 in 1997), and a downward trend in males (from 991 in 1993 up to 1072 in 1994 before dropping to 936 in 1997).
- 11% of all male and 8% of all female cancer registrations (1997 data), and 23% of male and 15% of female cancer deaths are due to lung cancer (fatality/case ratio of 0.92).
- Lung cancer was the most common cause of cancer death for males and the second most common for females (1997).
- The Māori registration rate for lung cancer was 73.7 per 100,000 people, a rate almost triple that for non-Māori (25 per 100,000 population).

(NZHIS 2001)

## Smoking statistics (Ministry of Health 2001d)

- 24% of people aged 15 and over smoke one or more cigarettes per day.
- Smoking prevalence decreased 2% between the early 1990s and 2000, representing approximately 55,000 fewer smokers.
- In the 1990s, smoking prevalence reduced in those aged 35 years and over but has changed little for those less than 35 years of age.
- Between the ages of 15 and 24, smoking is more prevalent among females than males. In the 25–34-year age group there is a similar number of male and female smokers. There are more male smokers than female smokers in the over 35-year age category.
- In 2000, approximately one quarter of 15–19-year-olds identified themselves as smokers, rising to one third for 20–24-year-olds.
- The highest cigarette smoking prevalence is reported by those with low incomes and respondents indicating they were 'beneficiaries'.
- In 2000, age-adjusted smoking prevalence for those in the 25–64-year age group was: 50.6% for Māori, 25.0% for European/Other and 32.9% for Pacific peoples.
- The average number of cigarettes smoked per smoker decreased from 13.1 in 1997 to 11.9 in 2000.
- By the age of 13, 79% of young people reported having tried a cigarette (HSC 2000).

## Second-hand tobacco smoke

- Second-hand tobacco smoke is associated with approximately 347 deaths per year in New Zealand (Woodward and Laugesen 2001).
- Exposure to second-hand cigarette smoke increases the risk of heart disease, stroke, Sudden Infant Death Syndrome (SIDS) as well as lung cancer.
- Second-hand smoke causes glue ear and asthma attacks in children.

## Smoking and preventable future deaths

- Between 4300 and 4700 deaths per year in New Zealand are due to smoking (Ministry of Health 1999).
- Elimination of smoking would reduce lung cancer deaths by 68% in females and 82% in males. Deaths due to chronic obstructive respiratory disease, heart disease and stroke would also be reduced.
- Tobacco smoke is the major cause of cancers of the lung, larynx, oral cavity and oesophagus. Tobacco smoke also contributes to cancers of the pancreas, bladder, kidney, stomach and uterine cervix (Blum 1997).
- Tobacco smoking as a behaviour is also associated with other cancer-risk behaviours such as alcohol consumption and physical inactivity.

## History and current status

### Legislation

The overall price elasticity of demand for tobacco during the 1988–98 period for all smoking households in New Zealand is likely to be in the range of  $-0.5$  to  $-0.8$  (for a 10% price increase, the number of cigarettes purchased by the average smoking household fell by between 5 and 8%). There is some indication that average 'sole adult and children' households and Māori 'sole adult and children' households reduced the number of cigarettes purchased after a price rise to a greater extent than other types of households (Thomson et al 2000).

The Smoke-free Environments Act 1990 and Smoke-free Environments Regulations 1999 cover indoor environments and tobacco products control.

- **Workplaces:** smoking is not permitted in lifts, in shared office areas or public areas of workplace; employers are required to have a written policy on smoking.
- **Aircraft and public transport:** smoking is not permitted on internal passenger flights, passenger vehicles, ships and trains.
- **Licensed premises and eating-places:** must have a workplace smoking policy and provide smokefree areas for dining.
- Tobacco advertising was banned on 16 December 1990.
- Ban on acknowledged sponsorship of events by tobacco companies.
- Tobacco products cannot be sold to anyone under the age of 18.

- All tobacco products must have a health message.
- Importers and manufacturers of tobacco are required to supply information annually to the Director General of Health.
- Manufacturers and importers are required to report the quantity of tar and nicotine per cigarette, for products sold.

The Smokefree Environments (Enhanced Protection) Amendment Bill and a Supplementary Order Paper have been referred to the Health Select Committee. The Bill/SOP's provisions include: measures to further restrict minors' access to tobacco products; tobacco sale display restrictions; powers for health warnings and disclosure of tobacco contents; further smoking restrictions in workplaces, schools and educational institutions.

### Health promotion, cessation and smokefree

A range of health promotion activities and services are undertaken in the area of smoking cessation, smokefree and advocacy.

#### *Cessation*

Cessation activities include cessation programmes (Quitline, Aukati Kai Paipa, Quit for our Kids, and Can Quit), mass-media health promotion, pharmacological treatments and community health providers.

#### *The Quit Group 'Quitline' Service*

In 1998 the Health Sponsorship Council, Cancer Society and Te Hotu Manawa Māori formed the 'Quit Group', a partnership aimed at encouraging and supporting smokers to quit smoking. Quitline (0800 778 778), a national freephone service, began in May 1999 having run as a pilot programme since late 1998. The service provides quit smoking materials and access to a quit advisor for support and advice. Since November 2000, subsidised nicotine replacement therapy (NRT) has been offered to those who are assessed as suitable. This has been in the form of an exchange card for patches or gum accompanied by support and advice. Between 2 July and 30 September 2000, 27 percent of callers were Māori of whom 70 percent were female.

#### *Aukati Kai Paipa*

Aukati Kai Paipa (NHC 2002) is a smoking cessation programme focusing on Māori women that primarily consists of NRT in the form of gum and/or patches together with counselling delivered by quit coaches. The programme operates in a Māori setting and is free of charge to all participants. An evaluation of Aukati Kai Paipa 2000 pilot programme has been undertaken for the Ministry of Health. The indicative quit rate for the programme appears significantly higher at 12 months (23%) than the latent quit rate for Māori women not on the programme (12.5%).

### *Pharmacological therapy (NHC 2002)*

Nicotine replacement therapy (NRT) makes it easier to avoid smoking by replacing some, but not all, of the nicotine obtained from smoking. In New Zealand, NRT is available from pharmacies as patches, gum, inhalers and a nasal spray.

Bupropion is an atypical antidepressant that has been shown to be effective in treating cigarette smokers by assisting with nicotine withdrawal. It is a prescription medicine.

### *Smokefree*

The Health Sponsorship Council (HSC) is the main social marketing agency in the area of smokefree. It was established in 1990, under the Smoke-free Environments Act (1990) to promote health and healthy lifestyles, and to replace tobacco sponsorship with positive health messages. The current smoking-related brands are Smokefree, Auahi Kore, lungfish and Quit/Me Mutu. Other programmes include Smokefree Schools (encouraging a smokefree environment in schools), Health and Physical Education curriculum and Public Health Services. However, there is currently no long-term media strategy or campaign. Campaigns promoting smokefree healthy lifestyles to date have been intermittent.

### *Advocacy*

A number of agencies are involved in advocacy. These include Apārangi Tautoko Auahi Kore / Māori Smokefree Coalition (ATAK), Smokefree Coalition and ASH.

Other relevant agencies and organisations are the Cancer Society of New Zealand and Te Hotu Manawa Māori.

## **Strategies and key policy documents**

Further information on the documents listed below is available in, 'Stocktake of Strategies and other Key Policy Documents for Cancer Control in New Zealand'.

- Strategy: Towards a Tobacco Free New Zealand: A five-year plan for HFA funding for HFA funding for tobacco control (HFA, July 1999).
- Advice: Tobacco Products: The Public Health Commission's advice to the Minister of Health, 1993–94 (Public Health Commission, 1994).
- Strategy: National Drug Policy, Part One: Tobacco and Alcohol (Ministry of Health, June 1996). Implementation phase. The strategy is due to be evaluated in 2003.
- Action Plan: Tobacco Action Plan (Ministry of Health, December 2000).
- Guidelines for Smoking Cessation (National Health Committee, 1999). Designed for primary health care professionals.
- DHB toolkit: Tobacco Control (Ministry of Health, 2001).
- Smokefree Cessation Guidelines, revised in 2002.

## Priority population

Māori smokers, young people, pregnant women.

## Monitoring and review

- **Short term:** awareness of campaigns; use of tollfree numbers; requests for NRT; reduction in sales of tobacco.
- **Intermediate term:** reduction in the number of smokers, and an increase in the proportion of smokefree environments.
- **Long term:** decline in lung cancer rates.

## Action areas

Action 1	<b>Increase and normalise smokefree environments</b> (includes legislation, display and sales restrictions, promotion of tobacco (for example, in movies), and support and encouragement to create smokefree places/settings)
Evidence (overseas)	Moderate–strong. Multi-component approach is best. Posted warnings and educational material have a moderate effect. ‘Approximately 22.3% of the 2.7 billion decrease in cigarette consumption in Australia (1988 to 1995) can be attributed to smokefree workplaces’, as can 12.7% of the 76.5 billion decrease in the United States (1988 to 1994) (Chapman et al 1999). There is some evidence that greater exposure to seeing actors smoking in films is associated with adolescents trying smoking (Sargent et al 2001).
Evidence (New Zealand)	Strong. The Smoke-free Environments Act 1990 has reduced the proportion of workers exposed to tobacco smoke during working hours by almost half (Woodward and Fraser 1997). The Health Sponsorship Council through their Smokefree, Smokefree Sport and Auahi Kore programmes has encouraged hundreds of places throughout New Zealand to be smokefree, for example Westpac Trust Stadium. This sort of promotion helps to normalise smokefree environments creating support and buy-in for future legislation (I Potter, personal communication, July 2002).
Risks	The Smoke-free Environments (Enhancement Protection) Amendment Bill may affect some businesses or cost them money creating smokefree areas if the legislation passed is for less than 100% smokefree.
Benefits	Smokefree environments protect others from second-hand tobacco smoke. They also motivate and help smokers to quit.
Target populations	Smokefree environment legislation: people working in bars, clubs and so on and patrons of these establishments. Reducing promotion of tobacco: young people and adolescents.
Purpose	To control demand for tobacco by normalising smokefree environments; and harm minimisation by reducing exposure to second-hand smoke.
Stakeholders	Ministry of Health, Health Sponsorship Council, The Quit Group, ATAK, the Smokefree Coalition, ASH, DHBs, Public Health Units, and other non-Government agencies such as The Cancer Society, the National Heart Foundation, Te Hotu Manawa Māori, and SPAN.
Implementation	Smokefree environment legislation: education to influence public opinion is underway through television advertising.
Timeframe	Smokefree environment legislation: medium term (next three years). Reducing promotion of tobacco (eg, in movies) (5–10 years).
Outcome measures	100% smokefree in bars, clubs and so on; compliance with regulations; reduced tobacco sales; reduced numbers of actors/actresses smoking on screen.



Action 2a	<b>Reduce the supply of tobacco through progressive tax regulations (preferably a tied tobacco tax)</b>
Evidence (overseas)	Strong. For high-income countries, a tobacco price increase of 10% leads to a reduction in smoking of 4%. 'Tax increases are the single most effective intervention to reduce the demand for tobacco' (Jha and Chaloupka 1999).
Evidence (New Zealand)	Strong. Increases in the price of tobacco by 21%, 15% and 23% led to supermarket tobacco sales reductions of 11%, 10% and 16% respectively (short term) (Cancer Society of New Zealand 2000).  There is some indication that average 'sole adult and children' households and Māori 'sole adult and children' households reduced the number of cigarettes purchased after a price rise to a greater extent than other types of households (Thomson et al 2000).
Risks	Tobacco tax regulations affect households that can least afford it. There is also the potential risk of legal action against the government for taxation without an appropriate return to tobacco control.
Benefits	Overseas data suggests that the greatest effect is in those who can least afford to pay and hence stop smoking. Tobacco tax regulations may discourage uptake of smoking by young people (World Bank 1999). A tied tobacco tax would enable revenue gained from the sale of tobacco to be used for smoking cessation programmes and mass-media campaigns (see Actions 3 and 4).
Target populations	All smokers.
Purpose	To encourage reduced consumption of tobacco.
Stakeholders	Ministries of Health, Treasury, Te Puni Kokiri, Women's Affairs, Youth, Social Development.
Implementation	Tobacco tax increases to fund tobacco control programmes.
Timeframe	Medium term (next three years).
Outcome measure	A reduction in sales of tobacco (after controlling for other influences).

Action 2b	<b>Further control the supply of tobacco through regulating cigarette constituents</b>
Evidence (overseas)	Some background work has been done looking at regulating tobacco constituents (WHO 2001) but no countries have actually gone further than labelling and reporting requirements.
Evidence (New Zealand)	Some New Zealand regulations on tobacco constituents: labelling of harmful constituents (Section 32 Smoke-free Environments Act 1990); annual testing for constituents (Section 33 Smoke-free Environments Act 1990, Section 33 Smoke-free Environments Regulations 1999); reporting of constituents (Section 35 Smoke-free Environments Act 1990).
Risks	The potential for legal action by tobacco companies is high. There may be a perception of smoking a 'safe cigarette'.
Benefits	Reducing additives, such as sweeteners, may discourage some people from smoking (and becoming addicted to it) as it may make it less palatable. Reducing the amount of tobacco in cigarettes may reduce people's total consumption of tobacco.
Target populations	All smokers and potential smokers.
Purpose	To encourage reduced consumption of tobacco.
Stakeholders	Ministries of Health, Treasury, Te Puni Kokiri, Women's Affairs, Youth, Social Development; Smokefree Coalition, ASH, ATAK.
Implementation	Likely to be a long-term project – requires more work on feasibility. There also need to be better ways of testing tobacco constituents.
Timeframe	Long term (5–10 years).
Outcome measure	A reduction in sales of tobacco (after controlling for other influences).

Action 3	<b>Support mass-media cessation campaigns.</b> For example, support current campaigns/brands such as Quit/Me Mutu subject to encouraging evaluations, and Quit and Win (subject to evaluation of the larger areas covered compared with trial in Hawke's Bay).
Evidence (overseas)	Moderate impact on awareness and attitude. Mass-media campaigns lead to changes in awareness, knowledge and attitudes. There is also evidence that mass-media campaigns can prevent smoking in young adults. Evidence of cost-effectiveness based on Californian data (Goldman and Glantz 1998) it costs \$US95 to get a one-packet-a-day smoker to quit (Wilson 2002).
Evidence (New Zealand)	Moderate. The Quit campaign has used a threat/appeal approach to increase awareness of specific adverse health effects of smoking. In 2001, a total of 84,000 people called the Quitline to register, with the level of calls increasing markedly when television advertising was on air (unpublished Quit Group reports to the Ministry of Health). The proportion of calls from Māori dropped when there was no TV advertising. Contact with the Quitline is also associated with a 49% quit rate (having quit for one month or longer) according to preliminary survey data (BRC Marketing and Social Research 2001).  Me Mutu has used a motivating focus, rather than an awareness/education approach. Quit and Win – cost-effective (on a cost-per-quitter basis). 40% of smokers in Hawke's Bay trial of Quit and Win had quit smoking at 12-month follow-up (disproportionate number of participants were Māori).
Risks	Evaluation: it is difficult to ascertain how many people give up as a direct result of the campaign, but we can measure awareness, perceptions, and short-term behaviour change related to longer-term quitting.
Benefits	Reaches a large audience. Can target specific populations by timing of advertisements during certain programmes. Encourages smokefree environments by influencing public opinion.
Target populations	Māori smokers, smokers aged between 25 and 45 years.
Purpose	To motivate people to quit smoking and to stay quit.
Stakeholders	Ministry of Health, Quit Group.
Implementation	New advertising campaigns need to be developed every two or three years and ongoing campaigns are needed.
Timeframe	Ongoing. The Quit Group evaluations are due to be released in 2002 and 2003 (reporting on access to services, awareness, process and outcomes).
Outcome measure	Awareness of campaign; change in attitudes and beliefs and relate these to longer-term quitting.

Action 4	<b>Continue to provide a range of smoking cessation services that are accessible to people who want to quit.</b> For example, support current cessation services Quitline, NRT, and cessation for pregnant women (Midwives Joint Venture), hospital patients (Quit For Our Kids pilot stage), Māori (Aukati Kai Paipa and other Māori cessation programmes), and programmes by primary care providers and community groups.
Evidence (overseas)	Quit lines need to be well marketed to ensure usage (Wilson 2002). 'There is overwhelming evidence that smoking cessation interventions, if delivered in a timely and effective manner, greatly reduce a smoker's risk of suffering smoking-related disease' (Fiore et al 2000). Guidelines for Smoking Cessation (NHC 2002) provides a good summary of the international evidence for various types of interventions.
Evidence (New Zealand)	Quitline usage has been high especially by Māori, and linked to quit rates of 49% at six months (aided by NRT exchange card offer) (BRC Marketing and Social Research 2001).
Risks	Inadequate funding of such services may mean that people who ask for help or want more information do not receive timely advice.
Benefits	Targets specific populations/communities.
Target populations	Māori, pregnant women, hospital patients.
Purpose	Enable those ready to quit to achieve this.
Stakeholders	Ministry of Health, The Quit Group, Pharmac, Te Hotu Manawa Māori, Health Sponsorship Council, Public Health Units, Aukati Kai Paipa.
Implementation	Some already implemented. Evaluation of Aukati Kai Paipa was released in June 2002.
Timeframe	Ongoing.
Outcome measures	Number of enquiries; number of people who attempt smoking cessation through these programmes; number of people who successfully stop smoking; feedback on people's reaction to the service/s.

Action 5	<b>Prevent the uptake of tobacco by various means including legislation, raising awareness and education (particularly targeting youth).</b> A range of strategies targeting youth is required. These should include legislation, programmes and brands such as: Smokefree, Smokefree Schools, Health and Physical Education Curriculum, Public Health Services, Why Start programme, Health Sponsorship programmes for teens, and Health Promoting Schools.
Evidence (overseas)	'There is some evidence that mass media can be effective in preventing the uptake of smoking in young people, but overall the evidence is not strong' (Sowden and Arblaster 2001). However, a recent cross-sectional study of 12–17-year-olds to monitor the effects of an anti-tobacco media campaign resulted in significant increases in advertisement-specific campaign awareness by six weeks, with a continual rise throughout the first year. By the end of the first year, Florida youth had stronger anti-tobacco attitudes and better behaviour patterns than the comparison population (Sly et al 2001).
Evidence (New Zealand)	Preventing the uptake of cigarette smoking in New Zealand occurs through legislation making it illegal to sell cigarettes to people younger than 18 years of age (while the proportion of students buying cigarettes themselves declined significantly from 1999 to 2000 (Ministry of Health 2002d), approximately two in every three people under the age of 18 who tried to buy cigarettes were successful) (HSC 2000).  Evaluations of some current services have not been published. This would be a useful first step so that other programmes can learn about what works and what does not.
Risks	It is difficult to evaluate and monitor the success of these programmes apart from course feedback forms (public health service initiatives); measure exposure to the service (uptake of educational material, participation in sponsored events and so on).
Benefits	Targets specific populations/communities. Provides another means of educating and informing smokers and people thinking of starting smoking.
Target populations	Youth, Māori, women, Pacific peoples.
Purpose	To raise awareness of the effects of smoking through education.
Stakeholders	Health Sponsorship Council, Ministry of Health, District Health Boards, The Heart Foundation, The Cancer Society and many more organisations that are contracted to provide services.
Implementation	Ongoing.
Timeframe	Ongoing.
Outcome measures	Change in attitudes and beliefs of participants; awareness of the effects of smoking within the target population.

Action 6	<b>Support international efforts to reduce tobacco consumption</b>
Evidence (overseas)	International efforts include research, international meetings to share strategies and what works, the Framework Convention for Tobacco Control (FCTC), and challenges to the tobacco industry. The FCTC is a global treaty currently being negotiated by governments through the World Health Assembly (WHA). The FCTC will address transnational and trans-border dimensions of tobacco control, such as global advertising, smuggling and trade. It will also serve as an important catalyst in strengthening national tobacco legislation and control programmes (Delaney 2000). The benefits of this treaty process are already being felt. Governments and citizens are mobilising technical and financial support for tobacco control, and raising awareness among many government ministries about tobacco issues.
Risks	While New Zealand should support international efforts, in some areas of control and harm-minimisation New Zealand is ahead of other countries. New Zealand should not hold back on trying new strategies particularly within a cultural framework.
Benefits	Gain experience and learn from other countries as to what may be effective and what may work in New Zealand.
Target populations	New Zealand youth.
Purpose	To increase global understanding of the effects of tobacco, strategies to control the supply and demand for tobacco and harm-minimisation.
Stakeholders	Ministry of Health, MFAT.
Implementation	Ongoing.
Timeframe	Ongoing.
Outcome measure	Effective introduction or adoption of strategies used overseas.

## Other actions that were considered

- **Endorsement of the regulatory role of health protection officers and enforcement of legislation.**
- **Other measures to control supply such as banning vending machines.**
- **Strategies targeting people from the Pacific region.** The number of Pacific people in New Zealand has increased by 21% in the 10 years, 1991–2001, from 98,040 to 117,987. The expert working group preferred to focus on more general actions. Specific groups may be highlighted within these actions.
- **Strategies targeting people from Asia.** The number of people from North-East Asia (China, Japan, Korea, Taiwan and Hong Kong) has increased from 20,649 to 89,568 in the 10 years 1991–2001, an increase of 334%. The total Asian population in New Zealand at the 2001 census was 165,774. The 1996 age-adjusted smoking prevalence for the Asian population as one group was 18.7% (males) and 4.9% (females) (Borman et al 1999). Analysis of smoking prevalence by regions within Asia would be useful to determine the homogeneity of this large continental group. The expert working group preferred to focus on more general actions.

## Priority Area 2: Physical Activity and Obesity

### Problem

Over half of New Zealand adults are overweight, and one in three New Zealanders do less than 2.5 hours per week of moderate-intensity physical activity. Physical activity reduces the risk of colon and breast cancer, and may reduce the risk of prostate, lung and endometrial cancers. Obesity is a risk factor for colon, breast (postmenopausal), endometrial, renal-cell, and oesophageal cancer. Physical inactivity and obesity are both risk factors for cardiovascular disease, diabetes and many other health conditions. The prevalence of obesity in the New Zealand population is increasing and is of particular concern for Māori and Pacific people.

### Aim

To reduce the number of people developing physical inactivity and obesity-related cancers.

### Objective

To foster increased physical activity through safe and accessible environments, active transport, workplaces, schools, communities, mass media and green prescriptions; and develop evidence/rationale for interventions to address obesity as a risk factor for cancer.

### Expected outcomes

- More people, more active, more often.
- An increase in the percentage and number of people who are not overweight or obese.
- More people, particularly Māori and Pacific people, enjoying lives free of diabetes, cardiovascular disease, and colon and breast cancer.
- A reduction in the burden of physical inactivity and obesity-related health conditions on the health system through fewer hospital admissions and deaths.

## Epidemiology

There is sufficient evidence for a causal association between physical inactivity or obesity and cancers of the colon and breast. Breast cancer is the leading cause of cancer in females, and colon cancer is the second largest contributor to Disability Adjusted Life Years (DALYs) lost due to cancer in the New Zealand population. There is evidence to suggest that physical activity may protect against prostate cancer, and may decrease the risk of endometrial cancer by 20–40 percent in the highest levels of physical activity. There is insufficient evidence to make any conclusions regarding the relationship between physical activity and lung, testicular and ovarian cancers (IARC 2002).

### Colon cancer statistics

- Each year in New Zealand 16,262 DALYs are lost due to colorectal cancer.
- Colorectal cancer is second only to lung cancer as the cancer contributing the most DALYs lost.
- There were 699 deaths due to colon cancer in 1997 (NZHIS 2001a).
- There were 1530 new registrations due to colon cancer in New Zealand in 1997 (NZHIS 2001a).

### Breast cancer statistics

- Breast cancer is the leading cancer cause of DALYs in New Zealand women – 13,522 DALYs are lost to breast cancer in New Zealand women each year.
- There were 1990 new registrations and 620 deaths due to breast cancer in New Zealand women in 1997 (NZHIS 2001a).
- 26% of all cancer registrations in Māori women were for breast cancer in 1997.

### Other cancers

- Prostate cancer: there were 2336 new registrations and 525 deaths due to prostate cancer in 1997.
- Endometrial cancer: there were 266 new registrations and 49 deaths due to cancer of the uterus in 1997.

(NZHIS 2001a)

### Physical activity statistics (Hillary Commission 1999)

- 34% of New Zealanders do less than the recommended 2.5 hours per week of activity.
- Six out of 10 adults would benefit from being active more regularly (5 or more days per week).
- While Māori and non-Māori population groups are equally active, Māori who undertake insufficient levels of physical activity are more likely to be sedentary than non-Māori (20.5% to 14.7%) (NHC 1998).
- Pacific and Asian people are more likely to be inactive.
- Activity levels are similar for adults of all ages, but 25–49-year-olds are more likely to be inactive than other adults.
- Young Māori are more active than other young people.
- Teenage girls are less active than other young people.
- Young people are more likely to be inactive if their parents are inactive.



### **Obesity statistics (Ministry of Health 2001b)**

- 17% of all New Zealand adults are obese; an additional 35% are overweight.
- Obesity in New Zealand increased by 55% between 1989 and 1997, and is expected to increase by an estimated 73% by 2011 to 29% of all adult New Zealanders.
- Amongst Māori adults, 27% of men and 28% of women are obese, with a further 30% of all Māori adults overweight.
- Amongst Pacific adults, 26% of men and 47% of women are obese. An estimated 75% of Pacific peoples are overweight.

### **Physical activity and preventable future deaths**

- Recent evidence suggests that 45–60 minutes of moderate to vigorous activity each day is required to protect against colorectal cancer (IARC 2002). This is more than the current guidelines that recommend 30 minutes per day of moderate intensity physical activity. The time course for a reduction in the risk of cancer following an increase in physical activity has not yet been determined.
- Approximately 2100 deaths per year (eight percent of all deaths) and four percent of all cancer deaths in New Zealand may be attributed to physical inactivity (Ministry of Health 1999).
- Physical inactivity is also a risk factor in cardiovascular disease (heart disease and stroke), non-insulin dependent diabetes mellitus (NIDDM) and obesity (Carr 2001).
- Physical activity may also reduce the risk and improve outcomes in many other conditions including: Alzheimer's disease, anxiety, asthma, chronic obstructive respiratory disease, depression, duodenal ulcers, erectile dysfunction, hypertension, incontinence, osteoarthritis and osteoporosis (Carr 2001).
- A number of barriers or perceived barriers to physical activity exist. These include social, physical, cultural and environmental factors.
- The risks associated with physical activity are musculo-skeletal injury, falls and myocardial infarction, but these can be minimised by a gradual increase in activity and ensuring that activity is performed regularly.

### **Obesity and preventable future deaths**

- More than 1000 New Zealanders die each year from obesity-related diseases.
- Obesity is also a risk factor for many chronic diseases including non-insulin dependent diabetes mellitus, cardiovascular disease and gallstones.

(Ministry of Health 2001b)

## Current interventions and actions

### Sport and Recreation New Zealand

Sport and Recreation New Zealand (SPARC) is the lead agency for the promotion of physical activity in New Zealand and it manages various brands and programmes.

- *Push Play*: a brand that includes a mass-media campaign to get all New Zealanders to include physical activity as part of their everyday lives. It involves television commercials as well as promotion through brand merchandise (t-shirts, drink bottles, mugs, caps) and National Push Play Day. Media activity is supported by ongoing activities at a regional level.
- *Green Prescriptions*: written physical activity advice by a health professional as part of a patient's health management. An evaluation of Green Prescriptions is currently under way in the Waikato.
- *He Oranga Poutama*: Māori healthy lifestyles programme.
- *KiwiWalks*: a series of free walks throughout New Zealand which are easily accessible to a person wearing leisure footwear, are of no more than one hour in duration, are suitable for most ages and fitness levels, and are on maintained tracks.
- SPARC and The Cancer Society are producing two pamphlets on physical activity and cancer risk reduction, and cancer prevention.

### Health Sponsorship Council

*Bikewise*: A brand used to promote cycle safety particularly for those aged 8–12 years.

### Other agencies and organisations

Regional Sports Trusts, The Cancer Society, Agencies for Nutrition Action, Local Government New Zealand, Cycle Steering Committee, Department of Conservation, National Heart Foundation, Pharmac, sports and recreational organisations and clubs.

## Strategies and key policy documents

Further information on the documents listed below is available in, 'Stocktake of Strategies and other Key Policy Documents for Cancer Control in New Zealand'.

- *Advice: Active for Life: A call for Action. The Health Benefits of Physical Activity* (National Health Committee and the Hillary Commission, June 1998)
- *Advice: Movement = Health, Guidelines for Physical Activity* (Hillary Commission, 2001)
- *Strategy: Healthy Eating – Healthy Action* (consultation draft, Ministry of Health February 2002 and strategy to be released February 2003)
- *DHB Toolkit: Physical Activity* (Ministry of Health, 2001).

## Priority populations

People who are inactive, older adults, children and adolescents, people with a disability or at risk of chronic conditions and diseases, women with children, pregnant women, Māori, Pacific peoples.

## Monitoring and review

- **Short term:** awareness of campaigns; participation rates in organised events or programmes; number of green prescriptions prescribed; evaluation of programmes to determine effectiveness.
- **Intermediate term:** to reduce the couch potato index, with more New Zealanders being more active more often.
- **Long term:** decline in physical inactivity-related cancer rates.

## Action areas

Action 1	<b>Safe and accessible public environments for physical activity and physically active transport.</b> The scope of this action includes: roads; urban parks; green spaces; shopping complexes; stairways (for example, in buildings, malls and train stations), sports complexes; tennis courts; walking and cycling trails; rural areas, national parks, forests; and beaches, lakes and waterways. This action requires intersectoral collaboration.
Evidence (overseas)	Creating Supportive Environments was identified as a key element in the Ottawa Charter for Health Promotion (WHO 1986). People are more likely to be active if they live near to, or can access, public open space or facilities (Sallis et al 1997; Corti et al 1997). There is also evidence that good pedestrian facilities, access to beaches, walkways and parks influence the likelihood of being active (Bauman et al 2002b).
Evidence (New Zealand)	The introduction of walking school buses into four Christchurch schools resulted in 10% of the schools' population being involved in the scheme (Pinnacle Research).
Risks	There is little or no funding available for these types of interventions. Interventions are more likely to advantage people living in cities and towns than in rural communities.  Environmental changes have the potential to have the biggest impact on activity levels but they are also the hardest changes to make. Changing the environment for pedestrians and cycle users is particularly challenging. Changes are likely to be small and slow.
Benefits	Cycle and pedestrian commuting reduces traffic volumes and hence reduces pollution and greenhouse gases that slow down replacement of ozone. Ozone is important in reducing exposure to UV radiation and skin cancers. Physical activity also has numerous other benefits on mental health, cardiovascular disease, diabetes, obesity and a wide range of other conditions.
Target populations	All people.
Purpose	To create supportive environments for activity.
Stakeholders	Sport and Recreation New Zealand, Local Government New Zealand, Transit New Zealand, LTSA.
Implementation	Ongoing.
Timeframe	Next 5–10 years.
Outcome measures	Increased numbers of pedestrians and cyclists as measured on census night; local surveys and LTSA travel survey; the number of children participating in, or with access to walking school buses.

Action 2	<b>Comprehensive campaigns utilising mass communication (TV, print, radio).</b> For example, Push Play campaign.
Evidence (overseas)	Strong evidence that point-of-decision prompts to encourage stair use are effective (TFCCPS 2001).
Evidence (New Zealand)	There was 52% awareness of the Push Play logo in 2002; 60% identified having seen an advertisement about being active (down from 66% in 2001); 16% thought about or were more active in response to the advertisement. The greatest increase in advertisement appeal was in Māori adults (59% in 2001 to 82% in 2002) (SPARC 2001). Awareness of prompts (for example, using stairs and walking from bus stops) was not measured.
Risks	<p>Push Play advertisements do not tell people the intensity with which the activity should be carried out. Access to stairs is a problem in many New Zealand buildings due to security concerns. Reduced awareness of the 2002 advertisements (compared with 2001) – will this become a trend?</p> <p>The other major risk is that there is evidence that at least 60 minutes per day of physical activity is required to reduce the risk of cancer (Bauman et al 2002) – promoting the 30 minutes a day of Push Play may therefore be inappropriate.</p>
Benefits	Opportunity to increase community prompts – signs for stairways, advertise on buses/ shelters.
Target populations	All New Zealand people, particularly those who are thinking of being more active.
Purpose	To educate and encourage people to be active and suggests types of activities.
Stakeholders	Sport and Recreation New Zealand, Local Government New Zealand, Transit New Zealand, LTSA, The Cancer Society.
Implementation	Ongoing.
Timeframe	Over the next five years.
Outcome measure	Awareness rates and attitudes to behaviour change.

Action 3	<b>Workplaces that support employees to be physically active.</b> For example: provision of showers/change facilities; bicycle parking; reduced gym fees; encouragement to walk/run/cycle; company sports teams and so on.
Evidence (overseas)	Current evidence for the effectiveness of workplace initiatives is weak (Dishman et al 1998). But most programmes are not evaluated and even fewer are published. One Chinese study found evidence that jobs with low physical activity levels resulted in modest but significantly elevated risks of colon cancer (Chow et al 1993).
Evidence (New Zealand)	Health promotion workplace interventions can significantly improve reported physical activity levels but the impact on more objective measures of risk was variable (Cook et al 2001).
Risks	Programmes are often short term with limited support. Often difficult to implement due to requirement for approval or budgets. Programmes are most likely to attract employees who are active already (Bauman et al 2002a).
Benefits	Opportunity to reach a captive group of adults; economies of scale; can target harder-to-reach populations. Wider benefits include: reduction in workplace stress; prevention of occupational injuries; improved teamwork and morale; and reduced absenteeism.
Target populations	People in the workforce, particularly those in sedentary occupations.
Purpose	Encourage and support people in the workforce to be more active through activity-friendly workplaces.
Stakeholders	Sport and Recreation New Zealand, Ministry of Health, OSH, employers.
Implementation	Ongoing.
Timeframe	Ongoing.
Outcome measures	Number of companies offering workplace physical activity programmes; provision of bike parking, showers and change facilities; company sports teams (number of participants).

Action 4	<b>Use Green Prescriptions (GRx) to create demand and supply for physical activity (accessibility)</b>
Evidence (overseas)	Evidence from 18 studies that individually adapted health behaviour change programmes tailored to the individual's readiness for change or specific interests are effective (Wilson 2002).
Evidence (New Zealand)	Over 60% of general practitioners prescribe GRx (but were not asked whether it was given for cancer prevention). They prescribe an average of 6000 scripts per month (Hillary Commission 2000). In 2001, 71% of participants were female, 78% of patients experienced health improvements with GRx, 54% were still doing their prescribed activity after six months and 53% were doing more activity than before they were prescribed GRx. Further research as to its effectiveness is in progress in the Waikato. This includes a cost-effectiveness study.
Risks	Risk of breast or colon cancer as a reason for prescribing a GRx is not asked about in the GRx general practitioner survey (D O'Neill, personal communication, May 2002).
Benefits	Physical activity benefits other health conditions and may help smokers when they are trying to give up. Even if GRxs are not prescribed primarily for cancer prevention, they will still help to reduce an individual's risk of related cancers. The main reason for prescribing GRx is for overweight and obesity which are also risk factors for cancer. In May 2002, 5% of patients surveyed were prescribed a GRx to help them stop smoking, and 25% of general practitioners reported prescribing GRx to stop smoking (D O'Neill, personal communication, May 2002).
Target populations	People with pre-existing medical conditions such as obesity, diabetes and respiratory disease, and primary care practitioners.
Purpose	To support and guide people who want to be more active by prescribing activities appropriate to their situation, medical condition and preferences.
Stakeholders	Sport and Recreation New Zealand, Pharmac, Ministry of Health, Regional Sports Trusts, primary care practitioners.
Implementation	Ongoing.
Timeframe	Next three years.
Outcome measures	Number of scripts prescribed for people identified as being at risk of breast or colon cancer; total number of scripts written; participation rates; and participant behaviour change.

Action 5	<b>Schools that support students to be physically active</b>
Evidence (overseas)	Good evidence from 13 studies that included modified curricula and policies to increase physical activity (TFCPS 2001).
Evidence (New Zealand)	KiwiSport and other junior sport programmes designed for school-age children. Evidence in the form of participation numbers – over 9 out of 10 primary and intermediate schools deliver KiwiSport programmes to their students.
Risks	Little evidence to show that a physically active childhood leads to physically active adulthood. However, some evidence to show that active children encourage their parents to be more active (and vice versa).  Need to be mindful of SunSmart messages – provide shade, sport outside the hours of 11 am–4 pm, sunscreen and hats.
Benefits	Provides opportunities for children to be active and teaches them skills and behaviours.
Target populations	Schoolchildren, teachers, boards of trustees, principles.
Purpose	To encourage children to be more active.
Stakeholders	Education sector (schools, Ministry of Education), Regional Sports Trusts, Sport and Recreation New Zealand, Local Government.
Implementation	Ongoing.
Timeframe	Next five years.
Outcome measures	Access to KiwiSport programmes, participation rates. Opportunity to undertake a cohort study to follow children over time and ascertain physical activity levels with age.

Action 6	<b>Support community groups to enable people to be more active.</b> For example: Sit and be Fit classes, walking groups, KiwiWalks, ethnic-specific exercise classes and walking groups.
Evidence (overseas)	Good evidence for support and self-help groups, counselling for physical activity, risk factor screening and education, community events and creation of walking trails. The median net increase in physical activity from a review of 10 studies was 14%; and a net increase in the percentage of active people of 4.2% (TFCPS 2001).
Evidence (New Zealand)	Participation rates at community physical activity classes such as Sit and be Fit; high turnout for Community Health Promotion Days (two in Wellington in April 2002 attracted large numbers from the local community).
Risks	Some community interventions may be difficult to evaluate.
Benefits	Provides opportunities for people to be active in a safe environment or with others.
Target populations	Older adults, pregnant women and women with children, families/whānau, Pacific peoples, Māori, young people.
Purpose	To encourage more people to walk and cycle instead of using a car.
Stakeholders	Regional Sports Trusts, Sport and Recreation New Zealand, Local Government, Department of Conservation.
Implementation	Ongoing.
Timeframe	Next five years.
Outcome measure	Participation rates (by age and ethnicity), geographical coverage, range and number of classes and groups.

Action 7	<b>Develop evidence/rationale for interventions to address obesity as a risk factor for cancer</b>
Evidence (overseas)	Evidence that the rising rates of obesity are due to post-industrial society (deeply rooted cultural, social and economic factors that actively encourage overeating and sedentary behaviour and discourage alterations in these patterns). A multi-component approach is required. Some evidence to support the following: education, food regulation, advertising, food assistance, health care and training, transportation and urban development, taxation and national policy (Nestle and Jacobson 2000). Historically strategies to reduce obesity have been focused on individual behaviour rather than on the environment.
Evidence (New Zealand)	Obesity is an important health issue in New Zealand and has been identified as one of the 13 priority areas in the New Zealand Health Strategy (King 2000). The obesity toolkit provides numerous examples of interventions to address obesity within a number of settings and providers (Ministry of Health 2001b).
Risks	There is a risk that suggested interventions may not be acceptable.
Benefits	It will take a long time for any successful intervention to reduce obesity to have an effect on cancer rates. However, any reduction in obesity rates will also result in a reduction in diabetes and heart disease. Successful strategies to reduce obesity will also have an impact on general nutrition and physical activity levels that are also risk factors for cancer.
Target populations	All people at risk of becoming overweight or obese, as well as those who are already overweight or obese.
Purpose	To create a multifaceted approach to obesity that addresses the cultural, social and physical environment within New Zealand.
Stakeholders	Ministry of Health, Ministry of Transport, SPARC, District Health Boards, ANA, consumers, Obesity Coalition.
Implementation	Over a long time period.
Timeframe	1–2 years to develop rationale/evidence, followed by piloting of interventions or introduction of others over the next 10 years.
Outcome measures	Short term: evidence/rationale as to what could be implemented. Medium term: implementation of strategies. Long term: a reduction in the rate of obesity. Longer term: a reduction in cancer rates.

## Other actions that were considered

- *Actions to encourage active people to stay active.* The expert working group felt that the above actions would also support people who are already active.
- *Research.* While there are a lot of research studies being undertaken overseas, most are in the area of physical activity's effect on health conditions. New Zealand needs research into the effect that activity when young has on activity as a teenager and in adulthood. New Zealand also needs a good national physical activity survey to better measure the activity levels of the population. A new survey has been designed and is being validated in 2002. 'Research' has been identified as a generic area.
- Discourage exposure/access to inactive behaviours such as recreational computer use, video games and television. The expert working group decided to focus on positive actions.



- *Support/endorse the Healthy Eating – Healthy Action Strategy.* The expert working group felt that this document was important and relevant. However, the group favoured an approach that identified a few actions important to reducing the risk of cancer. These actions should be consistent with the Healthy Eating – Healthy Action Strategy.
- *Actions to target specific population groups.* The expert working group decided to keep the actions general. However, specific groups may be targeted when the actions identified above are developed further.

## Priority Area 3: Nutrition

### **Problem**

There is strong evidence to link colorectal cancer with a number of foods and dietary habits. Other cancers have also been linked to different foods, particularly breast and lung cancers. These three cancers are important causes of morbidity and mortality in New Zealand. Increasing fruit and vegetable consumption and fibre intake; and reducing the incidence of obesity and fat intake could reduce cancer risk. Nutrition is also important in the prevention of cardiovascular disease, obesity (itself a risk factor for cancer) and diabetes.

### **Aim**

To reduce the number of people developing nutrition-related cancers.

### **Objective**

To encourage healthy eating through improved access, reducing promotion of unhealthy food choices to children and supporting a comprehensive campaign to raise awareness of healthy food choices. (All interventions should be consistent with the Food and Nutrition Guidelines.)

### **Expected outcomes**

- An increase in vegetable and fruit, and wholegrain cereals and fibre consumption; and a reduction in the amount and percentage of fat consumed as part of the New Zealand diet.
- An increase in the percentage and number of people who are not overweight or obese, particularly children and young adults.
- More people, particularly Māori and Pacific peoples, enjoying lives free of diabetes, cardiovascular disease and colorectal cancer.
- A reduction in the burden of nutrition-related health conditions on the health system through fewer hospital admissions and deaths.

## Epidemiology

### Colorectal cancer

- A total of 2330 colon and rectal cancers were registered in 1997 (NZHIS 2001).
- The rate of colon and rectal cancer registrations in the total population in 1997 was 43.7 per 100,000.
- Colorectal cancer causes 13,319 years of life lost every year and 16,262 Disability Adjusted Life Years (DALYs) lost each year. It is second only to lung cancer in DALYs lost (Ministry of Health 1999).

## Lung cancer statistics (Ministry of Health 2001)

- Lung cancer accounts for 17,919 DALYs lost per year (11,034 in males and 6885 in females).
- 11% of all male and 8% of all female cancer registrations (1997 data), and 23% of male and 15% of female cancer deaths are due to lung cancer (fatality/case ratio of 0.92).
- Lung cancer was the most common cause of cancer death for males and the second most common for females (1997).
- The Māori registration rate for lung cancer was 73.7 per 100,000 people, a rate almost triple that for non-Māori (25 per 100,000 population).

## Breast cancer statistics

- Breast cancer is the leading cancer cause of DALYs in New Zealand women – 13,522 DALYs are lost to breast cancer in New Zealand women each year (Ministry of Health 1999).
- There were 1990 new registrations and 620 deaths due to breast cancer in New Zealand women in 1997 (NZHIS 2001).
- 26% of all cancer registrations in Māori women were for breast cancer in 1997.

Other cancers that have been linked to nutrition are stomach, pancreas, kidney, endometrium, pancreas, gallbladder, prostate, cervix, mouth, pharynx, oesophagus, thyroid and bladder.

## Nutrition

- Obesity/weight: 37% of New Zealand adults were overweight and 17% were obese in 1997. By 2011, it is estimated that 29% of the adult population will be obese. Māori and Pacific peoples have higher rates of obesity.
- Vegetable and fruit intake: two-thirds of New Zealanders eat the recommended three servings of vegetables and half the recommended two servings of fruit. Māori and Pacific peoples are least likely to eat the recommended servings.
- Fat intake: 35% of total energy comes from fat (30% recommended). Māori have higher fat intakes than non-Māori.
- Wholegrain cereals: less than one-sixth of all New Zealanders eat the recommended servings of breads and cereals. Consumption is higher among Māori and Pacific peoples in more deprived areas.
- 27% of New Zealanders report that the variety of food they eat is limited by lack of money.

The 1997 National Nutrition Survey also found that some people were unable to afford a nutritious diet. The extent of deprivation was most marked in lower socioeconomic groups (in which Māori and Pacific peoples are over-represented). These self-reported patterns are reflected in the actual consumption and related morbidity and mortality statistics, where people from lower socioeconomic groups also tend to be over-represented (Russell et al 1999).

### Nutrition and preventable future deaths

A wide range of foods have been linked to a number of cancers (see tables below). However, the strength of evidence and strength of association varies.

Convincing	Reduction in risk of
Reduction in total calories consumed (obesity) (WHO 2002)	Colon, postmenopausal breast, endometrium, kidney (renal cell), oesophagus (adenocarcinoma)
High vegetable and fruit intake (WCRF 1997)	Colorectal, mouth and pharynx, oesophagus, lung, stomach cancer
Reduction in salt (WCRF 1997)	Nasopharyngeal

Probable	Reduction in risk of
Processed meat (Riboli 2002)	Colorectal cancer
Reduction in salt (WCRF 1997)	Stomach cancer
Fluid intake (Michaud et al 1999)	Bladder cancer in males

## Current status

### Ministry of Health

The Ministry of Health has produced Food and Nutrition Guidelines for healthy adults, adolescents, breastfeeding women, children, infants and toddlers, older people and pregnant women (Ministry of Health 2002b). The Ministry has also produced many pamphlets, booklets and information sheets for different population groups.

### Food Standards Authority New Zealand

All manufactured foods (with a few exceptions) are required to have a nutrition information panel on the packaging by December 2002. Food Standards Authority New Zealand (FSANZ) is a new authority established in 2002.

### 5+ a Day

5+ a Day is a mass-media campaign by United Fresh – a fruit and vegetable growers initiative. The message is for people to eat at least five servings of fruit and vegetables each day.

## **Pick the Tick**

Pick the Tick is a National Heart Foundation guide to help people make healthy food choices quickly and easily. It also encourages food manufacturers to develop or modify food products that support the Heart Foundation's Guidelines for 'Tick Approval'. Generally, approved foods are relatively lower in saturated fat, sodium and added sugar, and higher in dietary fibre. Companies wishing their products to display the Pick the Tick logo, must pay to enter the programme.

## **Cancer Society**

The Cancer Society has produced a number of information pamphlets on the effect nutrition has on cancers.

## **Other agencies and organisations**

Agencies for Nutrition Action (ANA); Regional and local providers such as Public Health Units, Te Hotu Manawa Māori, Māori and Pacific health providers.

## **Strategies and key policy documents**

Further information on the documents listed below is available in, 'Stocktake of Strategies and other Key Policy Documents for Cancer Control in New Zealand'.

- DHB Toolkits on Nutrition, Physical Activity and Obesity (Ministry of Health 2001).
- Strategy: Healthy Eating – Healthy Action / Oranga Kai – Oranga Pūmāu – (consultation draft, Ministry of Health, February 2002).
- Food and Nutrition Guidelines for Healthy Adults – A Background Paper (draft for consultation, April 2002).
- Food and Nutrition Guidelines for adolescents, breastfeeding women, children, infants and toddlers, older people, pregnant women.

## **Priority populations**

Children and young people, Māori and Pacific peoples, parents and caregivers of children.

## **Monitoring and review**

- Short term: awareness of campaigns; awareness of what foods are healthy.
- Intermediate term: increased consumption of vegetables and fruit, reduced consumption of total fat and a reduced rate of obesity in the New Zealand population.
- Long term: a decline in the rate of nutrition-related cancers, particularly colorectal cancer.

## Action areas

Action 1	<b>To make the healthy food choice the easy, accessible and acceptable choice (supply).</b> For example, environmental changes to improve access and availability of healthy foods.
Evidence (overseas)	Two examples of programmes that have improved access to some populations are: ensuring the availability of healthy meal choices in restaurants; and placing affordable, appealing fruits and vegetables in food markets for low-income communities (Anderson et al 1998).
Evidence (New Zealand)	The 1997 National Nutrition Survey identified the main reasons why people did not reach the recommended intakes of fruit and vegetables: cost; and that they didn't always have them at home. The survey also identified that 95% of females and 98% of males intended to eat more fruit and 93% of females and 97% of males intended to eat more vegetables (Russell et al 1999). Healthy foods in school tuck shops.
Risks	Cultural preferences; does not address underlying issues such as disposable income.
Benefits	Potential to make a large change in food choice if healthy food can be made more affordable and accessible.
Target populations	Māori, Pacific peoples, children, parents, older adults, teachers.
Purpose	To make healthier food choices more affordable, accessible and acceptable.
Stakeholders	Ministry of Health, Agencies for Nutrition Action, Food Industry, others.
Implementation	Any environmental changes should be accompanied by a comprehensive media campaign that raises awareness of healthy food choices. The role of legislation and policy to effect environmental changes should also be explored.
Timeframe	Up to five years.
Outcome measures	Short term: increased sales of fruit and vegetables. Medium term: levels of obesity. Long term: reduction in diabetes, cardiovascular disease and cancers.

Action 2	<b>Reduce the promotion of unhealthy food choices to children.</b> For example, through advertising.
Evidence (overseas)	Television viewing has been identified as a risk factor for obesity – one component of which is exposure to television advertising of food (Robinson 2001). Food advertisements do not generally meet dietary guidelines and are often for unhealthy foods (Australia, US, Canada). There is also evidence that food ads on TV influence preschoolers' food preferences (Borzekowski and Robinson 2001).
Evidence (New Zealand)	Food advertising may be contributing to less healthy food choices in young people (Hammond et al 1997). Food advertised on television is of low nutritional value (Wilson et al 1999).
Risks	Industry objections.
Benefits	This would give a marketing edge to more nutritious products, and may reduce pressure on parents from children wanting unhealthy food.
Target populations	Young New Zealanders, parents and their families/whānau.
Purpose	To encourage children and their parents to make healthy food choices.
Stakeholders	Ministry of Health, Agencies for Nutrition Action, food industry, media, Central Government, education, schools, Commissioner for Children, other agencies.
Implementation	Would require a planning stage to identify the ways that unhealthy food choices are promoted to children and acceptable ways to address this.
Timeframe	Up to five years.
Outcome measures	Short term: checking the nutritional value of foods advertised during children's programmes. Medium term: food choices in shops, results of population surveys of nutritional intake. Long term: the rate of obesity in children.

Action 3	<b>Support a comprehensive campaign to raise the awareness of healthy food choices (demand).</b> The scope of this action includes food labelling, mass-media campaigns such as Pick the Tick or 5+ a Day, health curriculum in schools, sponsorship of advertising healthy foods, and so on.
Evidence (overseas)	There is evidence that Pick the Tick (Australia) is well known and used when shopping (86% awareness, 60% of consumers use the tick when shopping) (Heart Foundation 2001). However, the effect on healthier food intake is not known.
Evidence (New Zealand)	5+ a Day: 90% awareness in shoppers with children; 66% believed that 5+ a Day encouraged their children to eat more fresh fruit and vegetables (United Fresh 2001). Pick the Tick: 90% awareness, 59% of consumers used the tick when shopping. Over a 12-month period Pick the Tick has influenced companies to exclude 33 tonnes of salt from foods (Young and Swinburn 2002).
Risks	It doesn't address affordability for low-income families. Awareness and use of labels such as 5+ a Day and Pick the Tick may apply more to, and advantage, people with a higher disposable income and higher level of education. While these campaigns may not address local markets such as Porirua or Otara that attract Māori and Pacific peoples and people on lower incomes, a range of healthy foods are sold at these venues.
Benefits	Educates children and their parents.
Target populations	Children and their parents/caregivers (5+ a Day) and all New Zealanders (Pick the Tick).
Purpose	To educate, inform and encourage increased consumption of fruit, vegetables and healthier alternatives.
Stakeholders	United Fresh and National Heart Foundation, media, Ministry of Health, education sector, Public Health Units.
Implementation	5+ a Day and Pick the Tick have been implemented. However, a joint government – non-governmental organisation communication strategy and media campaign to raise awareness would be useful.
Timeframe	Ongoing.
Outcome measures	Increased consumption of fruit and vegetables and low fat, low refined sugar, low salt foods; and results of surveys of population awareness.

## Other actions that were considered

- *School-based nutrition programmes.*
- *Improved food labelling.* The impact of food labelling is dependent upon a good level of literacy and prior knowledge of nutrition among consumers. Under new regulations, all manufactured foods (with a few exceptions such as spices, tea, coffee) will be required to provide a nutrition information panel on packaging by December 2002. More information is available at [www.anzfa.govt.nz](http://www.anzfa.govt.nz).
- A complete ban on the advertising of high-sugar drinks, high-fat foods, snack foods, takeaway food and other unhealthy foods. This action may become a component of Action 2 (reduce the promotion of unhealthy food choices to children) in the future.
- *Research.* There is a need to research the effect of a combination of interventions: cost-effectiveness of nutrition-based interventions; targeting of specific population groups particularly ethnic groups, parents with children; and measuring obesity levels particularly in children.



- *Differential food pricing.* Increasing the price of high-fat, high-sugar foods, and/or reducing the price of fruit and vegetables. There is evidence from Canada, UK and the European Union that food pricing influences consumers. In China, a 10% increase in the price of pork reduced daily fat intake by 11% in poor people and 5% in people with higher incomes. Snack food and soft drink taxes exist in Canada and US. There is also New Zealand evidence that increasing the price of tobacco and alcohol reduces consumption. However, it is difficult to measure fat levels of some foods (for example, when it varies as with meat); such measurement would meet with strong resistance from the food industry. The potential benefits from differential food pricing are large. They include: more affordable healthy food for low-income families; a reduction in obesity rates; benefits on cardiovascular health and diabetes. It has the potential to effect a large change in dietary habits. Increased demand for primary produce (fruit and vegetables) will aid rural community economies (but possibly at the expense of livestock farming and associated industries). Should there be a lack of positive change, greater attention should be paid to the issue of differential food pricing.
- *Personal nutrition education and counselling.* Primary care practitioners could write out a script for nutritional advice to be obtained from a dietitian (similar to a green prescription) with ongoing follow-up in the form of phone calls and mail outs. There is evidence to recommend counselling to limit dietary intake of fat, maintain energy balance and emphasise high-fibre foods. There is some evidence that advice from a dietitian or nurse is more effective than advice from a doctor (Thompson 2002) (but this may be related to the consultation time). Family therapy is also effective in preventing the progression to severe obesity in children.
- *Food advertising restrictions.* Advocate for the ban of television advertisements of certain food types during children's programmes, or require warnings or nutritional analysis (scrolling on bottom of screen) on TV advertisements for high-fat or high-sugar foods screened during adult programmes. Qualitative research has found that food advertising on TV encourages less healthy eating among young people (Hammond et al 1997). However, companies may use other avenues to promote unhealthy products (for example, leaflet drops, free samples, promotion of children's sport or events, sale prices, in print media or on radio). The benefit of food advertising restrictions is that it would give a marketing edge to more nutritious products. The expert working group considered this approach but opted for a more general approach, 'to reduce the promotion of unhealthy food choices to children'. The more general approach should include food advertising restrictions.

## Priority Area 4: UV Radiation Exposure

### Problem

New Zealanders are exposed to excess/harmful UV radiation (particularly solar UV radiation) and exposure to UV radiation has been identified as a risk factor for the development of skin cancers. Skin cancers are the most common cancer affecting New Zealanders and New Zealand has among the highest known melanoma mortality rates in the world.

### Aim

To reduce the number of people developing skin cancer due to UV radiation exposure in New Zealand.

### Objective

To motivate people and institutions to protect themselves and others from UV radiation through health promotion campaigns, provision of environmental sun protection (shade), early detection of skin cancers, and supporting international efforts to protect the ozone layer.

### Expected outcomes

- More people, especially children, exhibiting sun protection behaviours, more often.
- More shade facilities available and used at popular outdoor venues.
- A reduction in hospital admissions and deaths due to UV radiation-related skin cancers.

## Epidemiology

Skin cancer is the most common cancer affecting New Zealanders. There are approximately 1800 new melanoma cases and 45,000 new laboratory confirmed non-melanoma skin cancer cases every year. An estimated further 20,000 are treated immediately and not laboratory confirmed. Non-melanoma skin cancers are basal cell carcinoma and squamous cell carcinoma (O'Dea 2000).

### Skin cancer

- 260 people die each year from skin cancer of which nearly 200 are from melanoma (O'Dea 2000).
- About 4500 potential years of life are lost from premature mortality each year due to skin cancer (O'Dea 2000).
- Total direct health system costs of skin cancer amount to \$33 million (\$14.3 million in hospital costs and \$19.1 million in non-hospital costs) (O'Dea 2000).
- New Zealand has the highest known melanoma mortality rates in the world (Levi et al 1994).

- Melanoma is the only skin cancer that is required to be registered under the Cancer Registry Act 1993, so skin cancer rates and trends can only be estimated from other sources such as laboratory reports or surveys.
- Private laboratories do not routinely collect ethnicity data so it is difficult to comment on Māori rates of skin cancer. However, as self-defined Māori include the full range of skin types from the most sun sensitive, and there is evidence for sunburn among Māori (Dr T Reeder, personal communication, January 1999), we would expect some Māori to develop skin cancer.

### Sun exposure

New Zealanders have a relatively large exposure to UV radiation because they have an outdoor lifestyle. People of European descent are poorly adapted to the relatively high levels of UV naturally present in New Zealand. Locations in the Southern Hemisphere receive approximately 15% more UV than locations at a similar latitude north of the Equator. At New Zealand's latitude, approximately 40 percent of the daily sunburn radiation occurs during the two-hour period centred on solar noon. In New Zealand solar noon is about 12.30 pm in winter and 1.30 pm in summer (daylight saving).

Long-term decreases in summertime ozone over Lauder, New Zealand (45°S) led to a 12 percent increase in peak sunburning UV radiation between 1990/91 and 1998/99 (McKenzie et al 2001). The stratospheric loading of ozone-depleting substances is now close to the maximum expected under the current regime but there is concern about possible interactions between ozone depletion and climate change so it is difficult to predict the future outlook.

### Sun exposure and preventable future deaths

- Reducing sun exposure could decrease the number of deaths and morbidity associated with skin cancers.
- Reducing sun exposure will also reduce the incidence of a number of other conditions: photoaging, pterygium and cataracts. It may also reduce the risk of developing ocular neoplasms although evidence of the link with sun exposure is inconsistent (Sun Protection Programs Working Party 1996).

### Current status

#### Resource Management Act 1991

Under the Resource Management Act, section 30 (c), regional councils have a duty to control the use of land for the purpose of, '(iv) The avoidance or mitigation of natural hazards'. UV radiation is a natural hazard.

#### Health and Safety in Employment Act 1992

Employers must protect employees who work outdoors from the sun's rays (UV radiation). This involves identifying the risks, assessing the risk, and implementing appropriate controls (equipment, protective clothing, hours of work, information and instruction).

## Primary prevention campaigns

A number of melanoma prevention and education campaigns have been implemented in the past. 'Slip, slop, slap' was the first campaign initiated by the Cancer Society in the 1980s. Campaigns that have followed this include: 'It's cool to cover up' in 1988 (targeting children up to 12 years, parents and teachers); SunSmart (1990-); 'Sports Heroes' approach (1991-2) targeting summer sports players; early detection (1992-3); and 'Only pigs look good pink' (1996-) targeting parents and children (Reeder 2001).

The Cancer Society and the Health Sponsorship Council have a joint strategy, and a combined budget, to launch 'Tiger' the SunSmart 'spokesprawn' in October 2002. This campaign will have a more general skin cancer prevention focus (C Watts, personal communication, August 2002).

## Ozone layer protection

The 1987 Montreal Protocol (which New Zealand signed) produced an international response. Reduced chlorofluorocarbon production has started to limit the damage to the ozone layer but ozone recovery to pre-1980 levels will take decades. New Zealand is also planning to sign the Kyoto Protocol, a commitment to reducing greenhouse gas emissions.

## Other organisations

Cancer Society, Health Sponsorship Council, OSH, ACC, Ministry of Education, The Royal Society of New Zealand, NIWA.

## Strategies and key policy documents

Further information on the documents listed below is available in, 'Stocktake of Strategies and other Key Policy Documents for Cancer Control in New Zealand'.

- DHB Toolkit: Cancer Control (Ministry of Health, 2001).
- Advice melanoma: The Public Health Commission's Advice to the Minister of Health 1993-1994 (Public Health Commission, 1994).
- Melanoma: The Prevention and Early Detection of Melanoma in New Zealand (The Cancer Society and the Department of Health, 1993).
- Skin Cancer Prevention in New Zealand (Cancer Society/Health Sponsorship Council, August 2001).

## Priority populations

People employed in outdoor jobs, parents, children and older adults.

## Monitoring and review

- **Short term: awareness of campaigns.**
- **Intermediate term: scheduling of events and major outdoor festivals outside of the hours 11 am to 4 pm; people covering up or avoiding the sun particularly between 11 am and 4 pm; and provision of shade at schools, swimming pools, events, council facilities, and other public locations.**
- **Long term: a decline in skin cancer rates.**

## Action areas

Action 1	Health promotion campaigns to increase awareness and encourage protection
Evidence (overseas)	Exposure to sun when young increases the risk of skin cancer.
Evidence (New Zealand)	There is awareness of the SunSmart campaign and messages. Some evidence to show that children under the age of 12 carry out sun protection behaviours. In the adolescent group, sun protection behaviours are less popular. In the adult population there has been a trend towards increased use of sunscreen and shade but no increase in hat-wearing or any reduction in the proportion getting sunburnt (Reeder 2001).
Risks	Translating awareness and knowledge into action, especially whether the behaviours will continue into adolescence.
Benefits	Children under the age of 12 years appear to be the most receptive to sun protection campaigns and the messages given.
Target populations	Children under the age of 12 years and their caregivers. Also to a lesser extent to promote primary prevention of skin cancer among adults 20–30 years old.
Purpose	To inform families that a number of actions are required to be sun smart.
Stakeholders	Health Sponsorship Council, The Cancer Society.
Implementation	An action plan has been written. Strategies include: a communications strategy associated with health promotion activities; continued sponsorship of the UV index in partnership with the MetService; provide education about the risks of solarium use, advocate for sun protection in educational settings; continue and increase SunSmart sponsorship of outdoor activities.
Timeframe	Within the next three years.
Outcome measures	Awareness of the campaign and its message, and effect on behaviour change.

Action 2	<b>Encourage the provision of environmental sun protection.</b> For example, schools, local bodies, workplaces and sporting activities.
Evidence (overseas)	Shade structures are provided in some Australian schools.
Evidence (New Zealand)	Shade trees have been planted for sun protection in some schools and the Department of Conservation has a number of tree planting schemes. A Cancer Society school survey on shade policies in primary schools showed an increasing trend in the number of policies.
Risks	Some trees and shade structures offer only limited protection against reflected light.
Benefits	Additional benefit of shade structures is a reduction in the risk of heat stress.
Target populations	Families and school-age children.
Purpose	To standardise levels of shade protection, and to provide people with the opportunity to use shade structures to minimise exposure to radiation.
Stakeholders	Lead agencies: Health Sponsorship Council and Cancer Society of New Zealand. Other agencies: Standards New Zealand, Ministry of Education and education sector, Department of Conservation, Local Government, Ministry for the Environment.
Implementation	Guidelines for schools to be developed in the 2002/03 year. (Standards New Zealand is to develop a standard for shade materials.)
Timeframe	Up to five years.
Outcome measures	Guidelines/standards developed; increased availability and use of shade structures.

Action 3	<b>Support international efforts to protect the ozone layer</b>
Evidence (overseas)	1987 Montreal Protocol has led to a dramatic reduction in CFC production and has started to limit the damage to the ozone layer. Evidence that greenhouse gases delay recovery of ozone layer.
Evidence (New Zealand)	CFC-free asthma inhalers now available. The agricultural industry is a major contributor to New Zealand's greenhouse gas production. As a by-product of their digestion, New Zealand's 45 million sheep and 8 million or so cattle produce about 90% of the country's methane emissions and an estimated 43% of all the country's greenhouse gases.
Risks	The Kyoto Protocol commits New Zealand to reducing greenhouse gas emissions. Gases include: CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, HFCs, PFCs, and SF <sub>6</sub> . If other countries do not sign the Kyoto Protocol.
Benefits	New Zealand's geographical location means that it is more vulnerable to the effects of ozone depletion than most other countries.
Target populations	New Zealand population.
Purpose	Outcome measure: increase in ozone over New Zealand to reduce exposure to UV radiation.
Stakeholders	NIWA, MAF, MFAT, Central and Local Government, Ministry of Health, farming and fuel industries.
Implementation	Up to 10 years.
Timeframe	Long-term effect.
Outcome measure	A commitment to reduce greenhouse gas emissions.

Action 4	<b>Early detection of skin cancers.</b> This includes awareness amongst the public of the signs of skin cancers together with education of primary care practitioners to be alert for skin cancers particularly in those at high risk.
Evidence (overseas)	A review of 33 studies highlighted the need for a collaborative approach to skin cancer including prevention, education and early detection (Koh and Geller 1995). Another review of 83 studies recommends using a risk-assessment technique to identify high-risk patients who are seeing a physician for other reasons (Helfand et al 2001). An earlier review of 29 studies failed to find clear evidence that early detection reduces mortality from melanoma (Austoker 1994).
Evidence (New Zealand)	A random telephone survey of New Zealanders, 15 years and over, found 65% reported that they or someone else had checked their skin in the past 12 months (Colmar Brunton Research 1992). Another study of 21-year-olds found that 53% reported self-checking their skin in the past 12 months, and 32% reported that someone had checked for them (Douglass 1995).  The Cancer Society of New Zealand produces a brochure on the early detection of cancer for the public and Clinical Practice Guidelines about melanoma for clinicians.
Risks	There is no clear evidence that early detection is cost-effective, or reduces mortality, but the very low case-fatality ratio that already exists (for melanoma) suggests that intervention is effective. (The case fatality rate for skin cancers other than melanoma cannot be determined, as registration is not required.) Other risks include resource issues and sufficient treatment services to cater for an expected increase in detected skin cancers.
Benefits	Because skin cancers are visible the public, if educated, are able to identify suspicious lesions. This action therefore complements Action 1 (Health Promotion Campaigns).
Target populations	New Zealand population. It is particularly important in those aged 50 and over, particularly males.
Purpose	To detect skin cancers at an early stage to reduce morbidity and mortality.
Stakeholders	Primary care practitioners, the general public.
Implementation	Up to 10 years.
Timeframe	Long-term effect.
Outcome measures	A reduction in the case-fatality ratio for melanoma. A reduction in mortality due to skin cancers.

## Other actions that were considered

- *Use of sunscreens.* Strong evidence that sunscreens prevent sunburn but sunscreen's effect on skin cancer prevention is unknown. One problem with sunscreen is that most people do not use it as recommended.
- *Shade creation with trees.* Some evidence to suggest that trees provide shade but only limited protection from reflected light.
- *Youth and how best to target them.* There is some focus-group work being carried out by the Cancer Society and the Health Sponsorship Council in this area at present.
- *New immigrant education.* How best to educate them on the increased risk of UV radiation in New Zealand.

- *Research.* The combined Health Sponsorship Council and Cancer Society action plan on skin cancer prevention identified a number of areas under research. These include: the impact of the SunSmart message on children in terms of sunburn and SunSmart behaviour; monitoring of SunSmart attitudes and behaviours of the 0–12 age group and 20–30-year-olds; a Shady Schools survey; assess the success of New Zealand’s SunSmart programmes and undertake qualitative research to identify the most effective strategies.
- *Campaigns that change fashions.* There is overseas evidence that lifeguards modelling sun protection behaviours (sunglasses, t-shirts, hats, zinc oxide and sunscreen, and staying in the shade) is associated with a significant increase in the use of shade and protective clothing in adults and children. However, the feasibility of this action may be difficult as fashions change from season-to-season and year-to-year. It would be very difficult to achieve a long-term change; or may take a long time to achieve any change (for example, trend towards paler skin in models). Fashion targeting may be good for small communities such as local swimming pools or sports teams where there is the potential to alter some fashion behaviours such as use of sunglasses.
- *Media reporting of UV levels.* The Cancer Society and Health Sponsorship Council sponsor the MetService to provide UV radiation information to the public in the form of a UV index. Focus-group work is currently underway with the public, and interviews with media workers (newspaper, radio and television) to investigate ways to make the UV index more meaningful (C Watts, personal communication, August 2002).



## Priority Area 5: Alcohol

### **Problem**

Over 80% of adult New Zealanders consume alcohol. Young people (particularly young Māori) who drink are drinking more heavily, more often, and are beginning to drink at an earlier age. There is strong evidence that alcohol is a risk factor for cancers of the oral cavity, pharynx, oesophagus and larynx. Alcohol is a probable risk factor for cancers of the stomach, colon, rectum, liver, breast and ovary.

### **Aim**

To reduce the number of people developing alcohol-related cancers in New Zealand.

### **Objective**

To encourage safe drinking by raising awareness of the harmful effects of alcohol, reducing exposure to alcohol advertising, exploring the effectiveness of warning labels on alcohol products and supporting a tied tax on alcohol products.

### **Expected outcomes**

- More New Zealanders aware of the cancer risks of alcohol consumption.
- Fewer New Zealanders, particularly young people drinking heavily.
- A reduction in the total amount of alcohol consumed.
- A decline in alcohol-related cancer registration rates.

## **Epidemiology**

### **Oral, pharyngeal, oesophageal, laryngeal cancers**

- These cancers are much more common in males than in females – particularly laryngeal cancers (3.7 per 100,000 in males, 0.4 per 100,000 in females).
- Oesophageal cancers are the most common of these four cancer groups with registration rates of 5.6 per 100,000 in males and 1.8 per 100,000 in females. Māori have similar rates of oesophageal cancer as non-Māori.

(NZHIS 2001)

### **Liver cancer statistics**

- Liver cancer is over 2.5 times more common in Māori compared with non-Māori.
- In 1997 there were 122 deaths due to liver cancer, of which 17 were Māori; there were 153 new registrations, of which 30 were Māori.

## Alcohol-use statistics

- Over 80% of adult New Zealanders consume alcohol. While total alcohol consumption has declined over the past 15–20 years, there is considerable variation in the amount consumed by individuals (ALAC and Ministry of Health 2001). 10% of drinkers consume almost half of alcohol consumed (the equivalent of 31 cans of beer each per week) (Wyllie et al 1996).
- Between 1994 and 1997, there was a decrease in the proportion of young people aged 14–19 who drank alcohol, but there was a large increase in the amount consumed on each drinking occasion (ALAC and Ministry of Health 2001).
- Young people who drink are drinking more heavily, more often, and are beginning to drink at an earlier age than in 1996/97 (ALAC 2002).
- While a lower proportion of Māori drink compared with non-Māori, young Māori appear to disproportionately engage in heavier and riskier drinking.

## Links between alcohol and cancer

- There is strong evidence that alcohol is a risk factor for cancers of the oral cavity, pharynx, oesophagus and larynx.
- Alcohol is a probable risk factor for cancers of the stomach, colon, rectum, liver, breast and ovary.
- Alcohol consumption is also linked to other cancer risk behaviours such as tobacco smoke (including second-hand smoke), unsafe sex (increasing exposure to HPV), and illicit drug use (increasing exposure to hepatitis B and hepatitis C in injecting drug users).

(Wilson 2002)

## Other effects of alcohol consumption

- Short-term effects of alcohol consumption can include injuries and motor vehicle accidents, teenage pregnancies, sexually transmitted infections, abortions, sexual harassment, and mental ill-health.
- Longer-term effects can include fetal alcohol effects, increased alcohol abuse and dependence.

(ALAC 2002)

## History and current status

### Sale of Liquor Act 1989

The Sale of Liquor Amendment Act 1999 lowered the legal age at which people can purchase alcohol in New Zealand from age 20 to age 18 (amendment to sections 155–64 of the Sale of Liquor Act 1989).

## **The Alcohol Advisory Council of New Zealand**

The Alcohol Advisory Council of New Zealand (ALAC) was established in 1976 with the aim being to encourage moderation in the use of alcohol and to minimise misuse of alcohol. The core functions of ALAC are: supporting alcohol-related research, dissemination of information, sponsorship of innovative programmes, policy advice and recommendations, and monitoring and making recommendations on the advertising of alcohol.

## **Ministry of Health**

The Ministry of Health has a National Drug Policy team. Alcohol is one of the main areas covered by this team. Further information is available on their website: <http://www.ndp.govt.nz>

## **Other organisations**

Various industries, unions.

## **Strategies and key policy documents**

Further information on the documents listed below is available in, 'Stocktake of Strategies and other Key Policy Documents for Cancer Control in New Zealand'.

- National Alcohol Strategy 2000–2003: The goal of the National Alcohol Strategy is to minimise alcohol-related harm to individuals, families and society. Published March 2001.
- Toolkit: Minimising Alcohol and Other Drug Related Harm, 2001.

## **Priority populations**

People who consume large quantities of alcohol, pregnant women, young people.

## **Monitoring and review**

- Short term: awareness of the cancer risks of alcohol consumption.
- Intermediate term: reduction in total alcohol consumption and in the number of people who consume alcohol.
- Long term: decline in alcohol-related cancer registration rates.

## Action areas

Action 1	<b>Raise awareness of the harmful effects of alcohol and its relationship with cancer</b>
Evidence (overseas)	A number of mass-media campaigns on reducing or moderating alcohol consumption or behaviour have been run, but there is a lack of published literature on campaigns designed to specifically address the relationship between alcohol and cancer.
Evidence (New Zealand)	A New Zealand community action project found that a mass-media campaign on alcohol influenced attitudes in people exposed to the campaign (Casswell et al 1989). Broadcast advertisements for alcohol brands have been permitted in exchange for free air- time for 'counter-advertising' or alcohol health promotion advertisements (Thomson 1994; Casswell 1995). Counter-advertising has been used by the Alcohol Advisory Council and the Land Transport Safety Authority. However, the ratio of counter-advertising to commercial advertising has been about 1:10 over the last decade.
Risks	There may be public confusion over different messages for alcohol and cardiovascular disease, and alcohol and cancer. It is also important that any mass-media campaign is supported by community-level activity.
Benefits	There may be potential to use some of the 'air-time' (referred to under New Zealand evidence) to raise awareness of the links between alcohol and some types of cancer. There is the potential to use cancer risk as a new way to look at reducing alcohol use, possibly using a threat–appeal campaign rather than an educational one.
Target populations	The 10% of the population that consumes almost half of the total alcohol consumed. People who binge drink, young people, parents of young people, young Māori.
Purpose	To raise awareness of the effect of alcohol on cancer.
Stakeholders	ALAC, Ministry of Health, The Cancer Society.
Implementation	Ongoing.
Timeframe	Medium term (next three years).
Outcome measure	An increased awareness of the cancer risks associated with alcohol.

Action 2	<b>Reduce exposure to alcohol advertising</b>
Evidence (overseas)	Alcohol advertising plays a small but important role in ensuring a continuing market for alcohol, in particular through the recruitment of new generations of heavy drinkers as a core component of that market. Alcohol products likely to attract women are also receiving increased attention.
Evidence (New Zealand)	<p>Television alcohol advertising in New Zealand has not resulted in an increase in total alcohol consumption. Advertisements for beer, wine and spirits have been prolific on our screens since 1992 (after 9 pm), but as a nation we are drinking less than ever (Welch 1998).</p> <p>Broadcast advertisements for alcohol brands were permitted in exchange for free air-time for 'counter-advertising' or alcohol health promotion advertisements (Thomson 1994, Casswell 1995). This has been used by the Alcohol Advisory Council and the Land Transport Safety Authority. The ratio of counter-advertising to commercial advertising has been about 1:10 over the last decade.</p> <p>Radio, with its lower costs, attracts advertising by local drinking venues and alcohol outlets, as well as by major brands. In a New Zealand study, the four most common categories of advertisement identified were discounts for bulk purchase at bottle stores, discounted drinks in drinking venues, free drinks with meals and bar tabs as prizes. Hill and Casswell (2001) argue that these are all promotions that encourage hazardous drinking, and none are covered by the current voluntary industry code on alcohol advertising. Research suggests that marketing of alcohol has a negative effect on the environment that helps shape individuals' choices.</p>
Risks	Alcohol companies sponsor many sports teams, clubs and community events. Reducing alcohol advertising in the form of sponsorship would be very unpopular with some population groups for this reason.
Benefits	Reduction in harm is associated with alcohol misuse. Reduced alcohol advertising may remove prompts for people to start drinking and remove reinforcers for people to drink.
Target populations	Young people.
Purpose	To reduce prompts to start drinking and remove reinforcers to drink.
Stakeholders	ALAC, Ministry of Health, sponsored groups.
Implementation	Implementation would have to be done in stages.
Timeframe	Long term (5–10 years).
Outcome measure	A reduction in the quantity of alcohol that people drink.

Action 3	<b>Explore the effectiveness of warning labels on alcohol products</b>
Evidence (overseas)	American evidence that health warnings on alcohol (about alcohol and pregnancy, and alcohol and driving/operating machinery) can improve knowledge and awareness (Kaskutas and Greenfield 1997) and reduce antenatal drinking (Hankin et al 1996).
Evidence (New Zealand)	Labels showing the number of standard drinks that the beverage contains becomes a requirement for all new alcohol products later in 2002 (Media item, NewsRoom.co.nz).
Risks	The proposed warning label due for introduction in New Zealand later this year may actually increase consumption of alcohol products with a higher alcohol content as people may see them as better value for money.  Warning labels about the risk of cancer may be confused with messages about alcohol and cardiovascular disease.
Benefits	Targets people who actually consume alcohol.
Target populations	All people who buy packaged or bottled alcoholic beverages.
Purpose	To influence the choices that people make when choosing to purchase alcohol. To educate people who purchase alcohol.
Stakeholders	ALAC, Ministry of Health, producers and manufacturers.
Implementation	For standard drinks labels – 2002; warnings about cancer may be some years away.
Timeframe	Medium term (next three years).
Outcome measure	A reduction in total alcohol consumed and a reduction in the quantity of alcohol consumed on an individual occasion.

Action 4	<b>Support an increase in taxation on alcohol products (preferably a tied alcohol tax)</b>
Evidence (overseas)	An increase in the price of alcohol is associated with reduced alcohol consumption, especially among young and heavy drinkers (Wilson 2001).
Evidence (New Zealand)	'Pricing policy is recognised internationally as one of the most effective tools in reducing alcohol-related harm within the drinking population through reducing consumption. In other countries where the tax has been removed or lessened there has been a rise in problems associated with misuse of alcohol' (ALAC media release, October 2001).
Risks	There have been suggestions that the heaviest drinkers are not sensitive to price and that this undermines the influence of taxes on drinking behaviour. However the evidence does not support this suggestion and it has been demonstrated that significantly raising the price of alcohol does lead to a decrease in consumption by excessive drinkers (Hawkes 1993; Kendall 1983).
Benefits	Excise taxes on alcohol products increase the real price of alcoholic beverages and act as a tool for reducing average alcohol consumption and, therefore, some alcohol-related harm. A tied alcohol tax would enable revenue gained from taxation to be used for mass-media campaigns and other strategies aimed at reducing alcohol consumption.  Consideration should be given to the introduction of a differential excise on alcohol products based on the alcohol content rather than the cost of manufacture or production method. This issue is highlighted in the Government's <i>National Alcohol Strategy 2000–2003</i> (Ministry of Health 2001c) as an initiative to reduce alcohol-related harm by encouraging the consumption of low-alcohol products over higher-alcohol products. A differential excise regime could be employed with products with a high appeal to young people such as ready-to-drink beverages or 'alcopops'. Higher taxes impact on young peoples' alcohol consumption, as this population group is highly price sensitive.
Target populations	All people who drink alcohol.
Purpose	Reduction in harm associated with alcohol misuse.
Stakeholders	Ministry of Health, ALAC.
Implementation	3–5 years.
Timeframe	Ongoing.
Outcome measure	A reduction in the amount of alcohol consumed.

## Priority Area 6: Infectious Diseases

### Problem

The presence of a number of infectious diseases has been associated with the development of some cancers: hepatitis B and C are risk factors for liver cancer, Human Papilloma Virus (HPV) and chlamydia are risk factors for cervical cancer, and *Helicobacter pylori* is a risk factor for gastric cancer. These cancers are unequally distributed throughout the population. Māori, Pacific and Asian people in New Zealand experience greater carriage of surface antigen (HbsAg), contributing towards their higher rates of liver cancer compared with European New Zealanders. Māori women have a higher cervical cancer incidence and mortality compared with non-Māori women.

### Aim

To reduce the number of people developing liver and cervical cancer.

### Objective

To reduce the spread of infectious diseases through safe-sex practices, increasing hepatitis B vaccination coverage, enhancing needle-exchange programmes, raising awareness of the risks associated with IV drug use and protecting the blood supply.

### Expected outcomes

A reduction in the:

- transmission of HPV
- transmission of chlamydia
- prevalence of hepatitis B through increased vaccination rates
- transmission of hepatitis C
- incidence and mortality due to cervical and hepatocellular cancer.

## Epidemiology

### Liver cancer

- The age-standardised 1997 new registration rates of hepatocellular cancer were 3.3 per 100,000 population with 4.6 per 100,000 (males) and 2.1 per 100,000 (females).
- The age-standardised 1997 new registration rates of hepatocellular cancer in Māori were 8.9 per 100,000 population with 12.6 per 100,000 (males) and 5.5 per 100,000 (females).

(NZHIS 2001)



## Cervical cancer

- The age-standardised 1997 new registration rate of cervical cancer was 8.9 per 100,000 (females) (NZHIS 2001).
- The cervical cancer incidence rate among Pacific women may be higher than that of Māori or European women (Cox and Skegg 1989).

## Stomach cancer

- The age-standardised 1997 new registration rates of stomach cancer were 9.9 per 100,000 (males) and 4.6 per 100,000 (females).
- The registration rate for Māori males (18.2 per 100,000 population) was twice that of the male non-Māori rate of 9.1 per 100,000.
- Māori females (12.6 per 100,000) had a rate over three times that of non-Māori females (3.8 per 100,000).

(NZHIS 2001)

## Infectious diseases

### Hepatitis B, C

- Evidence of past hepatitis B infection was found in 15% of New Zealand children in a 1985 National Serum Survey (Ministry of Health 2002c).
- In Eastern Bay of Plenty 60% of Māori and 30% of Europeans were infected by 15 years of age (Moyes and Milne 1986).
- There were 83 notified cases of acute hepatitis C infection in the year 2000. The overwhelming risk factor was a history of injecting drug use (72.9% of cases) (Lopez et al 2001). This is a large underestimate of the true incidence of hepatitis C infection as most new cases are asymptomatic.
- Māori, Pacific and Asian peoples in New Zealand experience greater carriage of surface antigen (HbsAg), explaining the majority of the excess rate of hepatocellular cancer compared with European New Zealanders (Ministry of Health 2001a).

### Human Papilloma Virus (particularly HPV 16, 18, 31)

No formal collection of HPV rates occurs.

### Chlamydia infection

- 2871 notified cases in the year 2000 with a mean age of 22.9 (range 13–65) (Lopez et al 2001).

## Infectious disease exposure and preventable future deaths

- 3–7% of people with chronic hepatitis C will develop liver failure or liver cancer (Ministry of Health 2002a).
- 10% of male and 5% of female HbsAg carriers will develop hepatocellular carcinoma.
- It is estimated that hepatitis B vaccination could prevent up to two-thirds of all liver cancers.
- The risk of noncardia gastric cancer is higher (4-fold or greater) in those with *Helicobacter pylori* infection.

## Current status

### Draft Sexual Health Plan for Sexually Transmitted Infections

Suggested action points are as follows.

- Societal attitudes, values and behaviour: a research programme with sponsorship, develop a 'Positive Sexuality' advertising campaign, and good sexual health story-lines for *Shortland Street* (a television soap).
- Personal knowledge, skills and behaviour: earlier sex education for people with disabilities, emphasise relationship issues, education/support for parents of adolescents, and increased condom usage.
- Programmes and services: access, appropriateness, access to condoms and treatment, care pathways, extend services by Māori for Māori, and a public campaign for chlamydia.
- Information: reporting, ethnicity data, coverage of services, effective interventions, and Māori issues.

### Draft Hepatitis C Action Plan (from Action on Hepatitis C Prevention – A discussion document)

Suggested action points are as follows.

- Policy around illicit drug use: reduce supply, hepatitis C prevention programmes in prisons, dealing with policy anomalies regarding needle possession.
- Information to at-risk groups: increased blood awareness, communications plan, and life-skills education.
- Provide safe, clean injecting equipment to injecting drug users through needle exchanges.
- Accessible drug treatment programmes for injecting drug users: alcohol and drug services.
- Screening and testing of human blood for transfusion.
- Use of a standard precautions approach to minimise blood exposures in health care and other settings.

- Increase knowledge of hepatitis C and IDU issues amongst health professionals and community workers.
- Surveillance and research.

### Management of hepatitis B in New Zealand

Hepatitis B vaccination was gradually added to the Immunisation Schedule from September 1985. Vaccination was extended to everyone born after 29 February 1988 (at birth, six weeks, three and 15 months of age). From February 1990, free hepatitis B immunisation was extended to all children under 16 years of age. Vaccine efficacy is 85–95 percent. The current recommendation is for vaccination at six weeks, three months and five months.

A screening and vaccination programme for all Māori, Pacific and Asian people aged over 15 in the North Island was introduced in 1999. All pregnant women should be screened for hepatitis B carriage antenatally.

Vaccination is also recommended for health care workers, prison inmates, injecting drug users, sex workers, men who have sex with men, people with a high number of sexual partners, those on renal dialysis and regular recipients of blood products (Ministry of Health 2002c).

### Other agencies and organisations

Cancer Society, Hepatitis Foundation.

### Strategies and key policy documents

Further information on the documents listed below is available in, 'Stocktake of Strategies and other Key Policy Documents for Cancer Control in New Zealand'.

- Strategy: National Strategy on Sexual and Reproductive Health (Ministry of Health, 1996)
- Strategy: Sexual and Reproductive Health Strategy (Ministry of Health, 2001).
- Advice: Sexually Transmitted Diseases Prevention and Control (Ministry of Health, 1997).
- Strategy: Rangatahi Sexual Wellbeing and Reproductive Health (Ministry of Health, 1997).
- Advice: National Strategy for Surveillance of Hepatitis B. A Report for the Ministry of Health and Public Health Commission (May 1994, ESR Health: Communicable Disease Centre).
- Policy: An Integrated Approach to Infectious Diseases, Priorities for Action 2002–2006 (Ministry of Health, November 2001).
- Action: Action on Hepatitis C Prevention, a discussion document (Ministry of Health, April 2002).
- Strategy: National Immunisation Strategy (Public Health Commission and Ministry of Health, 1995).

- **DHB Toolkit: Immunisation (Ministry of Health, 2001).**

## Priority populations

Young people; injecting drug users; Māori.

## Monitoring and review

- **Short term: awareness of campaigns; use of needle-exchange facilities.**
- **Intermediate term: decline in rates of CIN and CIS identified by screening for cervical cancer; reduction in rates of hepatitis B and C.**
- **Long term: decline in rates of cervical, stomach and hepatocellular carcinomas.**

## Action areas

Action 1	<b>Safe sex practices.</b> For example, education and advice on safe sexual practices.
Evidence (overseas)	A review of 30 trials indicates that educational interventions which combine information with sexual negotiation skill development, motivation-building and attitude change can encourage at least short-term sexual risk-reduction behaviour (Shepherd et al 2002). Small group discussion sessions led by peer educators with a variety of media used (for example, video, slides, posters) are effective.
Benefits	A reduction in risk of all sexually transmitted infections and a reduction in unwanted pregnancies.
Target populations	Adolescents and young people, males and females.
Purpose	To reduce transmission of HPV, chlamydia and other sexually-transmitted infections (STIs).
Stakeholders	Ministry of Health.
Implementation	The sexual health action plan that identifies ways to reduce the prevalence and transmission of STIs will provide some guidance on how to promote safe sexual practice.
Timeframe	Five years.
Outcome measure	A reduction in reported STI rates.

Action 2	<b>Hepatitis B vaccination</b>
Evidence (overseas)	Taiwan is the first country to formally demonstrate the efficacy of hepatitis B vaccination in eliminating liver cancer (Parkin 1999).
Evidence (New Zealand)	Strong epidemiological evidence that vaccination is effective in reducing hepatitis B infection (Ministry of Health 2002c).
Risks	Anaphylaxis to vaccine.
Benefits	Hepatitis B rates are higher in Māori, Pacific and Asian people in New Zealand. This action targets these groups in particular.
Target populations	Refer to description of vaccination programme under Current Status section above.

Purpose	To prevent hepatitis B infection.
Stakeholders	Ministry of Health.
Implementation	Ongoing.
Timeframe	Ongoing.
Outcome measure	A continued reduction in the rate of hepatitis B notifications. In the longer term, a reduction in the incidence of liver cancer.

<b>Action 3</b>	<b>Needle and Syringe Exchange Programmes (NSE)</b>
Evidence (overseas)	The evidence for reduction in hepatitis C transmission is mixed – some studies have reported lower rates of hepatitis C among attendees of NSEs while others have reported no effect (Ministry of Health 2002a).
Evidence (New Zealand)	While community-based exchanges make up only 7% of the total number of outlets, they account for 64% of sales (Ministry of Health 2002a).
Risks	An evaluation of the cost-effectiveness of NSE programmes found that NSEs alone are unlikely to control the transmission of hepatitis C because of the transmissibility of hepatitis C, the large reservoir of carriers and other risk behaviours (Pollack 2001).
Benefits	Will help to reduce the spread of other blood-borne infections.
Target populations	Injecting drug users.
Purpose	To reduce the spread of hepatitis C through harm minimisation.
Stakeholders	Ministry of Health, injecting drug users.
Implementation	Ongoing.
Timeframe	Five years.
Outcome measure	Use of needle-exchange programmes, hepatitis C rates (dependent on notifications).

<b>Action 4</b>	<b>Raise awareness of the risks associated with IV drug use</b>
Evidence (overseas)	Evidence that education can have an effect on other risk practices such as with HIV, safe sex.
Evidence (New Zealand)	Drug education is part of the national curriculum statement, 'Health and Physical Education in the New Zealand Curriculum'. The Ministry of Education has published guidelines for effective school-based drug education (Ministry of Education 2000). Education also occurs in primary practice, Māori health services and student health services.
Risks	Few published evaluations available to demonstrate the effectiveness of this action.
Benefits	May help to prevent some people from becoming IV drug users.
Target populations	Injecting drug users, young people and adolescents, other groups such as prison inmates.
Purpose	To reduce the spread of hepatitis C through education and harm minimisation.
Stakeholders	Ministry of Health, injecting drug users, prison staff, piercing and tattoo providers.
Implementation	Ongoing.
Timeframe	Five years.

Outcome measure	Awareness of the risks of drug injecting in participants of education courses.
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Action 5	<b>Protect the blood supply</b>
Evidence (overseas)	Testing for hepatitis C and HIV can reduce the risk to blood product recipients. For example, the risk of transfusion-transmitted hepatitis C infection in blood product recipients is between 6 and 15% in developing countries.
Evidence (New Zealand)	Introduction of Nucleic Acid Amplification Technology (NAT) testing which reduces the window period for hepatitis C detection from 82 days to 22 days and for HIV from 22 days to 11 days.
Risks	Even with NAT testing there is still a window period, so there is a need to educate blood donors and ask about risk factors for hepatitis C and HIV.
Benefits	Targets a sector of the population who may not have any other risk factors for exposure.
Target populations	Blood product recipients.
Purpose	To reduce the spread of blood-borne infectious diseases such as HIV and hepatitis C through education of donors and testing of blood.
Stakeholders	Ministry of Health, New Zealand Blood Service (NZBS).
Implementation	Ongoing.
Timeframe	Ongoing.
Outcome measure	Hepatitis C and HIV rates in blood product recipients.

## Other actions that were considered

- *Interventions to identify and treat Helicobacter pylori infection.* However, no studies have shown that treatment prevents gastric cancer. Eradication of *H. pylori* in an individual aged 40 years or under may be expected to reduce the risk of gastric cancer but most authors who have reviewed this topic are awaiting the findings of a large Japanese prospective study examining the effect that eradication of *H. pylori* has on gastric cancer risk (currently there have been no cases in either the intervention group or the control group). A review by Sonnenburg and Inadomi (1998) concludes that interventions such as vaccination or treatment of *H. pylori* would only increase overall life expectancy in sub-populations at high risk for gastric cancer. Reviews on this topic recommend that the best way to prevent gastric cancer at present is to concentrate on other risk factors such as smoking and diet.
- *Support the Hepatitis C Action Plan* (using multidimensional approach) to reduce the spread of hepatitis C through education and harm minimisation. There is little international evidence to support a single approach, nor a multidimensional approach, but there is New Zealand evidence that HIV transmission has been minimised in injecting drug users by using a multidimensional approach.
- *Support the Sexual Health Action Plan.* There is evidence to support a multidimensional approach particularly in the area of education (information together with skill development, motivation-building and attitude change is more effective than education alone) (Shepherd et al 2002). The draft Sexual Health Plan addresses a number of ways to control the spread of chlamydia and HPV as well as a

number of other sexually transmitted diseases. Their suggested actions are listed earlier in this paper.

- *Hepatitis B* education and awareness campaign to minimise exposure (for example, body piercing and tattooing).
- Improved identification and treatment of HPV and chlamydia.
- Hepatitis C. A number of actions were considered.
  - Regulation: endorse legislation to limit supply and control of illicit drugs.
  - Education to raise awareness of hepatitis C among those at risk.
  - Education on how to reduce the risk of becoming infected.
  - Identification and testing for those with hepatitis C leading to treatment and education to minimise spread to others.
  - Settings approach: for example, prisons, tattooing and piercing premises, and workplace safety.

## Priority Area 7: Occupation-Related Cancers

### **Problem**

An estimated 600 cases of occupation-related cancer occur each year in New Zealand, most of which are preventable. Regulations are in place to protect workers against many known carcinogens. Further efforts and actions are required to identify new carcinogens, develop strategies to reduce exposure, and hence reduce the incidence of occupational cancers in future.

### **Aim**

To reduce the number of people developing occupation-related cancers in New Zealand.

### **Objective**

Within an occupational setting, strengthen and enforce the legal framework in relation to carcinogenic compounds, support research and monitoring, raise awareness and reduce exposure to carcinogenic compounds, and promote smokefree, activity-friendly workplaces.

### **Expected outcomes**

- An increased awareness of the risks of carcinogenic compounds in the workplace.
- An ability to quantify the importance of known carcinogens, and identify new occupational causes, in New Zealand.
- A reduction in the exposure levels and number of people exposed to carcinogenic compounds in the workplace.
- Increased compliance with regulations and legislation pertaining to carcinogenic compounds.
- A reduction in the number of people developing occupation-related cancers.

## **Epidemiology**

An estimated 600 cases of occupational cancers occur in New Zealand each year. However, only 138 cases of occupational cancer were notified to and confirmed by Occupational Safety and Health (OSH) in the four years to June 1996 (34 cases per year on average).

### **Lung cancer**

- Lung cancer accounts for 17,919 Disability Adjusted Life Years (DALYs) lost per year (11,034 in males and 6885 in females).
- There is an upward trend in cancer registrations for the trachea, bronchus and lung sites in females (from 526 in 1993 to 602 in 1997), and a downward trend in males (from 991 in 1993 up to 1072 in 1994 before dropping to 936 in 1997).



- 11% of all male and 8% of all female cancer registrations (1997 data), and 23% of male, and 15% of female cancer deaths are due to lung cancer (fatality/case ratio of 0.92).
- Lung cancer was the most common cause of cancer death for males and the second most common for females (1997).
- The Māori registration rate for lung cancer was 73.7 per 100,000 people, a rate almost triple that for non-Māori (25 per 100,000 population).

### Bladder cancer

- 511 new bladder cancers were registered in 1997 in New Zealand.
- The rate of new bladder cancers in New Zealand in 1997 was 14.6 per 100,000 population in New Zealand males, with rates of well over 100 per 100,000 in males aged over 70 years.

### Links between occupational environment and cancer

The cancer burden in New Zealand is also unequally distributed according to socioeconomic status. Studies in cancer mortality among men have shown that men in manual and unskilled occupations tend to experience higher overall cancer mortality than men in professional and administrative occupational groups (Ministry of Health 2001a).

The table below, adapted from Vainio et al (1994) summarises industries where some occupations or processes have been identified as presenting a carcinogenic risk. A number of other industrial processes and occupations have been associated with an increased risk of cancer but the evidence is not considered to be conclusive.

**Table 1:** Industries with occupations/processes recognised as presenting a carcinogenic risk

Industry	Cancer site/type
Agriculture, forestry and fishing	Lung, skin, lip
Mining and quarrying	Lung, skin, mesothelioma
Chemical	Lung, liver angiosarcoma, sinonasal, bladder
Leather	Sinonasal, leukaemia
Wood and wood products	Sinonasal
Pesticides and herbicides production	Lung
Rubber	Leukaemia, bladder
Asbestos production	Lung, mesothelioma
Metals	Lung, bladder, sinonasal, larynx
Shipbuilding, motor vehicle and railroad equipment manufacture	Lung, mesothelioma
Gas	Lung, bladder, scrotum
Construction	Lung, mesothelioma
Other (medical personnel, painters)	Lung, skin, leukaemia

## **Mesotheliomas**

Mesotheliomas, both pleural and peritoneal, are tumours that are associated with asbestos exposure, but do not appear to be associated with smoking. Between March 1992 and July 1998, there were 113 cases of mesothelioma reported in New Zealand. The mean age at diagnosis was 63 years (range 35–89). The mean number of years since first exposure was 42 (range 12–74). Asbestos processors, plumbers/fitters/ladders, and carpenters/builders, comprised 64 percent of all registered cases. This information is collected as part of the National Asbestos Register (OSH 1999a).

## **Bladder cancer**

Up to 20 percent of bladder cancers are thought to be due to occupational factors. The established occupational risk factors are aromatic amines and polycyclic aromatic hydrocarbons. Several other specific exposures have been implicated. These include chromium, coke dust, cutting fluids, herbicides, oils, petroleum and zinc.

## **Non-Hodgkin's lymphoma**

An estimated 10 percent of non-Hodgkin's lymphoma in the US is due to occupational exposures. Non-Hodgkin's lymphoma has been associated with a number of industries and chemicals. Examples include: the meat industry, electric power plants, farming, grain handling, metal-working, woodworking, chlorphenols, agricultural industry and hair dyes.

## **Leukaemia**

Up to 75 percent of leukaemia in males is due to occupational and environmental exposures. Established occupational risk factors are ionising radiation and benzene. Further research is required to determine other occupational risk factors. Postulated causes include electric and magnetic fields, engine exhausts, insecticides and herbicides.

## **Sinonasal cancer**

The major known occupational exposure is wood dust, with a relative risk of over 70 in people involved in furniture manufacture. One New Zealand study reported a six-fold increase in risk for nasopharyngeal cancer for forestry workers and loggers (Kawachi et al 1989).

## **Second-hand smoke**

Approximately 347 deaths per year in New Zealand are attributed to past exposures to second-hand smoke. Based on present exposures, an estimated 325 potential avoidable deaths caused by second-hand smoke will occur in New Zealand each year in the future (Woodward and Laugesen 2001).

## History and current status

### Occupational Safety and Health

- The Health and Safety in Employment Act 1992 specifies that employers must protect the health and safety of their employees and that all employees must co-operate.
- An Occupational Cancer Panel has been established under the Notifiable Occupational Disease system (NODs) to improve reporting of occupational cancer in New Zealand. A consent process is followed for all incident cases of selected cancers (aged 20–69) reported to the New Zealand Cancer Registry. Consenting cases are then interviewed. A questionnaire is completed that includes information on occupational history and exposures.
- The National Asbestos Register is maintained by OSH. It was established in 1992 for people who had been significantly exposed to asbestos.

### The Cancer Society

The Auckland Division of the Cancer Society has developed specific information and resources (posters, information leaflets and presentations) for the workplace.

### Hazardous Substances and New Organisms Act 1996

The Hazardous Substances and New Organisms Act (HSNO Act 1996) was introduced to provide 'a streamlined and up-to-date system for managing risks from hazardous substances and new organisms in New Zealand'. In terms of occupational cancers, the HSNO Act provides some protection against the introduction of new carcinogenic substances into New Zealand.

The HSNO Act is managed and maintained by the Ministry for the Environment. The Environmental Risk Management Authority is a quasi-judicial body that decides if hazardous substances can be introduced into New Zealand, and manages any risk to the environment, public health and safety by placing appropriate controls on their use. Further information about the HSNO Act is available online at: <http://www.hsno.govt.nz/about.shtm>

### Ministry of Health

The Ministry of Health has produced or commissioned a number of resources looking at the effects of second-hand smoke and environmental tobacco on human health. These are available online at: <http://www.moh.govt.nz>

### Sport and Recreation New Zealand

Sport and Recreation New Zealand is in the process of developing some workplace resources on physical activity in the workplace and activity-friendly employers.

## Other organisations

Various industries, employers and unions.

## Strategies and key policy documents

The Ministry of Health has not produced any strategies or key policy documents specifically addressing occupation-related cancers in New Zealand.

## Priority population

People who are exposed to carcinogens in the workplace, particularly in certain occupations.

## Monitoring and review

- **Short term:** compliance and awareness of the risks and use of safety equipment.
- **Intermediate term:** reduction in those exposed to carcinogenic compounds.
- **Long term:** decline in lung cancer rates.

## Action areas

Action 1	Strengthen and enforce the legal framework in relation to carcinogenic compounds
Evidence (overseas)	The amount of asbestos dust in the home laundries of asbestos workers has been measured at higher levels than in the factories where they are employed. Regulations meaning workers cannot launder asbestos-contaminated clothing in their own homes reduces asbestos exposure to family members (OSH 1999b).
Evidence (New Zealand)	On 14 January 1999, tighter health and safety regulations governing working with asbestos were introduced in New Zealand by OSH. These included regulations on laundering of contaminated clothing (OSH 1999b).
Risks	Enforcement of the regulations is difficult and hard to achieve.
Benefits	Regulations provide some protection for workers and guidelines for employers.
Target populations	Employers and employees in industries exposed to carcinogenic substances or behaviours.
Purpose	To reduce exposure to carcinogenic substances in the workplace.
Stakeholders	OSH, various industries.
Implementation	Ongoing.
Timeframe	Ongoing.
Outcome measure	A reduction in the exposure levels and number of people exposed to the particular chemical or carcinogen under review.

Action 2	<b>Support the OSH Cancer Panel research programme on occupational exposures, and improve the reporting of occupational cancer</b>
Evidence (overseas)	There are many research projects and studies examining various occupational exposures and the link to types of cancer around the world.
Evidence (New Zealand)	There are a number of organisations and research groups undertaking occupational cancer studies in New Zealand. Many of these are based in universities. Massey University has been awarded an HRC Programme Grant that includes a major study of occupational cancer (bladder, leukemia, non-Hodgkin's lymphoma, nasopharyngeal cancer), which is being done in conjunction with OSH (Dr N Pearce, personal communication, June 2002).
Risks	There may be some duplication with other organisations such as the Health Research Council. Establishment of a research programme would require some funding and co-operation between various funding bodies and institutions.
Benefits	A research programme would provide a more co-ordinated approach to the topics under review, and identify areas that need to be researched within a New Zealand context.
Target populations	Researchers interested or involved in occupational cancers, OSH, Ministry of Health, The Cancer Society, Health Research Council, universities.
Purpose	To study occupational cancers and exposures within a New Zealand setting for risk identification and harm minimisation.
Stakeholders	Researchers interested or involved in occupational cancers, OSH, Ministry of Health, The Cancer Society, Health Research Council, universities.
Implementation	Within the next five years.
Timeframe	Ongoing.
Outcome measures	To be able to quantify the importance of known carcinogens in New Zealand. To identify and investigate new occupational causes of cancer in New Zealand.

Action 3	<b>Raise awareness of carcinogenic compounds in the workplace</b>
Evidence (overseas)	There are a number of media used to increase awareness of carcinogenic compounds in the workplace. These include regulations, safety practices/equipment and training, television, radio, pamphlets or print media.
Evidence (New Zealand)	OSH has produced a guide to training employees; hazard identification and protection are included as part of this (OSH 1996). A series of television advertisements aimed at increasing awareness of the risks of second-hand smoke is currently underway. OSH has also published 'Guidance notes for the Protection of Workers from Solar UV Radiation' (OSH 1997).
Risks	Awareness and understanding is important for both employers and employees so that there is a combined effort to minimise exposure. If awareness is limited to employers, then there is a risk that employees will not understand the importance of wearing protective clothing or other safety measures. Conversely, a lack of awareness by employers may result in the lack of provision of safety equipment.  Prospective employees should also be made aware of the risks prior to accepting a position so that they can make an informed choice about the risk.
Benefits	If employees and employers understand and are aware of the risks then they are more likely to take protective action to reduce exposure.
Target populations	Employers and employees working in environments where carcinogenic compounds are present.
Purpose	To increase awareness and understanding of the risks of carcinogenic compounds in the workplace (for both employers and employees) so that both can take protective measures.
Stakeholders	OSH, Ministry of Health.
Implementation	Ongoing.
Time frame	Medium term (next three years).
Outcome measure	Awareness of the risks of various carcinogenic compounds.

Action 4	<b>Promotion of smokefree and physical activity actions within the workplace</b>
Evidence (overseas)	<p>In a review of 19 studies, 17 reported declines in smoking prevalence as a result of smokefree workplaces (Chapman et al 1999). Approximately 22.3% of the 2.7 billion decrease in cigarette consumption in Australia between 1988 and 1995 can be attributed to smokefree workplaces. In the United States (1988–94), 12.7% of the 76.5 billion decrease is due to smokefree workplaces (Wilson 2002).</p> <p>A review of worksite exercise interventions to increase adherence to exercise found that 9 of 10 studies showed that exercise adherence strategies increased or improved exercise behaviour, especially programmes with multiple interventions (Blue and Conrad 1995).</p>
Evidence (New Zealand)	<p>A workplace intervention focusing on nutrition and physical activity resulted in a significant improvement in nutrition, reduced systolic blood pressure and increased physical activity compared to a control site (Cook et al 2001).</p> <p>One popular New Zealand workplace physical activity programme is 'Stroll, strut, stride', a National Heart Foundation initiative that forms part of Heartbeat Challenge. Every year many business and company teams aim to walk the equivalent distance of the length of New Zealand over a number of weeks.</p>
Risks	Many studies reviewing physical activity interventions have only followed participants up over a short period so it is not known whether increases in physical activity are sustained.
Benefits	There are many benefits to the employer such as team-building. The evidence surrounding fewer sick days and better productivity as a consequence of physical activity is not clear at present.
Target populations	People in the workforce.
Purpose	A smokefree and activity-friendly workplace encourages and supports a healthy lifestyle.
Stakeholders	Ministry of Health, OSH.
Implementation	Ongoing.
Timeframe	Ongoing.
Outcome measures	A reduction in the percentage of population exposed to tobacco smoke in the workplace; an increase in the number of companies fostering physical activity; an increase in levels of activity particularly in commuting to work.

Action 5	<b>Reduce exposure to carcinogenic compounds in the workplace</b>
Evidence (overseas)	<p>There are a number of ways to reduce exposure to carcinogenic compounds in the workplace. These include: legislation or regulations to ban importation or use, safety practices and protection, substitution with safer products or procedures, or safer ways to dispose of products. A couple of examples of where these techniques (or a combination of these) have been used successfully are:</p> <ol style="list-style-type: none"> <li>1. Changes in machine design led to at least a five-fold reduction in exposure to airborne organic matter among asphalt workers in Norway (Burstyn et al 2002).</li> <li>2. Restriction of highly toxic pesticides together with implementation of occupational safety measures reduced systematic poisonings among workers in Costa Rica (Wesseling et al 2001).</li> </ol>
Evidence (New Zealand)	<p>No crude asbestos has been imported into New Zealand since 1991, so we would expect to see a reduction in the number of cancers attributable to asbestos in the next 20–30 years (asbestos is still present in the environment in existing structures and as part of some building materials).</p> <p>The proportion of workers exposed to tobacco smoke during work hours has decreased by almost half since legislation for smokefree workplaces was passed in 1990 (Woodward and Fraser 1997).</p> <p>The Hazardous Substances and New Organisms Act (1996) provides some protection to the introduction of new carcinogens into New Zealand.</p>
Risks	<p>The carcinogenicity of some compounds has not yet been established. It is important that safety procedures are adhered to, even in the absence of evidence of harmful effect. There is also the risk that safety procedures may be flouted if they reduce production, or increase the cost of production. An informed workforce, regulation, inspection and supervision are all important in reducing exposure.</p>
Benefits	<p>Reduced exposure may be a simple and effective public health measure.</p>
Target populations	<p>People in the workforce.</p>
Purpose	<p>To reduce the risk of developing occupation-related cancer.</p>
Stakeholders	<p>OSH, ACC, Ministry of Health.</p>
Implementation	<p>Ongoing.</p>
Outcome measure	<p>A reduction in the number of people exposed to carcinogenic compounds.</p>

## Other actions that were considered

- **Focus on specific occupational exposures that we can prevent.**
- **Legislation that focuses attention on carcinogenic hazards in the workplace so that anyone using a carcinogenic substance has to register it.**
- **Further research into the causes of occupational cancers in New Zealand.**
- **A better reporting system for occupational cancers in New Zealand. The Centre for Public Health Research, Massey University together with OSH have recently established an Occupational Cancer Panel under the Notifiable Occupational Disease system (NODs). This will provide a better estimate of the burden of occupational cancer in New Zealand.**
- **Workforce development in the areas of education, support, health protection officers, OSH workers and health promoters. This action will be covered under the generic actions, common to all priority areas for action.**



## Appendix One: Primary Prevention Expert Working Group

- Cynthia Maling – Chair (Manager, Public Health Policy, Ministry of Health).
- Marjan van Waardenberg – Co-ordinator (Senior Analyst, Public Health Policy, Ministry of Health).
- Helen Glasgow (Executive Director, The Quit Group).
- Dr Colleen Lewis (Dunedin).
- Prof Alistair Woodward (Epidemiologist and Public Health Physician, Wellington School of Medicine, Wellington South).
- Dr Tony Reeder (Social and Behavioural Research, Department of Preventive and Social Medicine, Dunedin School of Medicine, Dunedin).
- Carolyn Watts (Programme Manager, Health Promotion, Cancer Society of NZ Inc, Wellington).
- Anaru Waa (Researcher, Health Sponsorship Council, Wellington).
- Alastair Harray (Wellington).

The following people provided additional advice, information, and/or feedback.

- Tobacco: Chris Laurensen, Kate Rockpool, John Stribling (National Drug Policy, Ministry of Health); George Thomson (Wellington School of Medicine); Iain Potter (Health Sponsorship Council); Sue McTavish (Wellington Locality team, Ministry of Health).
- Physical activity: Diana O’Neil (Sport and Recreation New Zealand).
- Nutrition: Heather Wright, Elizabeth Aitken, Mary-Louise Hannah, Maria Turley (Public Health Directorate, Ministry of Health), Jenny Reid (Food Safety Authority New Zealand).
- Ultraviolet radiation exposure: Iain Potter (Health Sponsorship Council).
- Infectious diseases: Dr Fiona Turnbull (Communicable Disease Team, Ministry of Health); Susan Wauchop (Child and Family Health Policy, Ministry of Health).
- Alcohol: Brendon Baker (National Drug Policy, Ministry of Health).
- Occupation-related cancer: Prof Neil Pearce, Dave McLean (Massey University); Graeme Colhanane, Frank Darby (Occupational Safety and Health).
- General: Dr Nicholas Wilson (Contractor, Ministry of Health).
- Funding: The Cancer Society, Ministry of Health.

## Links

More detailed evidence relating to the primary prevention areas and actions described is available in:

- Wilson N, Carr H. What Works in Primary Cancer Prevention? A Report to the Ministry of Health. Ministry of Health, September 2002 (draft) [www.moh.govt.nz](http://www.moh.govt.nz).

A more detailed description of the strategies and other key policy documents for cancer control (that are referred to in this paper) are available from:

- Public Health Policy. Stocktake of Strategies and other Key Policy Documents for Cancer Control in New Zealand. Ministry of Health, May 2002 (draft) internal document – [www.moh.govt.nz](http://www.moh.govt.nz).

The above documents, together with this paper will be available as online publications on the Cancer Control Strategy website once the Strategy and accompanying documents have been finalised.

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