

***Health and Pacific peoples  
in New Zealand  
-Pacific Progress-***





Crown copyright ©

This work is licensed under the [Creative Commons Attribution 3.0 New Zealand](#) licence. You are free to copy, distribute, and adapt the work, as long as you attribute the work to Statistics NZ and abide by the other licence terms. Please note you may not use any departmental or governmental emblem, logo, or coat of arms in any way that infringes any provision of the [Flags, Emblems, and Names Protection Act 1981](#). Use the wording 'Statistics New Zealand and Ministry of Pacific Island Affairs' in your attribution, not the Statistics NZ or Ministry of Pacific Island Affairs logos.

### Liability

While all care and diligence has been used in processing, analysing, and extracting data and information in this publication, Statistics New Zealand and the Ministry of Pacific Island Affairs give no warranty that it is error-free and will not be liable for any loss or damage suffered by the use directly, or indirectly, of the information in this publication.

Statistics NZ has provided official statistics to inform analysis. The Ministry of Pacific Island Affairs authors have provided commentary and liaised with other government agencies to produce the series.

### Citation

Statistics New Zealand and Ministry of Pacific Island Affairs (2011). *Health and Pacific peoples in New Zealand*. Wellington: Statistics New Zealand and Ministry of Pacific Island Affairs.

### Published in October 2011 by

Statistics New Zealand  
Tauranga Aotearoa  
Wellington, New Zealand

Ministry of Pacific Island Affairs  
Wellington, New Zealand

ISBN 978-0-478-37702-6 (online)

### Ministry of Pacific Island Affairs

For further information or analysis on Pacific peoples in New Zealand contact the Ministry of Pacific Island Affairs:

Email: [info@mpia.govt.nz](mailto:info@mpia.govt.nz)  
Phone Wellington: +64 4 474 4498  
Phone Auckland: +64 9 262 1513  
Phone Christchurch: +64 3 363 8015  
Website: [www.mpia.govt.nz](http://www.mpia.govt.nz)

### Statistics New Zealand Information Centre

For further information on the statistics in this report, and for help finding and using statistical information available on our website, including Infoshare and Table Builder, contact the Information Centre:

Email: [info@stats.govt.nz](mailto:info@stats.govt.nz)  
Phone toll-free: 0508 525 525  
Phone international: +64 4 931 4600  
Fax: +64 4 931 4610  
Post: P O Box 2922, Wellington 6140, New Zealand  
Website: [www.stats.govt.nz](http://www.stats.govt.nz)

## Acknowledgements

This report was prepared by Terry Quirke of the Ministry of Pacific Island affairs, Debbie Edwards, and Melissa Brewerton of Te Whiti Consulting.

We would also like to acknowledge the following contributors:

Ministry of Health: Beverley Braybrook, Dr Api Talemaitoga, Pearl Carrè and Apinelu Poutasi.

Pacific Perspectives: Dr Debbie Ryan

## Foreword

The Pacific Progress series of reports examines the place of New Zealand's Pacific peoples in a number of sectors. The reports present findings of analysis conducted up until 2010. They have been produced collaboratively by Statistics New Zealand and the Ministry of Pacific Island Affairs. Statistics NZ has provided much of the data, analytical support, and resources for the Ministry of Pacific Island Affairs to lead the analysis and commentary. The objective of the series is to inform understanding of how best to improve outcomes for Pacific peoples, a fast-growing population within New Zealand.

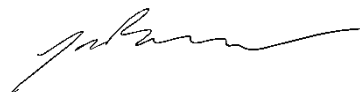
The series takes a broader approach than the Annual Aggregate Report, which it replaces. Based on 2006 Census of Population and Dwellings data, it will underpin the Ministry of Pacific Island Affairs' future monitoring of the public sector's contribution to Pacific peoples' advancement. Publishing electronically gives the flexibility to refresh regularly. The Pacific Progress series will be updated following each census. In intervening years, data from sources such as the ongoing New Zealand Health Survey will enable us to track progress.

While it is intended, in part, to enable the Ministry of Pacific Island Affairs to fulfil its monitoring role, we hope the Pacific Progress series will prove to be of wider value. We believe its analysis will make a positive contribution to the work of many agencies which already have in place programmes and policies to enhance outcomes for Pacific peoples. For those not already doing so, we hope it may serve as a prompt.

Enhancing outcomes for New Zealand's Pacific peoples is critical. A productive and prosperous New Zealand will be increasingly contingent on productive and prosperous Pacific New Zealanders.



Colin Tukuitonga  
Chief Executive  
Ministry of Pacific Island Affairs



Geoff Bascand  
Government Statistician  
Statistics New Zealand

## Standards and further information

### Percentage changes

Percentage movements are, in a number of cases, calculated using data of greater precision than published. This could result in slight variations.

### Rounding procedures

On occasion, figures are rounded to the nearest thousand or some other convenient unit. This may result in a total disagreeing slightly with the total of the individual items as shown in tables. Where figures are rounded the unit is in general expressed in words below the table headings, but where space does not allow this the unit may be shown. For example, (000) for thousands.

All counts for the census data used in this report have been randomly rounded to base 3 to protect the confidentiality of respondents. For this reason not all figures will sum to stated totals.

### Ethnicity data

The ethnicity data used in this report has been sourced from Statistics NZ and from administrative data and survey data from government agencies and non-government agencies. Statistics NZ's data is grouped using a total count method where individuals are counted in each ethnic group they identify with. Ethnicity is self-perceived and people can belong to more than one ethnic group (with up to six ethnic responses counted in official collections).

Administrative data from agencies and some survey data may not use a total count method. Instead, individuals are grouped according to a prioritised system. Prioritised ethnic groups involve each person being allocated to a single ethnic group, based on the ethnicities they have identified with, in the prioritised order of Māori, Pacific, Asian, and European or other. For example, if someone identifies as being Chinese and Māori, under the prioritised ethnic group method, they are classified as Māori for the purpose of analysis.

The way that the ethnicity data is prioritised means that the group of prioritised European or other effectively refers to non-Māori, non-Pacific, non-Asian people. The aim of prioritisation is to ensure that where some need exists to assign people to a single ethnic group, ethnic groups of policy importance, or of small size, are not swamped by the New Zealand European ethnic group.

### Changes of base

Where consecutive figures have been compiled on different bases and are not strictly comparable, a footnote is added indicating the nature of the difference.

### Source

All data is compiled by Statistics NZ, except where otherwise stated. Both administrative and survey data has been used in this report.

# Contents

<b>Acknowledgements</b> .....	<b>3</b>
<b>Foreword</b> .....	<b>4</b>
<b>Standards and further information</b> .....	<b>5</b>
<b>Contents</b> .....	<b>6</b>
<b>List of tables and figures</b> .....	<b>8</b>
<b>Introduction</b> .....	<b>9</b>
<b>Summary</b> .....	<b>10</b>
Overall health of Pacific peoples in New Zealand .....	10
Influences on health and well-being .....	10
Improving the health of Pacific peoples .....	11
<b>Overall health of Pacific peoples in New Zealand</b> .....	<b>13</b>
Children's (0–14 years) health outcomes .....	13
Young people's (15–24 years) health outcomes .....	17
Adults' health outcomes .....	18
Conclusion .....	25
<b>Influences on health and well-being</b> .....	<b>26</b>
Level of economic resources .....	27
Social cohesion and connectedness .....	28
Nutrition .....	29
Physical activity .....	30
Body Size .....	30
Smoking .....	31
Alcohol consumption .....	32
Problem gambling .....	33
Beliefs, behaviours, attitudes, and knowledge .....	33
Effectiveness of health services for Pacific peoples .....	34
Secondary care services .....	39
Conclusion .....	39
<b>Improving the health of Pacific peoples</b> .....	<b>41</b>
Initiatives to protect and promote Pacific peoples' health .....	41
Better information .....	43
Influencing cost .....	44
Empowering communities .....	45
Inter-agency cooperation .....	46

Increasing the Pacific health workforce.....	47
Improving the responsiveness of services .....	49
Improving the evidence on Pacific people’s health needs .....	50
<b>Conclusion .....</b>	<b>52</b>
<b>References .....</b>	<b>54</b>

## List of tables and figures

### Tables by chapter

<b>Overall health of Pacific peoples in New Zealand .....</b>	<b>13</b>
Births and fetal and infant deaths by prioritised ethnicity.....	14
Hospital admission rates for meningococcal disease (per 100,000 population per year) .	16
Hospital admissions rates (per 1,000 population per year) for respiratory illness .....	16
Annual average incidence rate (per 100,000 population per year).....	19
Twelve-month Prevalence <sup>(1)</sup> of mental health disorder and severity for Pacific peoples..	22
All-cause mortality age-standardised rates (per 100,000 population aged 1–74 years) ...	23
Percentage decreases in all-cause mortality rates (per 100,000 population aged 1–74 years) 23	
Annual average avoidable mortality rate (per 100,000 population aged 1–74 years).....	23
Annual average amenable mortality rate (per 100,000 population aged 1–74 years).....	24
<b>Influences on health and well-being.....</b>	<b>26</b>
Proportion of children and young people 0–24 years living in a crowded household.....	28

### Figures by chapter

<b>Influences on health and well-being.....</b>	<b>26</b>
Proportion of Children and Young People 0–24 Years Living in a Crowded Household ..	28



# Introduction

*Health and Pacific Peoples in New Zealand* is the third report in the Pacific Progress series. It presents findings on Pacific peoples' health outcomes, discusses the socio-economic factors that influence these outcomes, and offers suggestions for improving Pacific peoples' health. As well as providing background data, the report discusses the role of effective interventions so policy-makers and researchers can design programmes and policies that are tailored to the needs of Pacific peoples.

Good health is fundamental for the well-being of individuals, families, communities, and New Zealand as a whole. Good health enables people to take up education and employment opportunities. Success in education and employment enables people and their families to realise their potential. In due course, an individual will be better able to support themselves and their families, and contribute to the economic and social well-being of their communities.

Socio-economic status is a determinant of health. Health issues that lower life expectancy also mean that communities lose the knowledge, family support, and community leadership that older generations provide.

*Health and Pacific peoples in New Zealand* explores the health of Pacific peoples, focusing first on what is happening with regard to health outcomes and then focusing on why this may be so. The 'Influences on health and well-being' section explores the factors that affect health and well-being. Conclusions are drawn on the key issues for further exploration by government and community organisations.

## Summary

### Overall health of Pacific peoples in New Zealand

Good health is fundamental for the well-being of individuals, families, communities, and New Zealand as a whole. Life expectancy for Pacific peoples is about four years less than for the overall population. Pacific peoples' health is worse than other New Zealanders', from childhood through to the later stages of life.

New Zealand children have poorer health compared with those in other developed countries. Pacific children have higher rates of hospitalisation for serious infectious and respiratory diseases than European children. In particular, rates of acute rheumatic fever (ARF) and meningococcal disease are markedly higher. Many hospitalisations are potentially avoidable, and could be prevented through primary health-care interventions and improvement in household conditions.

The formative years of youth are an important time for developing health-promoting behaviours and establishing a foundation for future good health. Overall, Pacific students are less likely than European students to rate their health highly (Helu, Robinson, Grant, Herd & Denny, 2009). Pacific students have high rates of obesity, and this group eats more 'junk food' than other groups. Food choices in Pacific families are adversely influenced by the affordability of food and the restraints imposed by parental employment factors. The overall burden (or the total cost of a disease to society, beyond the financial cost) of mental health problems is double that of the overall population. Pacific students are significantly less likely than European students to use measures to protect themselves from sexually transmitted infection and unplanned pregnancy (Helu et al, 2009).

The incidence (or rate of new cases) of ischaemic heart disease, stroke, diabetes, and respiratory disease is higher in Pacific adults than other ethnic groups. Diabetes is more common in Pacific peoples and they also suffer a greater burden of complications than other groups. Overall, the number of deaths from cardiovascular disease has reduced. This improvement in the health of the total population has not been mirrored in the Pacific population. Mortality (or the number of deaths) from cardiovascular disease, that could be avoided through either preventive measures directed at populations or individuals, or through the delivery of effective health care, is higher in Pacific peoples.

### Influences on health and well-being

Socio-economic status is an important determinant of health. Positive health outcomes typically demonstrate a declining gradient from more affluent to less affluent groups. Pacific peoples are disproportionately represented in lower socio-economic areas, have lower incomes, and have higher levels of unemployment. A greater proportion of Pacific children and young people live in over-crowded households.

Pacific peoples have a holistic view of health, where healthy and strong families are the basis of individual and community well-being. Socially cohesive societies tend to produce healthier members, and Pacific peoples demonstrate higher levels of social connectedness, with strong participation in church life and volunteering. This cohesion is likely to protect against some of the adverse effects on health outcomes, and does appear to contribute to lower levels of (completed) suicide in Pacific communities.

Pacific peoples are exposed to higher levels of health risks and unhealthy behaviours, such as obesity and poor nutrition. Smoking patterns in young people are a key predictor of adult smoking patterns and future smoking-related disease. Both adult and child smoking rates among Pacific peoples are higher than those of Europeans. Smoking is the leading contributor to death in the Pacific population.

Pacific peoples drink less overall but are more likely to drink in a hazardous fashion. Similarly, they are less likely to gamble, but when they do, are more likely to be 'problem gamblers' and experience more severe gambling-related harm.

Implementation of the *Primary Health Care Strategy* (Ministry of Health, 2001b) and the development of Pacific providers have improved Pacific peoples' access to primary care services. The quality of the care received has improved over time. The cultural competence of clinicians and services needs to be improved to enhance patient-centred care and improve health-care quality and consequent outcomes. Pacific peoples have high rates of vaccination but are under-represented in the coverage of the cervical and breast screening programmes.

## Improving the health of Pacific peoples

The *Ottawa Charter for Health Promotion* (1986) provides a framework for action. The framework incorporates building public policy that encourages healthy behaviours, creates supportive environments, strengthens community participation in health initiatives, develops personal skills, and re-orientates health services. Improvements in health can be made by addressing both the determinants of health and health-care services.

Initiatives to promote health require a multi-faceted approach. Countries comparable to New Zealand have embraced a preventive approach to improving health. They have adopted comprehensive strategies to improve nutrition, reduce levels of obesity, increase physical activity, and reduce smoking and alcohol-related problems. The World Health Organization's *Global Strategy on Diet, Physical Activity and Health* (2004) recognises the need to work across government and non-government organisations to improve diet and rates of physical activity. Positive change can be achieved by improving the information environment, considering the urban environment, and working across a number of environments. The *Healthy Eating – Healthy Action Oranga Kai – Oranga Pumau* strategy (Ministry of Health, 2008e) incorporated aspects of this approach, and *'Ala Mo'ui: Pacific Health and Wellbeing 2010–2014* (Minister of Health & Minister of Pacific Island Affairs, 2010) recognises the need to improve the social determinants of Pacific health, such as educational success, income levels, and housing quality, as well as factors that improve health service delivery.

Improving health information, both the promotion of positive messages and the control of negative influences, improves health. Financial mechanisms can be used to influence health-related behaviours. Empowering communities through health education, the development of skills, and control of adverse environmental factors can improve health measures.

A better understanding of Pacific perspectives on health and culturally-competent services can improve responsiveness to Pacific health needs. The development of the Pacific health workforce will contribute to more responsive health services for Pacific peoples.

Research into Pacific health needs has shown that Pacific health providers have improved Pacific peoples' access to primary care, improved the care of those with long-term conditions, and the care provided to people with diabetes. This momentum needs to be maintained. The factors that affect access to health services and the delivery of quality of care need to be better understood in order to improve the healthcare-related outcomes of Pacific peoples.

The Ministry of Health's primary aim is to improve, promote, and protect the health of New Zealanders. Providing health-care services is the focus of the Ministry of Health's work. Improving the socio-economic well-being of Pacific peoples is one of the key aims of the Ministry of Pacific Island Affairs. Improving both socio-economic well-being and health care generally will contribute to better health outcomes for Pacific peoples.

Pacific peoples, including children and young people, are disproportionately exposed to health risks and unhealthy behaviours that contribute to ill-health and chronic disease. In order to improve the health of Pacific peoples, the detrimental levels of health risk factors experienced by Pacific peoples must be addressed urgently. The future health and well-being of Pacific peoples is dependent on improving nutrition, reducing the proportion of the population who are overweight, reducing the prevalence of smoking, and changing the pattern of alcohol consumption. Failure to improve the health status of children and young people will perpetuate the current state of Pacific health inequalities.

# Overall health of Pacific peoples in New Zealand

This section summarises some of the key health indicators affecting child, youth, and adult health outcomes, and life-expectancy and mortality rates. All of these can be influenced by a range of factors including environmental conditions and social behaviours, such as crowded housing and smoking, as well as by preventive actions and treatment. These influencing factors are explored in the following section.

## Data snapshot

In 2006, the estimated life expectancy for Pacific men was 73.9 years and 78.9 years for Pacific women, more than four years less than for the total population.

Between 2002 and 2006, Pacific children were 1.5 times as likely to be admitted to hospital for gastroenteritis and 4.5 times as likely as European children to be admitted to hospital for serious skin infections.

Pacific children and young people (aged 0–24 years) are nearly 50 times more likely than European children (and twice as likely as Māori) to be admitted to hospital with acute rheumatic fever (ARF).

Pacific young people are approximately twice as likely to have depression, anxiety issues, or to make suicide attempts as the rest of the population.

From 2006 to 2007, 10 percent of Pacific peoples aged over 15 years were diagnosed with diabetes – approximately three times the diagnosis rate for the total New Zealand population.

Between 2002 and 2004, the rate for new cases of stroke in Pacific adults was 318 per 100,000, compared with 179 per 100,000 for the total population.

Source: Ministry of Health, 2008a; Ministry of Health 2008h; Craig, Jackson, Han & Committee, 2007.

## Children's (0–14 years) health outcomes

New Zealand children have poorer health compared with those in other developed countries in four key reported areas. Organisation for Economic Co-operation and Development (OECD) Family database data from 2002–06 shows that: infant mortality in New Zealand is worse than the overall average, the percentage of two-year-olds vaccinated against measles and pertussis is relatively low, the proportion of children who have ever had asthma is high, and the proportion of those who are overweight or obese at age 15 is high. However, the proportion of those ever breast-fed is higher than the average. Within New Zealand, for some important health conditions, the outcomes of Pacific children are worse compared with other groups.

**Table 1****Births and fetal and infant deaths by prioritised ethnicity**Numbers and rates per 1,000 births  
2006

	Total		Māori		Pacific peoples		Other	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
<b>Births</b>								
Live births	60,274	...	17,935	...	6,408	...	35,931	...
Total births	60,683	...	18,034	...	6,464	...	36,185	...
<b>Deaths classification</b>								
Fetal death <sup>(1)</sup>	409	6.7	99	5.5	56	8.7	254	7.0
Early neonatal death <sup>(2)</sup>	137	2.3	52	2.9	16	2.5	69	1.9
Late neonatal death <sup>(2)</sup>	28	0.5	10	0.6	2	0.3	16	0.4
Post-neonatal death <sup>(2)</sup>	143	2.4	68	3.8	23	3.6	52	1.4
<b>Sudden Infant Death Syndrome (SIDS)</b>								
SIDS deaths <sup>(3)</sup>	50	0.8	29	1.6	5	0.8	16	0.4

1. Rate per 1,000 total births.

2. Rate per 1,000 live births.

3. Includes infants older than one year; rate is per 1,000 live births.

**Note:** Early neonatal death: Death of a live-born baby before seven days after birth.

Late neonatal death: Death of a live-born baby after seven days and before 28 days after birth.

Infant death: Death of a live-born baby within 365 days of life.

**Symbol:**

... not applicable

**Source:** Ministry of Health mortality data (Fetal and infant deaths 2006, Ministry of Health 2010b).

A fetal death is defined as a death in pregnancy from 20 weeks of gestation up until birth. A neonatal death is one that occurs from birth until up to 28 days after birth. Table 1 shows the death rates in relation to the time of birth, the total population, and by ethnicity.

As shown in table 1, fetal and early neonatal mortality rates are higher for Pacific babies than the total population. This could be explained by a higher rate of pregnancy complications, such as pre-eclampsia and gestational diabetes, and insufficient antenatal care. Pacific babies are less likely to be small for gestational age, extremely premature, or have a low birth weight (Craig, Jackson, Han & Committee, 2007, p199); factors that are associated with fetal and neonatal mortality.

Between 2003 and 2007, approximately 54 percent of Pacific childhood mortality was considered avoidable, compared with 61 percent for Māori children and 47 percent for European children (Ministry of Health nd, c).

Infants in areas with the fewest economic resources are more than 10 times more likely to die from sudden unexplained death in infancy (SUDI) than those in the most affluent areas. Pacific infants are more than twice as likely to die from SUDI as European infants (Craig et al, 2007, p207).

The hospitalisation rates for all New Zealand children and young people nearly doubled between 1990 and 2006. This increase was driven by a marked rise in the number of serious skin infection cases (Craig et al, 2007, p266). Within New Zealand, Pacific children have particularly high rates of hospitalisation for skin infections, respiratory illness (Craig et al, 2007, p295), and serious infections (Craig et al, 2007, p267). Between 2002 and 2006, Pacific children were 1.45 times as likely to be admitted for

gastroenteritis compared with European children (Craig et al, 2007, p289), and 4.47 times as likely to be admitted for serious skin infections (Craig et al, 2007, p280).

While identifying hospital admissions does not necessarily reflect the full impact of these diseases, it does identify the more serious levels of disease. Some of these hospitalisations could be avoided through primary health-care management (Basu & Brinson, 2008).

Time in hospital imposes additional costs on families and can place employment-related pressures on parents and caregivers. It also keeps children away from school and their peers, impeding social and educational development.

## **Specific health issues**

### **Acute rheumatic fever**

Acute rheumatic fever (ARF) is caused by a streptococcal throat infection, and can lead to long-term heart damage. Pacific children and young people (aged 0–24 years) are nearly 50 times more likely than European children and young people (and twice as likely as Māori) to be admitted to hospital with ARF (Craig et al, 2007, p276). However, according to the International Workshop on Rheumatic Fever/Rheumatic Heart Disease Control in New Zealand (2009) early and effective antibiotic treatment can prevent and minimise its effects. Improving housing conditions is crucial to reducing the number of ARF cases.

### **Tuberculosis**

Tuberculosis is most commonly a respiratory disease but can infect other body sites. Between 2002 and 2006, Pacific children and young people were 45 times more likely to be admitted to hospital for tuberculosis than European children and young people, and four times more likely than Māori (Craig et al, 2007 p285).

### **Meningococcal disease**

Meningococcal disease includes meningitis and septicaemia. Hospital admissions and mortality rates for children and young people from all ethnic groups peaked between 1996 and 2001, and then decreased to nearly pre-epidemic levels by 2006. The 'MeNZB' vaccine was rolled out nationally in 2004. Before 2004, the public health response to the infection relied on surveillance, antibiotic prophylaxis of contacts, and an awareness campaign. Household crowding is a determinant of infection rates (Hawker, 2005). Pacific children are more likely to live in over-crowded houses and were consistently more likely to be hospitalised than children from other ethnic groups (see table 2). Despite high rates of immunisation for the 'B' strain of meningococcal disease, Pacific children remain four times more likely to be admitted to hospital for meningococcal disease than European children.

**Table 2****Hospital admission rates for meningococcal disease (per 100,000 population per year)**

In children and young people 0–24 years  
By prioritised ethnicity  
2002–06

	Pacific peoples	Māori	European
Rate	65.9	34.6	16.3
Rate ratio <sup>(1)</sup>	4.05	2.13	1.00

<sup>1</sup> Rate ratio: the ratio of two rates. These rate ratios are calculated by comparing the rate of new cases of meningococcal disease in Pacific peoples or Māori compared with the rate in the European population.

Source: Craig et al, 2007, p272.

**Respiratory diseases**

These include bronchiolitis, asthma, and pneumonia. Pacific children are significantly more likely than European children to be hospitalised due to these diseases (see table 3) (Craig et al, 2007, p296). Around 16 out of every 100 Pacific infants are admitted to hospital every year with bronchiolitis (Craig et al, 2007, p300). Environmental factors such as household crowding and exposure to cigarette smoke, as well as access to primary health-care services contribute to hospitalisation rates.

**Table 3****Hospital admissions rates (per 1,000 population per year) for respiratory illness**

For children (0–14 years)  
By prioritised ethnicity  
2002–06

	Pacific peoples	Māori	European
<b>Asthma</b>			
Rate	11.43	7.97	3.64
Rate Ratio <sup>(1)</sup>	3.14	2.19	1.00
<b>Pneumonia</b>			
Rate	12.62	5.07	2.49
Rate Ratio <sup>(1)</sup>	12.62	2.04	1.00

<sup>1</sup> Rate ratio: the ratio of two rates. For example, the ratio of the rate of new cases of meningococcal disease in an exposed population to the rate in the unexposed population.

Source: Craig et al, 2007, p308 & p317.

**Poor hearing**

This can lead to problems with speech and language development, learning difficulties, and in the longer term difficulties in self-confidence, education, and employment. Despite increasing rates of satisfactory hearing test results for children on entry to school, large differences between ethnic groups remain. In 2006, audiometry tests showed that over 11 percent of Pacific five-year-olds did not have adequate hearing. This is higher than the proportion of Māori children and two to three times higher than the proportion of European or Asian children with inadequate hearing (Craig et al, 2007, p222).



## Oral health

This is important for effective eating, speaking, and over the longer term, for self-esteem and confidence as well as general health. There are large differences between ethnic groups in both fluoridated and non-fluoridated areas. Pacific five-year-olds are less likely to be caries-free and have comparatively poor oral health (Craig et al, 2007, p226). Dental conditions were the leading cause of potentially avoidable hospitalisations for Pacific children aged 5–14 years from 2009 to 2010 (Ministry of Health, nd, c).

## Young people's (15–24 years) health outcomes

The formative years of youth are an important time for developing health-promoting behaviours and establishing a foundation for future good health. These years are also an opportunity to provide preventive or treatment interventions at an early stage to prevent young people from developing illnesses during this period.

There is evidence that Pacific young people experience more difficulties accessing health care than the general population. The Youth 2007 Survey (Helu et al, 2009), which looked at the well-being of New Zealand secondary school students, found that while nearly all Pacific students had seen a family doctor in the previous 12 months, they were about twice as likely as European students to have been unable to access health care. They visited school health centres, emergency departments, and traditional healers or alternative health practitioners much less frequently (Helu et al, 2009).

## Specific health issues

Overall, Pacific students were less likely than European students to report good, very good, or excellent health (90 percent for Pacific males and 82 percent for Pacific females, compared with 95 percent for European males and 93 percent for European females) (Helu et al, 2009).

## Nutrition and physical activity

Pacific young people eat more fruit and vegetables than European young people, but they eat more 'junk food' than other groups (Helu et al, 2009, p19).

More than 1 in 4 Pacific young people are obese but there is variation within the Pacific population. The rate of obesity is markedly higher among female Tongan, Samoan, and Cook Island students (Helu et al, 2009). Obesity rates are lowest among Niuean students (19 percent for males and 17 percent for females) who also reported a higher rate (74 percent) of vigorous exercise of at least 20 minutes three times a week. Obese and non-obese Pacific young people and their parents have equivalent attitudes and beliefs regarding the protective effects of food and physical activity. The affordability of food is an important influence on food choices. Parental time constraints affect the supply and preparation of healthy foods. These constraints are determined by parental employment types, particularly shift work arrangements (Teevale, 2010).

Obesity is defined as having a body mass index (BMI) equal to or greater than 30kg/m<sup>2</sup>. BMI relates height to weight, and is valuable in measuring the proportion of the population who are overweight. However, it is less precise than other methods of assessing body fat. Use of BMI does not distinguish between fat and muscle, and can overestimate the level of body fat that Pacific peoples have, and therefore their risk of developing obesity-related health problems (Stevens, 2003).

## Injury

The leading cause of hospital admission and death among all young people is injury. Motor vehicle crashes are the most common cause of injury, with assault the third most common. Alcohol consumption has been shown to be a significant contributor to motor vehicle crashes (Kypri, Chalmers & Langley, 2002). In the Youth 2007 Survey, 27 percent of Pacific students reported that they had been driven in the previous month by someone who had been drinking (Helu et al, 2009). Pacific young people are more than twice as

likely as European young people to be admitted to hospital for injury arising from assault (Craig et al, 2007, p251). As discussed in the 'Influences on health and well-being' section, Pacific young people have equivalent rates of hazardous drinking compared with European young people, but have higher average consumption. This may help to explain Pacific young peoples' high rate of injuries.

### Sexual health

Among Pacific students who are sexually active, one-third do not use contraception and 42 percent do not always use a condom to protect against sexually transmitted infections (STIs). These rates are significantly higher than those for European students (Helu et al, 2009). Approximately three-quarters of multiple STIs occur in those under 25 years of age. In 2009, Pacific young people were twice as likely as Europeans to attend an STI clinic with more than one infection (Institute of Environmental Science and Research, 2009). The higher STI rates may be partly explained by the lower use of condoms.

### Mental health

The Youth 2007 Survey and Ministry of Health data (cited in Craig et al, 2007, p373–374) show that Pacific young people are approximately twice as likely to have depression, be anxious, or to make suicide attempts, compared with the rest of the youth population. Pacific young people are approximately half as likely as European young people to be hospitalised for depression or a suicide attempt. However, they are just as likely to commit suicide.

#### Data snapshot

Among young Pacific women in particular, there are significant mental health concerns.

Fifteen percent had reported significant symptoms of depression.

Twenty-nine percent had deliberately harmed themselves (with 4 percent requiring medical treatment).

Twenty-seven percent had had suicidal thoughts, and 14 percent had made an attempt (with 3 percent requiring medical treatment).

These rates were approximately double those of Pacific men for each indicator, similar to the rate for the total population.

Source: Helu et al, 2009; Adolescent Health Research Group, 2008.

Health outcomes differ between groups of Pacific young people. Overall, Tongan students appear to have better mental health – nearly all reported being 'ok' or 'very happy/satisfied' with their life, with lower rates of depressive symptoms (10 percent), suicidal thoughts (17 percent), and suicide attempts (10 percent) (Helu et al, 2009). They also reported participating less frequently in risky behaviours such as smoking and binge drinking and were more frequent condom users.

## Adults' health outcomes

This section focuses on chronic conditions that are most common in the adult Pacific population. These include cardiovascular disease (ischaemic heart disease and stroke), diabetes, cancer (all cancers, particularly lung and breast cancer), and respiratory illnesses (chronic obstructive pulmonary disease (COPD), and asthma).

In a survey focusing on self-identification of health, 3 out of 5 adults rated their health as very good or excellent. In comparison, 1 out of 2 Pacific men and women reported their health as very good or excellent (Ministry of Health, 2008a).

Life expectancy indicates how long a newborn can expect to live. In 2006, the estimated life expectancy at birth for Pacific men was 73.9 years and 78.9 years at birth for Pacific women, more than four years less than for the total population (Ministry of Health, 2008c).

## Specific health issues

The incidence of cardiovascular disease, diabetes, and respiratory illness is significantly higher among Pacific peoples than other ethnic groups. The overall cancer incidence rate is lower than the total population. However, both lung cancer and breast cancer rates are higher among Pacific peoples than for the total population (see table 4). Smoking is the main contributor to the incidence of lung cancer and reflects the historically high prevalence of smoking among Pacific peoples. The high rate of smoking among Pacific young people is concerning. Pacific young people are more likely to smoke than the overall population. Higher breast cancer diagnosis rates highlight the importance of encouraging Pacific women to participate in the national breast screening programme and improving access to effective treatment.

**Table 4**

### Annual average incidence rate (per 100,000 population per year)

Selected chronic diseases, by ethnicity  
2002–04

Disease	Pacific peoples	Māori	Other	Total
Ischaemic heart disease	419	364	331	340
Stroke	318	238	170	179
Diabetes	370	218	79	97
COPD <sup>(1)</sup>	290	285	102	120
Asthma	135	101	41	51
All cancer	561	617	623	624
Lung cancer	50	84	31	35
Breast cancer	43	56	38	40

1. COPD: Chronic obstructive pulmonary disease.

**Source:** New Zealand Health Information Service.

## Cardiovascular disease

Cardiovascular disease (CVD) includes ischaemic heart disease and stroke. CVD was the second most common cause of death in New Zealand in 2007. There has been a substantial decline in the number of CVD deaths over the last 30 years (Ministry of Health, 2010d). For the population as a whole, CVD mortality rates declined between 1981–84 and 2001–04. Pacific peoples' CVD mortality rates did not decline as much – 14 percent among Pacific men compared with 63 percent among non-Pacific men. The overall reduction in CVD mortality reflects the effectiveness of both prevention and treatment efforts. Both a decline in incidence and deaths from CVD contributed to the overall decline in mortality rates (Blakely, Tobias, Atkinson, Yeh & Huang, 2007).

## Ischaemic heart disease

Ischaemic heart disease (IHD) can lead to heart attack and heart failure. From 2001 to 2004 for those aged 1–74 years, the IHD mortality rate (the number of deaths per 100,000 people for each year) showed marked variation by ethnic group. The rate for Māori was 159.8, for Pacific peoples it was 128.5, and for European or other it was 82.9 (Ministry of Health, 2007a).

## Stroke

Stroke occurs when the blood supply to the brain is interrupted and can result in permanent damage. It is the largest cause of adult disability in New Zealand (Ministry of Health, 2008b). Between 1981–82 and 2002–03, the incidence of stroke for those aged 35–84 years, as assessed by hospital admissions, increased by 66 percent among Pacific peoples. Over the same period, incidence rates remained constant for Māori, and fell by 19 percent for Europeans (Ministry of Health, 2008f). The reduction of the incidence of strokes in the non-Pacific population has been attributed to improved prevention and treatment of CVD by primary and secondary health-care services (Fink, 2006).

Pacific peoples have the highest rate of hospitalisation for stroke, and are three times more likely than Europeans to be dependent 12 months after suffering a stroke (McNaughton, Weatherall, Taylor & Harwood, 2002). The mortality rate for stroke appears to be increasing among Pacific women, who also experience more problems after a stroke (Tobias, Cheung, Carter, Anderson & Feigin, 2007).

## High blood pressure and cholesterol

High blood pressure is an important risk factor for cardiovascular disease and renal failure. It is influenced by nutrition, physical activity, salt intake, and body weight. One in 4 Pacific people have raised blood pressure compared with 1 in 5 in other ethnic groups (Gentles et al, 2006). On average, Pacific peoples experience high blood pressure at a younger age than other ethnic groups, with some Pacific high school students exhibiting elevated blood pressure (Schaaf, 2005).

## Diabetes

Type 2 diabetes is a preventable and reversible condition strongly associated with increase in body size. People with diabetes are at risk of developing a range of serious complications associated with nerve and blood vessel damage that bring on blindness, limb amputations, kidney disease, and increased risk of infection (Powers, 2005). Receiving quality clinical care is an important determinant of outcomes (Adler et al, 2000; Stratton et al, 2000).

In 2006–07, 10 percent of Pacific peoples aged over 15 years were diagnosed with diabetes. About 90 percent of those with diabetes have type 2. This is approximately three times the rate of the total New Zealand population (Ministry of Health, 2008a). Type 2 diabetes occurs earlier in Pacific peoples, about 10 years before Europeans (including a small number of children and adolescents). This contributes to an increased risk of chronic health conditions and mortality (Ministry of Health, 2008b). It is estimated that due to demographic trends and projected growth in obesity, the number of diabetes cases will increase and the increase will be greater within the Māori, Pacific, and Asian populations (Ministry of Health, 2008d).

The mortality and complication rates due to type 2 diabetes are higher for Pacific adults. Pacific adults are disproportionately represented in those receiving renal replacement therapy and foot amputations (Ministry of Health, 2008b).

## Cancer

Cancer was the leading cause of death in New Zealand in 2007, accounting for nearly 30 percent of deaths. In 2007, 2.6 percent of all cancers cases occurred among Pacific peoples, lower than that for all other ethnic groups (Ministry of Health, 2010a).

Pacific cancer incidence and mortality rates were not published for 2007 because it was considered that the data would not produce meaningful rates because of the small number of events (Ministry of Health, 2010a). In 2004, the incidence of cancer among Pacific peoples was 286.1 per 100,000, 10 percent lower than non-Māori, non-Pacific peoples. However, the age-standardised cancer mortality rates were higher for Pacific peoples – 168.1 per 100,000, 50 percent greater than that for non-Māori, non-Pacific

peoples (Ministry of Health, 2007a). The inequalities in survival rates for Pacific peoples increased between the three year periods of 1981–84 and 2001–04 (Blakely et al, 2007).

### ***Lung Cancer***

From 1996 to 2000 lung cancer was the most common form of cancer death for Pacific men, and the second most common for Pacific women. For Pacific men, both the lung cancer registration rate and the mortality rate were almost twice those for all males (Ministry of Health, 2007b). Between 1980 and 1999, the lung cancer mortality rate increased by 16 percent for Pacific men, but decreased by 24 percent for European men (Ministry of Health, 2007a). While lung cancer rates among Europeans are expected to decline, mortality from lung cancer is predicted to increase further for Pacific people, peaking for Pacific men between 2020 and 2030, and for Pacific women in 2040 (Ministry of Health, 2007b).

### ***Breast cancer***

Breast cancer is the most common cancer among Pacific women and causes the most deaths. The registration rate for breast cancer among Pacific women is relatively low, but the death rate is higher than that for all women (Lawes, Tukitonga & Scragg, 1999). Mortality for Pacific women increased during the 1980s and 1990s in part due to the increase in incidence, but there is evidence that Pacific women are diagnosed at a later disease stage (Sarfaty, Blakely, Shaw, Cormack & Atkinson, 2006).

## **Respiratory disease**

### ***Chronic obstructive pulmonary disease***

Chronic obstructive pulmonary disease (COPD) includes a number of chronic lung disorders such as emphysema and chronic bronchitis. The main risk factor is smoking, but previous lung disease and exposure to environmental particulates can also contribute. It is a permanent condition and irreversible if lung function has been seriously damaged. Pacific peoples were about twice as likely as non-Māori, non-Pacific peoples to be hospitalised (during the 12 months to June 2007) for COPD (Ministry of Health, 2009d). Smoking rates are high in Pacific peoples compared with the overall New Zealand population (Ministry of Health, 2008k). Designing programmes to prevent the initiation of smoking and to encourage people to quit smoking is therefore crucially important in reducing the burden of COPD.

### ***Asthma***

The rate of asthma diagnosis is similar for Pacific and non-Pacific peoples (1 in 6) (Ministry of Health, 2008g). However, asthma may be undercounted in Pacific adults, and be more severe because of poorer access to treatment and less effective preventive interventions (Holt, Beasley & Asthma and Respiratory Foundation of New Zealand, 2002). Among those diagnosed with asthma, significantly fewer Pacific peoples were taking medication than non-Pacific people (Ministry of Health, 2008a). This may reflect difficulties in accessing primary care services. This is discussed in the 'Effectiveness of health services for Pacific peoples' section.

## **Mental Health**

Te Rau Hinengaro: The New Zealand Mental Health Survey (Oakley Brown, Wells, Scott & Ministry of Health, 2006) found that Pacific peoples (aged 16 years and over) experience mental health issues at a higher rate than the general population. Twenty-five percent of Pacific peoples experienced a mental health problem in the last 12 months compared with 20.7 percent of the total population. There were 46.5 percent of Pacific peoples who experienced a mental health problem at some stage in their life, compared with 39.5 percent of the total population.

The 12-month prevalence rates and the severity of mental health problems experienced were highest for those aged 16–24 years and decreased with age (see table 6). The most commonly reported mental health issue was anxiety (27.7 percent), followed by mood

disorder (19 percent), and substance misuse (17.7 percent). Alcohol abuse disorders made up 17 percent of the reported substance misuse issues. Pacific men were approximately twice as likely as Pacific women to have a substance abuse disorder (24.4 percent compared with 11.6 percent, respectively) (Oakley Brown et al, 2006).

**Table 5**

**Twelve-month Prevalence <sup>(1)</sup> of mental health disorder and severity for Pacific peoples**

By age group  
2003–04

Age group (years)	Twelve-month prevalence	95 percent confidence interval <sup>(2)</sup>	Percentage with serious disorder	95 percent confidence interval <sup>(2)</sup>
Percent				
16–24	29.0	22.0–37.0	7.5	4.4–11.9
25–44	27.1	22.7–31.9	6.1	4.6–8.0
45–64	17.3	13.4–22.1	4.2	2.2–7.0
65+	16.1	8.4–26.9	2.3	0.2–8.4

<sup>1</sup>. Twelve-month prevalence: proportion of the population who have ever met criteria for a disorder and who experienced symptoms or an episode in the 12 months before the interview. Interviews were carried out in late 2003 and 2004.

<sup>2</sup>. Ninety-five percent confidence interval: the value of a parameter falls within the specified range of values 95 percent of the time.

**Source:** Oakley Brown et al, 2006.

Within the Pacific population, there were small differences between the Pacific Island groups, with Cook Islanders having the highest 12-month prevalence rate of mental health issues (29.3 percent) and Tongans the lowest (19.6 percent) (Oakley Brown et al, 2006).

It is estimated that 16.9 percent of Pacific peoples have considered suicide at least once in their lifetime. The proportion of the overall population who have considered suicide is 15.7 percent. Among Pacific peoples, 4.8 percent reported that they had attempted suicide during their lifetime, compared with 4.5 percent of the overall population. Within the Pacific population, more females than males had considered suicide, and made suicide attempts. The proportion of the Pacific population who had considered suicide and made suicide attempts was highest among those aged 16–24. These results are consistent with those for the total population (Oakley Brown et al, 2006; Ministry of Health, 2008j).

Although many Pacific people are young and have few family resources (two key suicide risk factors), the completed suicide rate for Pacific adults is much lower than that of the rest of the population, at 8.3 per 100,000 people compared with 13.5 per 100,000 for the New Zealand population overall (Oakley Brown et al, 2006). This may be explained by the effect of strong social organisations, such as family and church organisations, which provide significant and meaningful relationships that protect members against suicide (Beautrais, Collings, Ehrhardt & Henare, 2005).

According to Te Rau Hinengaro: The New Zealand Mental Health Survey, Pacific people born in New Zealand were more than twice as likely to have had mental health issues in the previous 12 months than those who migrated to New Zealand after the age of 18 years, with prevalence rates of 31.4 percent and 15.1 percent, respectively (Oakley Brown et al, 2006). While 12-month prevalence and serious mental health issue rates are highest for those who were New Zealand-born, the rates are also high for those who migrated before the age of 12 years, followed by those aged 12–17 years when they migrated, and lowest for those who migrated when they were 18 years or older.

The lower prevalence of mental disorders in the Pacific-born group may be explained by the 'healthy migrant' effect or Pacific cultures may have a protective effect (Oakley Brown et al, 2006).

## Mortality

As shown in table 7, mortality from all causes for Pacific adults is less than for Māori adults, but higher than for Asian and European adults.

**Table 6**

### All-cause mortality age-standardised rates (per 100,000 population aged 1–74 years)

By total response ethnicity and sex  
2001–04

	Pacific peoples	Māori	Asian	European/other
Female	324	489	106	178
Male	527	698	188	294

Source: Blakely et al, 2007

Unlike other ethnic groups, between the four year periods of 1981–84 and 2001–04, Pacific peoples experienced relatively little improvement in overall mortality rates, as illustrated in table 7.

**Table 7**

### Percentage decreases in all-cause mortality rates (per 100,000 population aged 1–74 years)

By ethnicity and sex  
Comparison of annual averages between 1981–84 and 2000–04

	Pacific peoples	Māori	Asian	European/other
Percent				
Female	-10	-22	-50	-35
Male	-14	-25	-58	-42

Source: Blakely et al, 2007.

Avoidable mortality refers to deaths of those aged less than 75 years that could potentially have been avoided through preventive interventions at population or individual levels, or through treatment. Accordingly, it provides a macro-level indication of the overall effectiveness of the health system. The avoidable mortality rate for Pacific peoples is almost double that for Europeans (see table 8) and has decreased more slowly than that for other New Zealanders (Blakely et al, 2007).

**Table 8**

### Annual average avoidable mortality rate (per 100,000 population aged 1–74 years)

By ethnicity and sex  
2001–04

	Pacific peoples		Māori		Asian		European/other	
	Number	95 percent confidence interval <sup>(1)</sup>	Number	95 percent confidence interval <sup>(1)</sup>	Number	95 percent confidence interval <sup>(1)</sup>	Number	95 percent confidence interval <sup>(1)</sup>
Female	243	217–269	390	369–411	79.7	67.0–92.5	129	126–133
Male	392	357–427	532	506–558	149	130–168	214	209–219

1. Ninety-five percent confidence interval: the value of a parameter falls within the specified range of values 95 percent of the time.

**Source:** Blakely et al, 2007.

Amenable mortality is a subset of avoidable mortality that measures the deaths which could have been avoided through better health care. It accounts for approximately 30–50 percent of the mortality disparity between Pacific and other ethnic groups, and a quarter of the mortality difference between the European or other ethnic group and all other groups (Blakely et al, 2007). Between the four year periods of 1981–84 and 2001–04, the amenable mortality rate for Pacific peoples increased, while that for other groups decreased significantly (eg 53 percent for European men).

**Table 9**

**Annual average amenable mortality rate (per 100,000 population aged 1–74 years)**

By ethnicity and sex

2001-04

	Pacific peoples		Māori		Asian		European/other	
	Number	95 percent confidence interval <sup>(1)</sup>	Number	95 percent confidence interval <sup>(1)</sup>	Number	95 percent confidence interval <sup>(1)</sup>	Number	95 percent confidence interval <sup>(1)</sup>
Female	110	93–127	141	129–154	31. 8	23. 9–39. 7	60. 5	58. 1–63. 0
Male	131	111–151	166	151–180	50. 9	39. 9–61. 9	70. 6	67. 9–73. 3

1. Ninety-five percent confidence interval: the value of a parameter falls within the specified range of values 95 percent of the time.

**Source:** Blakely et al, 2007.

More recent analysis suggests that differences in mortality rates between ethnic groups may have plateaued. This may mark a turning point for the future (University of Otago, School of Medicine and Health Science, nd).

Diabetes and its complications, followed by cardiovascular disease, account for the greatest differences in mortality between Pacific and other ethnic groups. Smoking-related mortality is increasing for Pacific peoples (Ministry of Health, 2006c).

Analysis of the New Zealand Census-Mortality Study data from 2001 to 2004 has revealed clear mortality differences between Pacific subgroups. In particular, deaths from cardiovascular disease among Cook Islanders were nearly twice that for Tongans. Niueans have a significantly lower rate of (combined) injury and suicide mortality (Blakely et al, 2009). There is also a substantial variation in risk factors associated with cardiovascular disease and diabetes (Sundborn et al, 2008).

This variation in mortality rates does not seem to be linked to the tendency of some Pacific ethnic groups to return to their home country to die or travel to New Zealand for treatment (Blakely et al, 2009). Rather, these variances highlight the risk that subgroup differences may be masked by approaching the Pacific population as a homogenous group when undertaking data collection and analysis. Similarly, the findings highlight the potential benefits of developing policy and programmes that reflect the heterogeneity of the Pacific population.



## Conclusion

Evidence clearly shows that preventive measures and the treatment and management of health conditions are less effective among Pacific peoples. So, Pacific peoples have significantly poorer health outcomes than the rest of the New Zealand population.

Pacific children suffer more from serious infectious diseases and respiratory diseases than children from other ethnic groups. These diseases are strongly associated with socio-economic conditions such as household crowding. They can be avoided through improving environmental conditions and access to effective health care.

Pacific young people have a greater prevalence of mental health disorders, and are more likely to attempt suicide. They have reduced access to mental health services and the Youth 2007 Survey shows Pacific students have less access to primary care. Some Pacific young people have poor nutrition and the rate of obesity is high. Obesity and nutrition are both important determinants for future health. Pacific young people's inhibitions about talking about sexual activity (Ministry of Health, 2008i) may be contributing to a relatively high rate of sexually transmitted diseases.

Adult Pacific peoples have a high burden of chronic diseases such as diabetes, ischaemic heart disease, and stroke. The incidence of these is higher than that for other ethnic groups, and mortality rates for cardiovascular disease and diabetes account for a large part of the differences between the overall mortality rates for Pacific peoples and those for other ethnic groups.

The overall incidence of cancers is lower in Pacific peoples compared with Europeans, but overall mortality from cancer is higher. This difference may reflect when people seek medical attention, how they are treated by the health system, and difficulties accessing care.

The all-cause mortality rates for Pacific peoples are significantly higher than those for the European or other ethnic group, and the relative reduction in all-cause mortality for Pacific peoples between the three year periods of 1981–84 and 2001–04 was smaller than the reduction for other ethnic groups. The number of deaths that could have been avoided through preventive and treatment interventions is almost double that for Europeans. The mortality rate for Pacific peoples has decreased much more slowly than that for other New Zealanders (Blakely et al, 2007).

Unless preventative measures and treatment are tailored so that they are more effective for Pacific peoples, the incidence and impact of chronic diseases in Pacific populations will continue to grow. This places serious financial burdens on families and communities and puts pressure on the support systems these groups provide. Pacific peoples are often more exposed to disease risk factors. To improve Pacific peoples' health outcomes these factors need to be addressed through effective prevention and health-care interventions. Current interventions have been more successful in improving health outcomes among the European population. This indicates that the health system is responding inadequately to the health needs of Pacific peoples.

# Influences on health and well-being

Differences in health outcomes for Pacific peoples (and other ethnic groups) are due to a complicated combination of factors, including socio-economic inequality, access to and quality of health care, and health risk factors – such as tobacco, diet, and other lifestyle factors (Blakely et al, 2007)<sup>1</sup>.

This section looks at the links between health and the complicated web of influencing factors:

- level of economic resources
- social cohesion and connectedness
- nutrition
- physical activity
- body size
- smoking
- alcohol consumption
- beliefs, behaviours, attitudes, and knowledge
- effectiveness of health services.

## Data snapshot

In the March 2010 quarter the unemployment rate for Pacific peoples was 14.4 percent, higher than for all ethnicities. The rise in the unemployment rate for Pacific peoples was greater than the total rise in unemployment.

In 2006/07, Pacific children aged 2–14 years were less likely to have eaten breakfast at home every day, more likely to have consumed three or more fizzy drinks in the last week, and more likely to have eaten fast food at least three times in the last week. Compared with the total population, obesity was 2.5 times more common in Pacific adults, and over 2.5 times more common in Pacific children.

In 2008, 12 percent of all young people aged 14–15 years smoked at least one a month. However, 16 percent of Pacific girls and 12.4 percent of Pacific boys smoke at least monthly, compared with 10 percent of European girls and 7.8 percent of European boys.

In October 2007, nearly 100 percent of Pacific peoples were enrolled with a primary health organisation (PHO) – of these, 15 percent were enrolled with a Pacific PHO and the remainder with a mainstream PHO.

In 2006/07, just over 11 percent of Pacific peoples reported an unmet need for general practitioner (GP) services in the previous 12 months. The most common reason given was cost (33.4 percent).

For the 12-month period to October 2010, 89 percent of Pacific 2-year-olds were fully immunised, compared with 87 percent of European 2-year-olds.

Source: White, Salmond, Atkinson & Crampton, 2008; Statistics New Zealand, 2010.

---

<sup>1</sup> The estimate of the socio-economic contribution is based on analysis undertaken in relation to the impact of socio-economic inequality on the difference between the Māori and the European or other ethnic group in the NZ Census-Mortality Study. The Pacific population sample was insufficient to allow for the same analysis.

## Level of economic resources

On average, Pacific peoples have worse economic circumstances than the overall population, with the majority of Pacific peoples living in areas with the fewest economic resources (White, Salmond, Atkinson & Crampton, 2008).

In general, people with fewer economic resources tend to have poorer health outcomes due to a combination of factors, including greater exposure to health risks, reduced access to adequate housing, and difficulty accessing health services. From 2005 to 2007, the life expectancy of people living in areas with the fewest economic resources (decile 10) was 8.8 years shorter for men and 5.9 years shorter for women compared with those with the most resources (decile 1) (Ministry of Social Development, 2009, p23).

Lower incomes<sup>2</sup> mean that many of the conditions or factors that support good health, such as good nutrition and quality housing, are less accessible. For example, the proportion of Pacific households (with at least one Pacific adult) spending more than 30 percent of their income on housing was 33 percent in 2009, reflecting a steady increase from 23 percent in 2004 (Ministry of Social Development, 2010, p69).

Students attending schools in communities with fewer economic resources tend to experience less education success than those in more affluent communities (Ministry of Social Development, 2009, p138). Pacific students tend to have poorer education outcomes than other students from the same communities. This is a result of a combination of factors, including lower levels of participation in early childhood education and teaching and learning practices throughout schooling that are less effective for Pacific students (Statistics NZ and Ministry of Pacific Island Affairs, 2010).

Poor education reduces peoples' employment opportunities. The 2006 Census of Population and Dwellings showed that 35 percent of Pacific peoples had no qualifications, compared with 25 percent of all New Zealanders. The unemployment rate is higher for Pacific peoples (14.4 percent in the March 2010 quarter) than for any other ethnic group (Statistics NZ, 2010). Since the March 2008 quarter, the rise in Pacific unemployment has been greater than the total rise in unemployment. Pacific peoples are over-represented in non-skilled and lower-skilled occupations (Ministry of Pacific Island Affairs, 2010). Evidence from previous recessions also suggests that unskilled workers are hit hardest in times of recession, when unemployment rates for unskilled workers increase more than those for skilled workers (Department of Labour, 2009).

Figure 1 shows that approximately half of all Pacific children and young people live in a crowded house, a higher proportion than other ethnic groups. A child growing up in an over-crowded house will be more susceptible to communicable diseases (Hawker, 2005) and over-crowding can have a detrimental effect on successful learning.

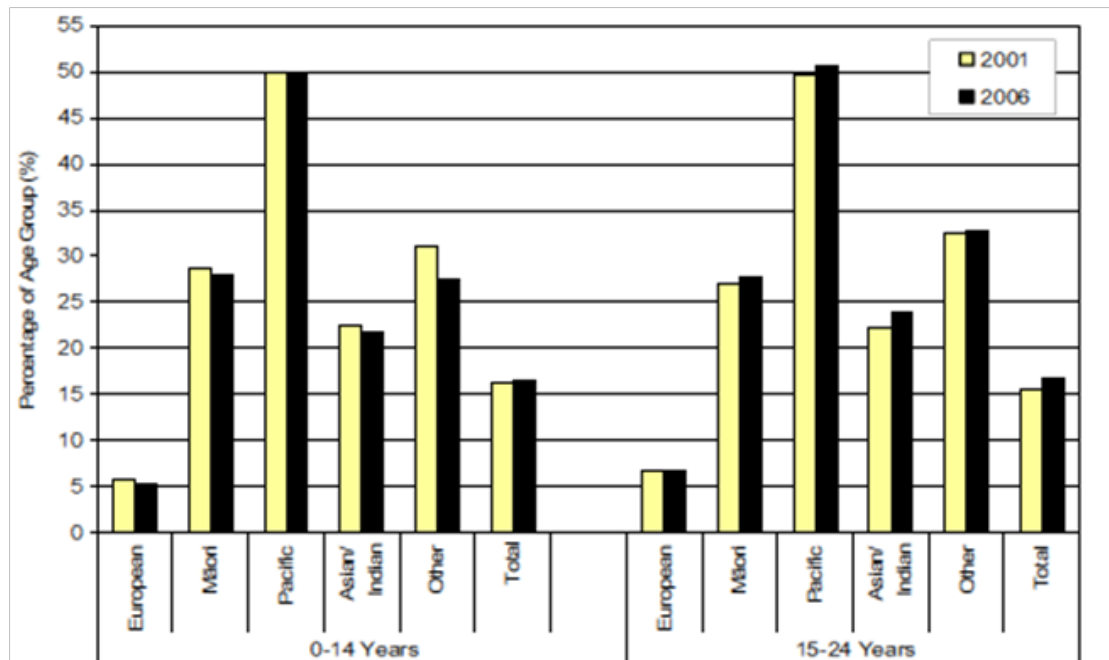
---

<sup>2</sup> The average hourly wage for the June 2009 quarter was \$18.92 compared with \$22.96 for the total New Zealand population, and the average weekly income was \$761, compared with \$930. (Statistics New Zealand, 2009). From this low base about 85 percent of Pacific peoples are sending remittances overseas (Money Pacific, 2010).

**Figure 1****Proportion of children and young people 0–24 years living in a crowded household**

By ethnicity

New Zealand Census of Population and Dwellings 2001, 2006



Source: Craig et al, 2007, p80

Inadequate housing affects children more than adults, particularly children in low-income families, in larger families, rental dwellings, and more deprived neighbourhoods (Centre for Housing Research, 2010). The quality of housing and household crowding are closely related to the risk of developing ARF, meningococcal disease, respiratory disease, and other infectious diseases.

Due to their low income, many Pacific families live in less affluent communities. The prevalence of factors associated with lower levels of well-being, such as widespread smoking, obesity, hazardous drinking, and non-casino gaming machines, is greater in these communities. Public transport options may also be more limited (Auckland Regional Council, 2005). This reduces access to employment or education opportunities, community activities, and health care.

Improvements in health can be achieved by improving educational performance and other social and economic circumstances. This has been discussed in *Education and Pacific peoples in New Zealand* (Statistics NZ and Ministry of Pacific Island Affairs, 2010) and will be explored in a future report on economic development.

## Social cohesion and connectedness

Social cohesion means cohesive community relationships with levels of participation in communal activities and public affairs, and a high number of community groups.

Evidence shows beneficial links between social cohesion and health. Societies with diminished social cohesion have higher mortality rates and worse social outcomes than those with high levels of social cohesion (Stansfeld, 2006).

Most Pacific communities have strong social connections, often centred on church and community activities. An individual's identity and well-being are traditionally dependent on

family heritage, connections, roles, and responsibilities. Having a strong sense of belonging seems to reduce the likelihood that an individual will consider or attempt suicide (Beautrais et al, 2005).

In the 2006 Census, 83 percent of Pacific peoples stated they had at least one religion, compared with 61 percent of New Zealand overall. Pacific students express the importance of spiritual beliefs (57 percent) much more frequently than European students (20 percent) (Helu et al, 2009). Voluntary work underpins a wide range of groups and organisations whose activities contribute to social well-being. The General Social Survey 2008 showed that 42 percent of Pacific peoples had done voluntary work in the previous four weeks, significantly more than the mainly European ethnic group (Ministry of Social Development, 2010). The General Social Survey showed that 85 percent of Pacific peoples had at least weekly face to face contact with friends compared to 79 percent of the total population. The Youth 2007 Survey found that 17 percent of Pacific youth had helped others in their community in the last 12 months, (Helu et al, 2009) compared with 14 percent of youth overall (Adolescent Health Research Group, 2008). Pacific peoples in New Zealand maintain strong connections to the Pacific Islands. It is estimated that three-quarters of Pacific peoples in New Zealand send money to family members in the Pacific region (Money Pacific, 2010).

As well as building resilient and supportive communities, social connections also provide useful foundations for community health interventions. Projects that “create and reinforce strong social connections across Pacific communities” (Tait, 2008) provide useful foundations for effective public health action. For example, the success of initiatives such as the MeNZB and HPV vaccination campaigns in Pacific communities has been attributed to these strengths (F Tupu, personal communication, 2009; CBG Health Research Ltd, 2006).

## Nutrition

A healthy diet is a key determinant of health outcomes and is particularly important for the growth and development of children and young people.

Food choices are influenced by affordability as well as personal, family, and cultural preferences. Healthier food options are often more expensive than those with high concentrations of fat and sugar, and those that are nutritionally limited. Affordability of food is a significant issue for Pacific households, who were the least likely to report that they could always eat properly. They were also more likely (at nearly 50 percent) than Māori and Europeans to report sometimes running out of food due to lack of money (Ministry of Health, 2003).

### Data snapshot

The National Children’s Nutrition Survey conducted in 2002 found that Pacific children were the least likely to bring their food from home to school, and most likely to buy it from a canteen, shop, or takeaway.

Pacific children had a lower mean energy intake than Māori children (but higher than European children), and derived a higher portion of their energy intake from fat. The proportion of fat intake increased with a decrease in family resources.

The New Zealand Health Survey 2006/07 found that Pacific children aged 2–14 years, compared with the overall New Zealand population, were less likely to have eaten breakfast at home every day, more likely to have consumed three or more fizzy drinks in the last week, and more likely to have eaten fast food at least three times in the previous week.

Source: Ministry of Health, 2008a; Utter, Scragg, Schaaf, & Fitzgerald, 2006.

## Physical activity

Physical activity is known to protect against obesity and cardiovascular disease, particularly in combination with a healthy diet (National Institute for Health and Clinical Excellence, 2010). Physical activity is also important for the healthy growth and development of children. It promotes good mental health and other positive health outcomes that enhance the overall quality of life (Scully, Kremer, Meade, Graham, & Dudgeon, 1998; Hassmen, Koivula, & Uutela, 2000). Social interaction is one of the factors that promote participation in physical activity (De Bourdeauhuiji, 1998), which in turn encourages social cohesion and social well-being.

Pacific children have relatively high levels of incidental physical activity (such as walking to school), although they participate less than other groups in organised leisure and sport. The 2002 National Children's Nutrition Survey found that Pacific children were more likely than European children to be the most active, and the least likely to be the least active. They were also more likely to walk or bike to school (Ministry of Health, 2003). However, the New Zealand sport and physical activity surveys (conducted in 1997/98, 1998/99, and 2000/01) by Sport and Recreation New Zealand (SPARC) found that Pacific children had higher levels of inactivity than other groups. This may be because Pacific children have higher rates of incidental activity, but lower rates of participation in organised leisure and sport, which is what SPARC measured.

Research findings about adult levels of activity are mixed. The New Zealand Health Survey (Ministry of Health, nd, f) found that only about half of New Zealand's total population, and slightly fewer Pacific peoples (46.1 percent), were sufficiently active to gain any health benefits<sup>3</sup>. Pacific peoples were the most sedentary group (undertaking less than 30 minutes of physical activity in the previous week) – 19.4 percent – and were 40 percent more likely to be sedentary than the total New Zealand population. SPARC's 2008 Active NZ Survey used the same criteria as the New Zealand Health Survey, and had similar findings.

## Body Size

### Life at Faith City

'Life-changing' is how participants have described the Life 12 Week Weight Loss Challenge run by Manukau's Faith City Church.

The first Life challenge was held late in 2010. Thirty-three mostly Pacific women completed the three-month course, which is designed for those who are very overweight and are keen to eat more healthily and be more active.

Life involves training four times a week, sessions with a nutritionist and three weekend retreats to help address the psychological reasons behind obesity and unhealthy lifestyles. The training sessions include gym workouts, weights, running, boxing, aquarobics, and hill running. Day one of the challenge requires participants to push four-wheel drive vehicles around a carpark.

Faith City project manager Essendon Tuitupou says women in last year's challenge called it "life-changing". On average, each lost 3.3kg with one woman shedding 18.4kg and 13cm from her waist.

<sup>3</sup> That is, they were physically active for at least 30 minutes a day, for at least five days in the previous week.

“It’s about a lifestyle, as opposed to a programme, and the community fixing the community’s problems. The biggest thrill for me is when those ladies go away and continue with physical activity themselves.”

Members of the group forged strong friendships and have continued to train together. Several women have participated in, or are training for, long-distance running events and, if they can raise the money, a core group hopes to one day complete the New York Marathon.

Following the successful delivery of Life for women last year, a second Life challenge started in February 2011, with about 30 men taking part.

Faith City received a Fonua Mo’ui Pacific Healthy Lifestyles Community Grant to deliver Life, as part of the Counties Manukau District Health Board’s Creating a Better Future strategy. The Creating a Better Future strategy ([www.betterfuture.co.nz](http://www.betterfuture.co.nz)) addresses the burden of disease caused by unhealthy diets, lack of physical activity, smoking, and unsafe alcohol use. Fonua Mo’ui grants are designed to improve Pacific peoples’ health by supporting initiatives that promote healthy eating and physical activity.

New Zealand has one of the highest obesity rates among OECD countries (Ministry of Social Development, 2009). Obesity is associated with many adult health conditions such as cardiovascular disease, type 2 diabetes, cancer, and psychological and social problems (Ministry of Health, 2008e). Obesity is primarily caused by poor nutrition and sedentary lifestyles (Ministry of Health, 2008e). Obesity is more prevalent in neighbourhoods with fewer economic resources, and is likely to continue from childhood into adulthood.

In 2006/07, 25 percent of the total New Zealand population aged over 15 years was obese. This is a significant increase from 19 percent in 1997. Of children aged 2–14 years, 8.3 percent were obese. Of Pacific children, 23 percent were obese and another 31 percent were overweight. For Pacific adults, the risk of obesity was 2.5 times higher than that for the overall New Zealand population and over 2.5 times higher for Pacific children (Ministry of Health, 2008a).

## Smoking

Smoking is the biggest single cause of preventable morbidity (the non-death impacts of disease) and mortality in OECD countries, including New Zealand, and is well recognised as the leading risk factor for many forms of cancer, respiratory disease, and cardiovascular disease in adults. Exposure to cigarette smoke (during a mother’s pregnancy and in childhood) is recognised as a major risk factor for sudden unexplained death in infancy syndrome and respiratory illness (Ministry of Health, 2005).

Smoking is an important contributor to inequalities in life expectancy between ethnic groups. Compared to the reference group of decile 1 Europeans with the greatest life expectancy, the total years of life lost were 9.5 years for Pacific men and 7.1 years for Pacific women. Smoking accounted for 37 percent of this loss for men and 13 percent of the loss for women (Ministry of Health, 2001a).

More Māori and Pacific peoples smoke (45 percent and 31 percent, respectively) compared with the total New Zealand population (20.7 percent) (Ministry of Health, 2008k). In line with trends in the total population, the number of Pacific adults who regularly smoke has declined to levels below those of 1996/97. Overall, smoking rates among young people have also declined. However, the Youth 2007 Survey found that twice as many Pacific students are regular smokers compared with European students.

Living in a house with a smoker influences children and young people to take up smoking, and contributes to respiratory and other childhood illnesses. In 2006, 48.1 percent of Pacific children under the age of 15 years lived in a household with a smoker (Craig et al, 2007, p165). Interestingly, the rate of parents 'smoking at home' was much lower than overall parental smoking rates, indicating that approximately half of Pacific families with smokers do not support smoking inside the house.

Youth smoking rates are a key predictor of adult smoking behaviour, as taking up smoking early increases the risk of smoking-related diseases. The 2008 Action on Smoking and Health (ASH) Survey (Paynter, 2010) found that 12.0 percent of all young people aged 14–15 years (year 10) smoked at least once a month, and 6.9 percent once a day. Sixteen percent of Pacific girls smoke at least once a month compared with 10 percent of European girls; for boys it is 12.4 percent and 7.8 percent, respectively. Since 1999, the number of smokers in the total New Zealand population has been trending down for all groups including Pacific boys and girls (Paynter, 2010). The Youth 2007 Survey found that Pacific students regularly smoked at twice the rate of European students, and that rates were highest among Samoan and Cook Island students (Helu et al, 2009).

The 2006 Census showed that there are sub-group differences within the Pacific population. Fijians are the least likely to be regular smokers (20.3 percent). Tokelauans are the most likely to be regular smokers, followed by Cook Islanders (38 percent), Niueans (33 percent), Tongans (29 percent), and Samoans (28 percent). Young Pacific men smoke more than young Pacific women. Smoking is particularly common for young Samoans and Cook Islanders, older men, Pacific-born men – particularly Tongan men, and younger New Zealand-born women, particularly Tokelauan and Cook Island women.

Traditionally, Pacific men were more likely to be smokers than Pacific women. Men born in the Pacific Islands are more likely to smoke than their New Zealand-born counterparts (60.8 percent and 45.7 percent, respectively). However, more women now smoke, particularly in the younger age groups. Pacific women are more likely to smoke if they are born in New Zealand compared with those born in Pacific countries (54.3 percent and 39.2 percent, respectively). This may be due to the fact that smoking was traditionally a male activity in the Pacific Islands. It appears Pacific women born in New Zealand have been influenced by local smoking behaviour.

## Alcohol consumption

Potentially hazardous drinking carries a high risk of damage to physical and mental health; including death and injury due to traffic accidents, drowning, suicide, and violence. Alcohol problems are also associated with high-risk sexual behaviour and consequent problems.

Fewer Pacific peoples drink alcohol than the general population. Pacific peoples who drink alcohol are more likely to be New Zealand-born and young (Alcohol Advisory Council of New Zealand, 2009). Those who do drink alcohol have nearly double the hazardous drinking rate of Europeans. More Pacific men than women drink in a hazardous way (Ministry of Health, 2008a)<sup>4</sup>. Overall, Pacific adults experienced greater

---

<sup>4</sup> The survey uses AUDIT, which is a ten-item questionnaire covering alcohol consumption, abnormal drinking behaviour, and alcohol-related problems.



levels of harmful consequences subsequent to drinking and those who drank reported greater alcohol consumption (Huakau et al, 2005).

According to the results of a 2003 Alcohol Advisory Council (ALAC) survey that looked at youth access to alcohol, Pacific young people are more likely to be non-drinkers compared with other ethnicities. The survey found that about two-thirds of Pacific young people (compared with just under half of young people overall) are non-drinkers (McMillen, Kalafatelis & De Bonnaire, 2004). However, among young people who do drink, Pacific youth consumed, on average, 6.9 standard drinks. Overall, those surveyed consumed 4.7 drinks (Ministry of Health, 2008i). The proportion of Pacific young people (32 percent) who reported 'binge drinking' at least once in the previous four weeks was slightly lower than European young people (Helu et al, 2009).

Drinking alcohol at an early age is associated with greater adverse health outcomes (Odgers et al, 2008). Drinking socially at an early age can cause increased short-term harm such as motor vehicle injuries and deaths, suicide, as well as longer-term harm from alcohol dependence, abuse, and related medical conditions (Alcohol Advisory Council of New Zealand, 2002). Among young people, Cook Islanders are the heaviest drinkers with the most harmful drinking patterns, while Samoan men and women, and Tongan women are the least likely to drink (Ministry of Health, 2008i). An ALAC study also found that Pacific young people, born and raised in New Zealand, consumed alcohol more frequently, pointing to the influence of acculturation factors (Alcohol Advisory Council of New Zealand, 2009).

## Problem gambling

Problem gambling can result in a range of negative effects for the gambler, their families, and the wider community. These include financial, relationship, and employment difficulties, adverse physical and mental health outcomes, and higher rates of crime (Francis Group, 2009).

The 2006/07 New Zealand Health Survey classified 1.7 percent of all Pacific adults as 'problem gamblers', 3.5 times the proportion of problem gamblers in the total adult population. Similarly, 7.6 percent of the Pacific population reported experiencing problems as the result of someone else's gambling, double the number of adults in the total population who reported being affected by someone else's gambling. Overall, those aged 35–44 years had the highest prevalence of problem gambling (Ministry of Health, 2008a). The Youth 2007 Survey showed that 3 percent of Pacific students reported spending more than 30 minutes a day gambling compared with 0.5 percent of European students.

National prevalence studies conducted between 1991 and 2006/07 have shown that Pacific peoples are at substantially greater risk of developing gambling problems than the general population. Most of the gambling-related harm experienced by Pacific peoples (65.1 percent of Pacific men and 83.0 percent of Pacific women) is associated with non-casino gaming machines. These machines are concentrated in more deprived communities (Francis Group, 2009). Those Pacific people who used face-to-face counselling services were experiencing more severe harm<sup>5</sup> than those from other ethnic groups (Francis Group, 2009).

## Beliefs, behaviours, attitudes, and knowledge

People's beliefs and practices in relation to health and illness influence the ways they engage in health-promoting behaviours and access health services. Pacific peoples' understandings tend to be characterised by a holistic perspective, where healthy and strong families are the basis for the well-being of individuals and communities.

---

<sup>5</sup> As determined by 'SOGS-3M' screening scores.

Pacific peoples' beliefs and practices may be different from mainstream understandings about health and illness. Suicide, for example, can be seen as the "ultimate rejection of one's family" and a bereaved family can experience a "sense of failure to adequately care for and support the individual who is ill" (Beautrais et al, 2005). Suicide prevention, support, and other interventions must therefore be tailored to work with and within existing beliefs and attitudes.

Similarly, culturally-based attitudes towards sex mean that Pacific youth often have reduced access to information regarding sexual health. Parents are less available to provide advice, as it is considered culturally inappropriate for children to discuss sexual health with their parents. Teenagers are concerned that parents will discover that they are sexually active. Pacific young people are less likely to access sexual health services as they are concerned that others may find out (Ministry of Health, 2008i). Appropriate sexual and reproductive health information needs to be made available by alternative means.

The relatively low success rate of smoking cessation programmes among Pacific peoples may be related to the belief, held by a relatively large number of Pacific smokers (24.6 percent), that nicotine replacement therapy is more harmful than smoking cigarettes. Pacific smokers are also most likely to believe that smokers should be able to quit without the assistance of a programme (Ministry of Health, 2009a). These findings show that beliefs regarding the nature of nicotine addiction and cessation options need to be changed in order to increase the number of Pacific people who give up smoking. Nicotine replacement therapies are considered ineffective by a large number of Pacific peoples, and a relatively low proportion of Pacific peoples in south Auckland made claims for subsidised nicotine replacement therapies. Although more Pacific people are likely to smoke, 60 percent fewer Pacific people used nicotine replacement therapies compared with Europeans (Thornley, Jackson, Mcrobbie, Sinclair, & Smith, 2010). A Counties Manukau study of Pacific and Māori parents showed that these groups had a low awareness of other available cessation options (Glover & Cowie, 2010). This clearly indicates that these groups of smokers need to be better informed.

The traditional respect for authority figures in Pacific communities can make it more difficult for Pacific people to question their health professionals and demand more effective services (Statistics NZ and Ministry of Pacific Island Affairs, 2010). This can lead to Pacific peoples being disempowered in the health system, not receiving services as needed, and therefore experiencing poorer outcomes.

## Effectiveness of health services for Pacific peoples

Differences in health outcomes are also influenced by Pacific peoples' access to health services and their experience of effective preventive initiatives, treatment, and/or management of health conditions.

### Primary health-care services

Access to timely and effective health care is an important determinant of health outcomes, for both death rates and the impact that chronic conditions have on Pacific peoples. Primary care refers to health care that is provided in the community. It includes the provision of health education and prevention services, coordination and treatment of less serious illnesses, and referral to secondary care.

Other than emergency departments, primary care services are the first step into the health system. They are crucially important in identifying serious illnesses that are then managed in conjunction with secondary and tertiary services. Primary care services have historically been centred around GP and practice nurse services, but more recently these have been expanded to involve multi-disciplinary teams and a broader range of services.

## Prevention services

### Primary prevention

Pacific peoples do access preventative child health services. In 2006, just over 90 percent of New Zealand infants were enrolled with Plunket, which provides clinical assessment, health promotion and parent education services. Pacific infants (87.2 percent) were less likely than European, but more likely than Māori infants to be enrolled (Craig et al, 2007, p121).

#### Data snapshot

Immunisation provides protection against a range of communicable diseases, and is considered to be one of the most cost-effective public health interventions.

For the 12 months to October 2010, 89 percent of Pacific two-year-olds were fully immunised, compared with 87 percent of European two-year-olds.

Furthermore, the seven District Health Boards (DHBs) with the largest Pacific populations all had immunisation rates between 85 and 93 percent. Immunisation rates are high in the Pacific Islands, where immunisation is considered to be an ingrained practice.

From 2004, the 'MeNZB' vaccination campaign was implemented in response to the meningococcal disease epidemic that started in 1991. The campaign achieved high vaccination coverage for Pacific peoples, above those for other ethnic groups.

Overall, coverage for three doses for the under-five-years age group – immunised through primary care services – was 74 percent but the coverage within the Pacific population was 83 percent.

Similarly, for those aged 5–17 years – immunised through school health services – the overall coverage for three doses was 86 percent, but the coverage within the Pacific population was 97 percent.

The results demonstrate that effective means are available to engage with Pacific peoples and deliver care services.

Source: Ministry of Health nd, a, nd, b; CBG Health Research Ltd, 2006.

### Screening

Screening identifies potential health problems at an early stage in people who do not show any symptoms. Screening improves health outcomes by offering effective interventions before diseases become advanced. Effective screening is dependent on well-structured and organised processes and the monitoring of indicators of process quality.

#### Breast and cervical cancer screening programmes

Breast and cervical cancer screening programmes have been effective in reducing mortality in the general population. An increase in the uptake of cervical screening and the introduction of the HPV vaccination programme in 2008 (which has reported high coverage among Pacific girls (Minister of Pacific Island Affairs, 2010) should contribute to lower incidence of, and deaths from, cervical cancer in the future.

#### *BreastScreen Aotearoa (BSA)*

Biennial coverage rates (or the number of women receiving a mammogram) from 2007 to 2009 for women aged 45–69 years were 55.9 percent for Pacific women compared with 66.7 percent for non-Māori, non-Pacific women (Page & Taylor, 2010). The levels of

coverage are below the target of 70 percent of all eligible women, but there has been a sustained increase in coverage for Pacific women. One of the providers, BreastScreen South, has reached the 70 percent target for both Māori women and Pacific women (National Screening Unit, nd, a). BreastScreen South used a communications campaign where Māori and Pacific women were the priority audience, as it was apparent they were groups who were less familiar with the service (National Screening Unit, nd, b).

### **National Cervical Screening Programme**

Participation in cervical screening differs markedly between population groups. In 2007, 47.5 percent of eligible Pacific women (aged 20–69 years) reported having had a cervical smear in the last three years, compared with 71.5 percent of non-Pacific women. For the overall population, the target coverage is 75 percent (Massey University, Centre for Public Health Research, 2008). From 2011, the coverage target will be 80 percent (National Screening Unit nd, e). Since 2007, National Cervical Screening Programme communications campaigns have been particularly focused on encouraging more Māori and Pacific women to have regular smears (National Screening Unit nd, c). From August 2007 to April 2008, the National Screening Unit reported a 9.9 percent increase in uptake among Pacific women, compared with a 2.4 percent increase in uptake for the total population, in addition to greater awareness of the importance of having regular smears and the screening services available (National Screening Unit nd, d).

Enrolment in primary care (with a dedicated provider) has contributed to improved access to screening. Programmes with a strong community-support focus, including provision of transport to attend appointments, have also had a positive effect on cervical screening participation rates.

Cost is recognised as a continued barrier and the Ministry of Health supports subsidised cervical screening for groups where the uptake of screening services is lower (H Lewis, personal communication, October 2010).

### **Care provision**

The *Primary Health Care Strategy* (Ministry of Health, 2001b) established primary health organisations (PHOs) to provide structures for the local delivery of primary health-care services. Each PHO has an enrolled population, and is responsible for providing services to this population.

In October 2007, nearly 100 percent of Pacific peoples were enrolled with a PHO<sup>6</sup>. Craig et al (2007) reported that Pacific children and young people had higher enrolment rates compared with non-Pacific people. Fifteen percent of Pacific peoples were enrolled with a Pacific PHO and the remainder with a mainstream PHO (Ministry of Health, 2010c). Seven PHOs had over 10,000 Pacific peoples enrolled. All of these were in Auckland<sup>6</sup>.

The development of Pacific health providers is a success story. Pacific primary care providers deliver integrated services that include health promotion, primary care, secondary care, and social services. They aim to provide services that incorporate Pacific cultural care and language components to ensure the services are more appropriate for, and responsive to, Pacific peoples. Access to care has been improved through lowering fees, providing local facilities, and giving nurses a greater role in primary care. Pacific providers have shown better results for the management of patients with long-term conditions than other providers (Ministry of Health, 2010c).

### **Accessibility of services**

The National Primary Medical Care Survey of 2001/02 showed that on average, Pacific peoples reported one less visit to a GP than the whole sample (Davis, Suaalii-Sauni, Lay-Yee, & Pearson, 2005). Subsequently, however, the New Zealand Health Survey 2006/07 (Ministry of Health, 2008d) showed that the adult age-standardised average number of

---

<sup>6</sup> This data is from the Enriched CBF Register produced by HealthPac at the Ministry of Health.

visits in the previous 12 months to a primary health-care service was 3.6 for Pacific peoples, and 3.1 for the whole population. Pacific children were as likely to access care as other groups. Improvements in the annual consultation rate coincide with the implementation of the *Primary Health Care Strategy* (Ministry of Health, 2001b) and the reduction in fees to access primary care.

To access services, people must first be aware that the services are available and that they are needed. Evidence suggests that many Pacific peoples are often unaware of the government services available to them (Koloto & Associates Ltd, 2007; Paterson et al, 2004). This demonstrates ineffective communication by health information services and providers.

In the New Zealand Health Survey 2006/07, just over 11 percent of Pacific peoples reported having an unmet need for GP services in the previous 12 months. The main reason cited was cost (33.4 percent), followed by lack of time, lack of availability of a suitable appointment, and not wanting to make a fuss. Pacific peoples were significantly more likely than non-Pacific people to cite cost as a reason for an unmet GP need. Cost is also a factor in the collection of prescribed medications (Jatrana, Crampton, & Norris, 2010). Although subsidies for primary care services have been increased, there is evidence that cost is still a barrier for Pacific peoples, and the consultation rate may not reflect Pacific peoples' true level of health-care need.

In 2006, the proportion of Pacific children and young people aged under 18 years who received Accident Compensation Corporation funding (the Independence Allowance or a lump sum payment) to support physical disabilities was around half that of the rest of the population (Clark, MacArthur, McDonald, Simons, Carlson, & Caswell, 2007). This may be due to a combination of factors, including poor communication of services by providers and difficulties managing the required application processes. For example, in education, difficulty with application processes was one of the main reasons identified for poor access to supplementary support (particularly when language is a barrier) (Clark et al, 2007; Rivers, 2005). Providers not communicating their services well to Pacific parents and communities (Fa'amausili-Banse cited in Coxon, Anae, Mara, Wendt-Samu & Finau, 2002) and different attitudes to illness and disability were also identified as barriers for Pacific peoples (Rivers, 2005; Statistics NZ and Ministry of Pacific Island Affairs, 2010).

### **Effectiveness of services**

The benefits of health care are dependent upon the quality of care received as well as accessibility of care. The quality of health care is in part determined by interpersonal care; the interaction between health-care professionals and health-care users or their caregivers. Underlying good interpersonal skill are communication skills, the building of trust, understanding and empathy, the discussion and explanation of the patients' symptoms, and involvement in decisions regarding management or treatment of a patient's condition (Campbell, Roland, & Buetow, 2000). Patient-centred care improves health outcomes, and encompasses concepts such as "shared decision making" and "informed choice" (Robb & Seddon, 2006).

The National Primary Medical Care Survey showed GPs were less likely to report high rapport with Pacific patients. It was considered that this may reflect the difficulties of working through caregivers during the consultation, or generational or cultural differences (Davis et al, 2005). The New Zealand Health Survey 2006/07 showed continuing lower levels of interpersonal communication measures between Pacific peoples and their GPs, compared with the overall population. During primary care consultations, 87.2 percent of Pacific adults reported that they were treated with respect and dignity all the time, and 68.2 percent reported that their health-care professional had discussed their health care and treatment as much as they wanted (Ministry of Health, 2008d).

Health literacy refers to the ability to understand and use health information. It impacts on the ability of an individual to communicate with health professionals, to discern what good

advice is, and to translate this into action. Those with limited health literacy have worse health status than those with adequate health literacy. Older people, those with more limited education, lower socio-economic groups, and those whose primary language is not local tend to have more limited levels of health literacy (Adams et al, 2009). The Adult Literacy and Life Skills Survey 2006 showed that, overall, the literacy of Pacific peoples was lower than other ethnic groups (Statistics NZ and Ministry of Pacific Island Affairs, 2010). Pacific peoples experience other factors that contribute to limited health literacy, such as lower socio-economic status and language difficulties.

The average time spent annually with GPs during visits is a key indicator of access and use of primary care. The National Primary Medical Care Survey found that Pacific, Māori, and Asian people spent significantly less time with GPs, after controlling for a range of other variables. Overall, Pacific patients spent an average of 18.8 minutes less time annually with GPs than European patients. This increased to an average of 24.1 minutes less time among those living in areas with the fewest economic resources (Crampton, Jatrana, Lay-Yee, & Davis, 2007). These findings are concerning given the documented high health needs of Pacific peoples, particularly the prevalence of chronic health conditions.

Cultural competence is the ability of individuals and systems to understand and appreciate the differences and similarities within and among groups. Services can be tailored to patients' needs by drawing on cultural components. Cultural competence training of professionals improves patient satisfaction and the number of patients continuing with agreed medical care plans. The New Zealand Health Practitioners Competence Assurance Act 2004 requires professional bodies to ensure that set levels of cultural competence are met by practitioners (Tiatia, 2008). This applies to both nurses (Nursing Council of New Zealand, nd) and doctors (Medical Council of New Zealand, 2006). The Medical Council of New Zealand has highlighted and promoted cultural competence with reference to Pacific peoples, (Medical Council of New Zealand, 2010) and supporting Pacific cultural competence initiatives is one of the actions identified in *'Ala Mo'ui: Pathways to Pacific Health and Wellbeing 2010–2014* (Minister of Health & Minister of Pacific Island Affairs, 2010).

The evidence in the 'Overall Health of Pacific peoples in New Zealand' section of this report, particularly the high amenable mortality rates, suggests that Pacific peoples receive less effective preventive and treatment services from the health system. Ambulatory-sensitive hospitalisations (ASH) are admissions that are potentially avoidable through primary care interventions. These are a key indicator of the effectiveness of the primary health-care system. Between 1996/97 and 2003/04, the rate of ASH increased for Pacific peoples more than three times as rapidly as it did for Europeans. In 2006/07, the ASH rates for Pacific peoples were the highest of all ethnic groups, and twice that of non-Māori, non-Pacific people. However, rates did decline for Pacific children aged 0-4 years (Ministry of Health, 2008c).

There is some evidence that the delivery of effective health care to Pacific peoples is improving. Between 2001 and 2007, the proportion of people with diabetes receiving an annual check through the Get Checked Programme has increased, including for Pacific peoples, who have higher coverage than other ethnic groups. Prescription of statin medication also increased markedly for all ethnic groups, including Pacific peoples (Ministry of Health, 2008b). In a study of people with both type 1 and type 2 diabetes in Counties Manukau, access to tests and appropriate medication was consistent across ethnic groups (Smith et al, 2010). A study of patients with type 2 diabetes in south and west Auckland showed Pacific peoples, who visited a regular GP, had a higher average number of consultations, equivalent frequency of testing, but worse glucose control. They were less likely to be on a statin, despite higher serum lipids compared with the total population (Robinson et al, 2006).

Overall, Pacific peoples receive less effective care. Access to care and the quality of care is improving but outcomes are not equivalent to other ethnic groups. The reasons for this are complicated, and seem to include a combination of late presentation, receiving

appropriate medication and treatment less often, and less effective ongoing management. This is influenced by the cultural attitudes and expectations of both Pacific peoples and those in the health system, and by levels of financial resources. Improved cultural competence of services will improve the quality of consultations and services, promote improved health-care delivery, and improve health outcomes.

## Secondary care services

Secondary care includes services provided by specialists, as well as in-patient and out-patient care in public and private hospitals. Secondary care services are normally accessed by referral from primary care or hospital emergency departments.

### Accessibility

According to the 2006/07 New Zealand Health Survey, just over one in five Pacific peoples reported using public hospital services (including emergency departments) in the previous 12 months. This was similar to the number of non-Pacific people who used public hospital services. Pacific peoples were however, significantly less likely to use private hospitals. Only 21.2 percent of Pacific adults compared with 31 percent of non-Pacific adults used medical specialists in the previous 12 months. Pacific peoples were even less likely to visit medical specialists when the specialist was located at a private facility. Similarly, medical insurance, which can allow more timely access to health care, is held by half as many Pacific (19 percent) as non-Pacific adults (38.6 percent) (Ministry of Health, 2008a).

'Did-not-attend' rates for out-patient appointments appear to be consistently higher among Pacific peoples. For example, the Capital and Coast DHB found that the proportion of Pacific peoples who did not attend out-patient appointments was 17.1 percent, compared with an overall rate of 9.1 percent. The higher rate among Pacific peoples may reflect the barriers Pacific peoples face in accessing services, including getting time off work, transport difficulties, cultural beliefs, and a lack of cultural responsiveness (Ministry of Health, 2008f).

Surgical admissions (which tend to be elective rather than emergency) are lower for Pacific peoples. Access to coronary artery bypass grafts (CABG) operations, angioplasties, and major joint-replacement operations has improved (Ministry of Health, 2006b). While the number of admissions for coronary operations is low compared with the need experienced by Pacific peoples (Tukuitonga & Bindman, 2002), the inequalities in angioplasty operations are narrowing. Between 1999 and 2005, there was a larger growth in the number of Pacific peoples receiving angioplasties than in the number of non-Māori, non-Pacific peoples receiving angioplasties (Ministry of Health, 2006b). The incidence of ischaemic heart disease among Pacific peoples suggests that this group would have a greater need for angioplasties. However, among Pacific peoples, the standardised discharge rates for angioplasties were about 20 percent lower than rates for the general population.

## Conclusion

Health is strongly influenced by a broad range of cultural, social, economic, and environmental factors. In general, people with fewer socio-economic resources tend to have poorer health outcomes due to a combination of reduced material resources, greater exposure to health risks and behaviours, greater psychosocial stress, and reduced access to health services.

Many Pacific peoples have not experienced success in the education system, and therefore tend to have lower incomes and live in communities with the fewest economic resources. Despite this, Pacific peoples are actively involved in their communities and have strong social and cultural resources with strong family ties, church affiliation, and community support. These community ties provide protection from some of the worst

consequences of illness, and health services can be promoted to Pacific peoples through community organisations.

Lower incomes mean that many of the conditions or factors that support good health, such as good nutrition and quality housing, are less accessible. Pacific peoples experience greater exposure to risk factors such as smoking, alcohol, and poor nutrition, with Pacific youth being particularly at risk. Exposure to these risk factors contributes to a greater incidence of chronic diseases (such as diabetes, stroke, and ischaemic heart disease) among Pacific peoples. Alcohol consumption is associated with a greater risk of injury through accidents and violence. Addressing these risk factors will improve Pacific peoples' health outcomes.

People's beliefs and practices in relation to health and illness influence their behaviour and how they access health services. For example, attitudes to sexual health act as a barrier to Pacific peoples accessing sexual health services and protecting their sexual health. Lack of knowledge of tobacco addiction and smoking cessation interventions may prevent Pacific peoples accessing cessation services and traditional respect for authority may prevent Pacific peoples demanding the best care within the health system.



# Improving the health of Pacific peoples

Pacific peoples are more exposed to adverse health determinants than the overall New Zealand population.

The health-care system's lack of responsiveness has a significant impact on health outcomes for Pacific people. "In contrast to other population groups, Pacific peoples have benefited the least" from health services (Tiatia, 2008). For example, Tobias and Yeh's research (2009) suggests that the number of avoidable deaths among Pacific peoples could be reduced by improving access to, and the quality of, health services for Pacific peoples.

*'Ala Mou'i, Pathways to Pacific Health and Wellbeing 2010 – 2014* (Minister of Health and Minister of Pacific Island Affairs, 2010) identified the need to build on community connections to increase Pacific peoples' participation at all levels of the health sector. It also identified a need to strengthen the evidence base, increase health knowledge and understanding among Pacific families and communities, and encourage community ownership and action. *'Ala Mou'i, Pathways to Pacific Health and Wellbeing 2010 – 2014* also identified enhancing service responsiveness through development of cultural competencies across the health workforce as a priority.

The following sections describe approaches that could be used to improve the health outcomes of Pacific peoples in New Zealand. Interventions that have been used locally are discussed in conjunction with international experience and recommendations. The interventions discussed include those that work at a population level. These do not necessarily have a Pacific-specific focus. In view of Pacific peoples' greater exposure to health risk factors and lower socio-economic resources, it is expected that a universal population health approach would have a relatively greater impact on this group.

## Initiatives to protect and promote Pacific peoples' health

The New Zealand Government's plan for improving Pacific health is set out in *'Ala Mo'ui: Pacific Health and Wellbeing 2010 – 2014* (Minister of Health and Minister of Pacific Island Affairs, 2010). This plan recognises the need to provide better services close to home, to support effective Pacific providers and models of care, and to better enable Pacific peoples and communities to be healthy. Social and economic issues, such as access to early childhood education, achievement at school, and warmer housing, must also be addressed to improve health outcomes.

Pacific peoples, including the young, are significantly more affected than other ethnic groups by poor nutrition, obesity, and smoking. Pacific peoples are also more likely to develop obesity and smoking-related diseases (such as type 2 diabetes and cardiovascular disease). The health outcomes for Pacific patients with these diseases are worse than those for the rest of the New Zealand population. Pacific peoples are also more likely to experience more severe forms of diabetes and cardiovascular disease than the overall New Zealand population (Ministry of Health 2008b). Pacific young people also appear to be more vulnerable to developing harmful drinking patterns.

A multi-faceted approach to reducing the levels of risk factors present in society needs to be taken in order to address the health issues faced by Pacific peoples in New Zealand. Government plays a crucial role in achieving lasting change in public health. As well as government input, community 'ownership' of initiatives is essential if these initiatives are to effect real change. The value of using a broad-based approach to promoting healthy behaviours has been demonstrated internationally.

The Australian government acknowledges the need for a preventive health approach, accepting many recommendations of Australia's National Preventative Health Taskforce, including the establishment of the Australian National Preventive Health Agency. Australian Minister of Health Nicola Roxon emphasised that "preventative health is now here to stay at the heart of our health reform agenda" (Australian Government, 2010). Australia's National Preventative Health strategy outlines a comprehensive approach to addressing smoking, alcohol consumption, and obesity. It recommends that all levels of government, businesses, the non-government sector, and communities need to be involved in preventive health initiatives and policy. Improving public health and promoting healthy behaviours is a continual process and people need to be engaged across the various facets of their lives to inform, enable, and support them to make healthy choices. Food, alcohol, and tobacco markets can be influenced through taxation, regulation, and coherent policies. All groups in society should have equal access to health-care services and primary healthcare should be refocused towards prevention of disease (National Preventative Health Taskforce, 2009).

Similarly, the World Health Organization's *Global Strategy on Diet, Physical Activity and Health* (2004) recommends taking a multi-faceted approach to preventive health interventions and policies. The strategy provides a framework for policy development, implementation, and assessment. It acknowledges the importance of food marketing and food labelling and suggests that the delivery of information to the public should focus on improving public awareness and improving health literacy levels. The strategy recommends that central and local government promote physical activity and design transport policies that ensure the accessibility of walking and cycling. Physical activity should be encouraged both in the workplace and for recreation. School policies should also support the adoption of healthy diets and physical activity.

The United Kingdom (UK) has produced a cross-government strategy, *Healthy Weight, Healthy Lives: A Cross-Government Strategy for England* (Department of Health, 2008) to address the increasing number of Britons who are overweight or obese. The strategy acknowledges the responsibility of the private and voluntary sectors, government, as well as personal responsibility.

Action is focused on five areas:

- promoting children's health through promotion of breastfeeding, giving better information to parents, and the promotion of healthy diet and activities in schools
- promoting healthier food choices through a healthy food code with industry, allowing local regulation of fast food outlets, and reviewing the advertising of unhealthy food to children
- building physical activity into people's lives, by ensuring that walking and cycling routes are considered in urban design processes
- creating incentives for better health by working with employers and evaluating the role of individual financial incentives
- providing personalised advice and support through dietary and activity services.

The assessment of extensive and consistent evidence suggests that taking a broad approach, at the population level, is the most effective way to prevent cardiovascular disease. Recommended actions for reducing cardiovascular disease focused on changing legislative, regulatory, fiscal, and voluntary behaviours. The UK's *Healthy Weight, Healthy Lives: A Cross-Government Strategy for England* (Department of Health, 2008) recommends improving information about nutritional content and food labelling, restricting the marketing of foods to children, considering how agricultural policy may affect health, controlling food outlets, and making environmental changes to incentivise physical activity (National Institute for Health and Clinical Excellence, 2010).

The Healthy Eating – Healthy Action Oranga Kai – Oranga Pūmāu programme aims to improve physical activity and nutrition, and promote environments that support healthy lifestyles. It encourages government and non-government agencies to work together, as

well as working with the food and advertising industries (Ministry of Health, 2008e). Areas of activity include schools, the workplace, and the primary health-care system. The Healthy Eating – Healthy Action Oranga Kai – Oranga Pūmāu programme was promoted through a social marketing campaign. Promoting breastfeeding, especially to Māori and Pacific women, was a key focus of this campaign.

Consistent with the strategy, New Zealand's 2008/09 health targets included nutritional targets (Ministry of Health, 2008d). However, these targets were not included in subsequent years (Ministry of Health, 2009b). Funding for healthy-eating interventions and education has been reduced, with a greater emphasis on improving levels of physical activity and individual responsibility (Capital and Coast District Health Board, 2009). The requirement to serve only healthy food in school canteens has been removed (Minister of Education, 2009).

Pacific peoples' health outcomes can be improved by providing better information, adjusting the cost of foods to encourage healthy food choices, empowering communities, and encouraging inter-agency cooperation. These mechanisms, along with workforce development, service responsiveness, and research into Pacific people's specific health needs are discussed in further detail below.

## Better information

Evidence suggests that in many areas of health, Pacific peoples do not have good information (Ministry of Health, 2008b). This means that they cannot make fully informed decisions about their health or that of family members. Generic information targeting the wider New Zealand population does not seem to be working as well for Pacific peoples. To increase understanding and knowledge, and to build health literacy within Pacific communities, public health information needs to be tailored to the needs of specific community groups.

Pacific young people are more likely to be non-drinkers, but if they do drink, they often do so at harmful levels. There is a lot of peer pressure to drink, and alcohol is accessed through friends and not consumed at home. There is little support for young people who do not drink and parents are not aware of their children's drinking. The Alcohol Advisory Council's (ALAC) Pacific Action Plan (2009) acknowledges the need to address these issues using a Pacific perspective. Education messages are more effective when presented in culturally appropriate ways and environments. ALAC aims to educate parents and communities, and to promote non-drinking as 'cool' (Alcohol Advisory Council of New Zealand, nd).

Alcohol marketing to young people encourages them to start drinking earlier and increases the amount consumed by those who already drink. Alcohol is a particular risk factor for Pacific youth. Regulating promotions that encourage increased consumption of alcohol (for example, supermarket discounting of beer) and the future control of advertising and sponsorship, as recommended in the Law Commission's review of the sale and supply of alcohol, would reduce the alcohol-related problems experienced by Pacific peoples (Alcohol Advisory Council of New Zealand, 2010).

With regard to promoting informed choice, research suggests that there is a need to provide 'at a glance' information regarding the nutritional content of foods (Food Standards Agency nd, a), and that a 'traffic light' system is particularly well understood by the general public (Food Standards Agency nd, b). The current food labelling method in New Zealand is frequently misunderstood, particularly by Māori, Pacific, and low-income people. A 'traffic light' system for food labelling is better understood by shoppers, particularly Māori and Pacific peoples (Gorton, Ni Mhurchu, Chen, & Dixon, 2009). A voluntary 'traffic light' scheme was implemented in the UK and was supported by some in the food industry. A mandatory scheme was also proposed. This was supported by health organisations (Faculty of Public Health, 2008) but not adopted (British Broadcasting Corporation, 30 Jan 2008). 'Front-of-pack' food labelling is currently being considered by

the Australia and New Zealand Food Regulation Ministerial Council. Submissions showed that food manufacturers are against a 'traffic light' system and in favour of a 'nutrition labelling' approach, with health organisation submissions supporting the opposite position. The New Zealand Government submission did not express a view on the merits of either option (White, Thomson, & Signal, 2010).

The 2007 Survey of Public Opinions about Advertising Food to Children showed that most parents and grandparents of children aged up to 13 years are very concerned about children being obese or overweight. They were also concerned about the contribution that the advertising of food and drink products to children makes to this problem. Over 80 percent are in favour of stopping advertising of unhealthy food and drinks to children (Phoenix Research, 2007).

A modelling study showed that control of television advertising is an effective and cost effective means of reducing childhood obesity and future disability (Haby et al, 2006). Advertising is self-regulated in New Zealand. Since 2008, a food-rating system has been applied to determine products that can be advertised to children. Some countries have laws which specify what can be advertised to children (Shaw, 2009).

Media campaigns which encourage people to give up smoking and controls on the promotion of tobacco products are more beneficial when used in conjunction with other measures (Ministry of Health, 2004a). Some New Zealand campaigns have been considered well targeted for their specific audiences, but international experience suggests that they could be made more effective. Media messages could be linked to messages on health warning labels on tobacco products and combined with tobacco tax increases. Campaigns to "denormalise" the tobacco industry could be used (Wilson, Thomson & Edwards, 2008). The graphic health warnings on tobacco products were heightened in 2008 (Ministry of Health, nd, g). The Government has recently further controlled the display of tobacco products in retail outlets (Ministry of Health, nd, d). Other options include extending non-smoking areas to mirror those in other countries, such as the United States and Australia. This would help reduce role modelling of smoking to children and add to the denormalisation of smoking within wider society (Wilson, Thomson, & Edwards, 2008).

## Influencing cost

Influencing the cost of products and services can influence people's consumption. Price changes can limit consumption of potentially harmful products and increase consumption of more healthy products. Pacific peoples are more exposed to adverse influences on health, such as smoking, poor nutrition, and being overweight, so measures that influence cost will benefit this group.

Increasing the price of cigarettes reduces the number of people who take up smoking as well as reducing the proportion of young people who smoke, and how much they smoke. Similarly, people with fewer financial resources are more sensitive to price increases (Ministry of Health, 2004a). In 2010, the Government increased the excise duty on tobacco products. The retail price of cigarettes increased by an estimated 8 percent. Further increases are planned over the next two years (Ministry of Health, nd, h) The consumption of alcohol is also price-sensitive, and price increases influence consumption by young people and heavier drinkers. Price increases reduce the prevalence of harmful drinking (New Zealand Law Commission, 2010).

Taxation of unhealthy food also has the potential to improve diet, which would reduce obesity and cardiovascular disease (Brownell & Frieden, 2009). For example, increasing the price of sweetened beverages, considered one of the drivers of the obesity epidemic, reduces their consumption. A tax can account for the societal costs of products not captured in the price the consumer pays (Brownell & Frieden, 2009; McColl, 2009). Revenue generated from taxes could be used to fund programmes to prevent obesity. Although there are shortcomings of the available evidence, it indicates that introducing

food taxes and subsidies can improve health outcomes and these should be part of a comprehensive strategy to prevent obesity (Thow, Jan, Leeder, & Swinburn, 2010). The regressive nature of the taxes would mean poorer people would be more affected, but would also potentially derive greater benefits. Accordingly, this consideration has led to calls for taxation to be combined with subsidies for healthier food options (Brownell & Frieden, 2009).

A New Zealand-based randomised controlled trial comparing 12.5 percent price discounts and tailored nutrition education showed significant and sustained benefits of discounts on healthier food purchases. One-third of the participants were Māori, one-third Pacific, and one-third non-Māori, non-Pacific peoples (Ni Mhurchu, Blakely, Jiang, Eyles, & Rodgers, 2010).

Heating homes is important for positive health outcomes, particularly for children, but the cost can be prohibitive. Currently, the Government is providing subsidies for insulation and the clean heating of homes. The subsidies are greater for those with Community Services Cards (CSC), and are accessible to homeowners and landlords where the tenant is a CSC holder. The majority of Pacific peoples rent their homes, but some insulation schemes have negotiated with landlords on behalf of tenants. The Energy Efficiency and Conservation Authority programme plans to insulate more than 188,500 homes over four years. However, the costs involved can still act as a barrier to participation.

Pacific peoples face financial barriers to accessing health care, and spending on health care is a lower priority for Pacific peoples. It is not surprising that access to preventive care is lower than in other groups, particularly when there is a financial cost. Cervical screening often incurs direct fees, in comparison; breast screening is fee-free. The Ministry of Health does offer some funding for free access to cervical screening for priority groups, including Pacific women. This is managed through district health Boards, while some Primary Health-Care Organisations fund their own initiatives (H Lewis, personal communication, October 2010).

## Empowering communities

Working with communities is a key way to empower people and influence decision-making. The Ministry of Pacific Island Affairs (MPIA) works with Pacific communities to improve their well-being. For example, MPIA is currently working with Pacific community groups to identify ways to use community wealth in order to become community housing owners and providers of rental accommodation for Pacific peoples.

The Healthy Village Action Zones strategy is an example of government-community partnerships. The strategy was designed by the Auckland DHB to improve the health of Pacific peoples. Community groups and health providers work together – key areas of action are health promotion in communities, workforce development, and improving the responsiveness of mainstream health-care providers (Auckland District Health Board, nd). Community workers have worked within primary care services to enhance chronic disease management, to increase contact with patients, and improve understanding. Improving engagement with the health-care system for Pacific peoples is one of the objectives of the Pasifika Lotu Moui Health Programme in Counties Manukau. The programme is church-based, and other objectives include improving nutrition, increasing physical activity, and increasing smoking cessation (Counties Manukau District Health Board, 2006). The nutrition programme focused on Pacific groups and increased their nutritional knowledge, although it was acknowledged that ongoing education would be required to achieve behavioural change (Marinerway Consulting Group, 2006).

Evidence shows that community-level initiatives improve nutrition and physical activity, including among disadvantaged communities (World Health Organization, 2004). Evaluation of community programmes is required to demonstrate the local benefits, and to identify the most effective approaches. The impact of an initiative may not be seen until

a number of years after it is introduced. Measures should be developed to assess the longer-term outcomes of interventions as well as shorter-term interim impacts, such as increases in levels of knowledge and attitude changes.

The Gambling Act 2003 requires territorial authorities to have a policy which states whether gaming venues are permitted in a district, and if so, whether there are restrictions on the number of machines. The objectives of the policy include preventing and minimising the harm related to gambling (Wellington City Council, 2010). The Ministry of Health helps territorial authorities develop gambling venue policies and promote awareness of, and community action on gambling (Ministry of Health, 2010e).

The density of alcohol outlets is related to overall alcohol consumption, as well as binge and underage drinking. High outlet density is more common in lower socio-economic neighbourhoods (New Zealand Law Commission, 2010). Giving local communities a greater influence over liquor licensing decisions in their areas has been proposed as part of the solution (ALAC, 2010).

To reduce smoking around Pacific children, Pacific solutions have been proposed. These suggestions include changing Pacific adults' attitudes to smoking around children and educating adults on the benefits of avoiding exposure. Information about the harm that smoking causes, and about smoking cessation programmes, is more likely to be effective for Pacific families if it is framed as being about protection of vulnerable children and the well-being of future generations. Interventions that have a community approach, 'for Pacific, by Pacific' are needed (Lanumata Thomson, & Wilson, 2010).

Innovative ways of delivering services, including a community nutrition project and a patient self-management project (Counties Manukau District Health Board, 2007), have been tried as part of the Let's Beat Diabetes Programme (Counties Manukau District Health Board, nd, a). The patient self-management project, which was part of this programme, showed demonstrable benefits (Massey University, Centre for Health Services Research and Policy, 2008).

The Let's Beat Diabetes programme began in Counties Manukau in 2005, with a five-year plan. The programme aims to prevent and better manage diabetes with a 'whole society, whole life-course, whole family/whānau' approach. Its areas of action are wide, and include using social marketing to encourage behaviour change within communities, changing urban design, working to create a healthier food environment, working with schools to improve children's health, and improving primary care management and integration of care services (Counties Manukau District Health Board nd, b). A 2009 overview evaluation showed progress across these areas, and enhanced community awareness and participation in healthy lifestyles (University of Auckland, Centre for Health Services Research and Policy, 2009).

## Inter-agency cooperation

Initiatives to improve health outcomes by adjusting influencing factors require a multi-faceted approach with strong inter-agency cooperation and collaboration. For example, improvements in housing can contribute to improved health outcomes. In 2009, the Ministry of Health and the National Heart Foundation of New Zealand sponsored an international rheumatic fever and rheumatic heart disease control workshop. The workshop participants concluded that rheumatic fever in high-risk populations in New Zealand can be reduced to that of low-risk populations by 2020. Recommendations to achieve this were:

- programmes that address household crowding should be continued
- prevention activities in school- and community-based clinics in all high-risk schools should be implemented
- a comprehensive health promotion plan for rheumatic fever should be developed

- a web-based rheumatic fever register should be developed in order to improve the effectiveness of secondary prevention using monthly penicillin injections.

Implementing these recommendations requires input from the health sector, the public health services, and the housing sector.

Poor housing affects children more than adults, particularly children of low-income families, in larger families, rental dwellings, and more deprived neighbourhoods (Centre for Housing Research, 2010). Poor housing is associated with poorer health, educational, and social outcomes. There are a number of possible strategies to improve housing, and consequently, children's well-being. These include improving the quality and security of the rental market through a rating system allowing comparison of dwellings, ensuring landlords have the incentive to supply healthy and affordable living conditions, and encouraging a wider range of providers into the market (Centre for Housing Research, 2010). Improving house heating has clear health benefits for asthmatic children in New Zealand (Howden-Chapman et al, 2008). Installation of house insulation has improved well-being and reduced time off work and school due to illness, for both children and adults (Howden-Chapman et al, 2007).

In addition to government subsidies for insulation and heating, the Ministry of Pacific Island Affairs has been working with other government agencies to achieve improvements in housing for Pacific families:

- Department of Building and Housing – to promote awareness among Pacific peoples of their rights with regard to renting, and the assistance or products available that will improve the quality of their housing
- Ministry of Social Development – to enable access to information about housing and other social benefits. Written information has been provided in Pacific languages and is also broadcast on Pacific radio stations
- Housing New Zealand Corporation – to develop its Pacific strategy, *Orama Nui - Housing Strategy for Pacific Peoples* (HNZC, 2009).

## Increasing the Pacific health workforce

Developing the Pacific health workforce will make a significant contribution to improving Pacific health outcomes. Pacific health and disability workers bring “connections with Pacific communities, personal understanding of Pacific issues, and Pacific cultural and language skills” (Minister of Health and Minister of Pacific Island Affairs, 2010).

Currently, the Pacific population comprises nearly 7 percent of the total New Zealand population, yet only 1.7 percent of all doctors in 2007, (Medical Council of New Zealand, 2008) and approximately 2.8 percent of all enrolled or registered nurses in 2006 (Health Information Service, cited in Minister of Health and Minister of Pacific Island Affairs, 2010 p11). Although the proportion of Pacific doctors has steadily increased from 1.1 percent in 2003, the Medical Council of New Zealand has noted that “Pacific doctors continue to be markedly under-represented compared with their proportion of the population” (Medical Council of New Zealand, 2008). The Health Workforce Advisory Committee also noted the reported shortage of Pacific health workers across all areas of the workforce, including mental health, allied and primary health, and support workers (Ministry of Health, 2006a).

The Health Workforce Advisory Committee recommended that increasing the proportion of Pacific peoples in the health workforce to more closely match the population should be a priority. The committee identified the need to attract, recruit, and retain Pacific health and disability workers, and made a number of recommendations. These included improving educational achievements of Pacific students, strengthening leadership within the health system, developing the cultural competencies and capacity of the existing workforce, and creating more supportive organisational environments. Some of the recommendations focused on priority health issues for Pacific peoples, such as

developing the cervical and breast cancer screening programme workforce (Ministry of Health, 2006a)<sup>7</sup>.

A number of projects have been initiated to strengthen the Pacific health workforce, such as the Auckland DHB Parish Community Nursing Pilot established in 2004/05. The Pasifika Medical Association's 'Healthcare Heroes' programme encourages high school students to pursue health science careers. The association also runs the 'Students are our Future' mentoring programme for health science students (Pasifika Medical Association, nd).

### Healthcare heroes

The Pasifika Medical Association's Healthcare Heroes programme takes an innovative approach to increasing the participation of Pacific professionals in the healthcare workforce.

The association is working with 21 schools with a low decile ranking and high numbers of Pacific students. Association members work with science teachers and career advisors to develop a clear pathway for science students through the school years, promote science as part of future career options, and to encourage schools to share best practices with each other. Mentoring of year 13 students, career workshops, and a student conference are proving successful in making students and their teachers aware of the variety of careers and the benefits of a future health-science career.

Otago College is one of three colleges that have furthered this approach by establishing a Health-science Academy. From year 11, students are given the opportunity to focus on science. Additional resources are provided to enhance science teaching and students undertake healthcare-related workforce placements.

The programme is continually evaluated and what influence it has had will be assessed in late 2011.

The number of Pacific health workers in mainstream services is improving and the Pacific health provider sector has grown significantly. There are three Pacific-governed-and -owned PHOs and three Pacific-governed-and -owned health providers that are part of general PHOs. This is widely recognised as a major achievement towards improving health outcomes for Pacific peoples. There are many Pacific providers offering a wide range of services, and work is underway to develop the workforce capacity, building on the increases that have already occurred.

The Pacific Provider Development Fund (PPDF) was introduced in 1998 and provides targeted funding to help increase the accessibility and effectiveness of health services for Pacific peoples. The PPDF supports the development of a qualified Pacific health workforce by assisting individual Pacific peoples to gain health qualifications as well as further skills and experience, and to develop the range and quality of services delivered by Pacific providers. The PPDF also funds the development of credible models of Pacific health (for both Pacific and non-Pacific providers) to increase the capability of health professionals to effectively interact with Pacific peoples. An evaluation of the fund found that PPDF investment had strengthened providers in the primary health-care sector (CBG Health Research Ltd, 2007). The scheme could be enhanced by improved planning, monitoring, and evaluation of projects and greater engagement with and support of providers (Ernst & Young, 2009).

---

<sup>7</sup> It is difficult to find data relating to the non-registered health and disability workforce.



The Ministry of Health continues to support the development of Pacific providers and of a skilled workforce through the *Serau – Pacific Provider and Workforce Development Fund Programme of Action 2009/10–2011/12* (Ministry of Health, nd, e). A major challenge for developing a strong Pacific health workforce is the generally lower levels of education success experienced by Pacific students, particularly the lower achievement in science (Ministry of Health, nd, e). There are some signs that the education system is performing better for Pacific students. In 2009, 27.8 percent of Pacific school-leavers were able to go straight into degree-level tertiary education. This number has more than doubled since 2002 (Ministry of Education, 2010).

## Improving the responsiveness of services

While many of the issues Pacific peoples face when experiencing a medical problem, such as cost, are shared with other groups in the New Zealand population, there are issues that are specific to Pacific peoples. Differences in health outcomes show that there are issues for specific groups within the Pacific population. Systems and initiatives designed for the general population do not effectively engage Pacific peoples in health care and ensure effective treatment and follow-up services. For example, cultural attitudes and understandings about mental illness play a role in the low rate of Pacific peoples seeking help from GPs. The low rate of referral for mental health services and the high level of mental health issues, especially in Pacific young people, indicate a need to identify how best to engage Pacific peoples with appropriate professional services.

Research into lower levels of educational support for Pacific students shows that some teachers need to face their own expectations and understandings about Pacific students, including biases, cultural generalisations, and tokenism, before they can adopt new ways of working with Pacific students and their families (Alton-Lee 2003; Timperley & Robinson, 2001). Similarly, mental health professionals need to consider the underlying reasons for lower levels of follow-up or specialist support for mental illness provided for Pacific peoples. Methods to improve the effectiveness of mental health services should be developed.

The New Zealand Tobacco Use Survey 2008 (Ministry of Health, 2009a) indicates that while Pacific smokers are as likely to attempt to quit as the total population, they are least likely to quit for the good of their own health and most likely to quit because of the cost. While the cost of nicotine replacement therapies is subsidised, there are other indirect costs to accessing cessation treatments. It has been shown that proactive cold-calling, retail displays of smoking cessation treatments at shopping centres, and the use of quit contests can overcome some of the barriers to treatment that Pacific peoples face (Glover & Cowie, 2010).

The Ministry of Health is responsible for leading tobacco control in New Zealand. Its strategy *Clearing the Smoke: A five-year plan for tobacco control in New Zealand (2004-2009)* aims to significantly reduce the levels of tobacco consumption and smoking prevalence and improve the inequality of health outcomes among different ethnic and socio-economic groups. The objectives of the strategy are: to prevent people from taking up smoking, promote smoking cessation, and prevent harm to non-smokers from second-hand smoke (Ministry of Health, 2004a).

A more systematic approach to cessation interventions, called the ABC approach, has been promoted. Key steps in this approach are for health practitioners to **ask** about smoking status, offer **brief** advice, and offer evidenced-based **cessation** interventions – **ABC**. With respect to Pacific peoples it is noted that:

Pacific cultural competencies are crucial to better health outcomes for Pacific peoples, and in the context of ABC, remind us that health is more than simply the provision of health services, it recognises, healthy cultures, health environments, healthy lifestyles and healthy participation in the wider society. (Ministry of Health, 2009c).

As the majority of Pacific peoples access mainstream services, integrating cultural competence and accountability into mainstream services, particularly primary care (Ministry of Health, 2008f), will be key to improving responsiveness to the needs of Pacific peoples. The public health system needs to better meet the needs of Pacific peoples. Cultural competence is broadly described as “the capacity of a health system to improve health and well-being by integrating cultural practices and concepts into health service delivery” (Tiatia, 2008). Doctors’ lack of rapport with Pacific patients may limit their ability to provide effective health care to this group. Improving health professionals’ confidence in working with Pacific peoples may help to address this lack of rapport that many doctors feel (Davis et al, 2005). Effective means need to be found to roll-out the enhancement of cultural competence in the primary and secondary health sectors. The Cornerstone programme of the Royal New Zealand College of General Practitioners includes the requirement to maintain cultural competence of all staff (Royal New Zealand College of General Practitioners 2008).

To be effective, health-care providers need to engage Pacific peoples in meaningful discussions about health issues and treatment options. These discussions can be enhanced by knowledge about a person’s cultural background, and an understanding of their perspectives and knowledge.

## Improving the evidence on Pacific people’s health needs

To be fully effective for Pacific peoples, policy decisions and health service delivery must be based on evidence about what Pacific peoples require and what works best.

There is now more specific information available about Pacific health outcomes. For example, until Te Rau Hinengaro: The New Zealand Mental Health Survey was carried out in 2002–03 very little was known about the prevalence of mental disorders in Pacific populations. Previous epidemiological (the study of the incidence and distribution of disease) studies did not have sufficient samples of Pacific peoples for meaningful analysis, and earlier measures of admission to mental health facilities typically under-counted Pacific peoples because of inadequate coding of ethnicity (Oakley Brown et al, 2006). *The Pacific Health Chart Book 2004* (Ministry of Health, 2004b) provides a comprehensive health profile comprising health outcomes, service use, exposure to health risk factors, determinants of health, and indicators to allow Pacific peoples’ progress to be monitored. Information on immunisation uptake, oral health, antenatal care experience, and the economic impact of traditional gift giving has been provided by the Pacific Islands Families Study (Paterson et al, 2008). The study tracks the experiences of a cohort of children born in 2000 and their parents or caregivers. The *Pacific Health Dialog* journal provides a medium for the dissemination of research with a Pacific focus. Awareness of Pacific health research is promoted through *Pacific Health Review*.

The Alcohol Advisory Council of New Zealand (ALAC) considers that improved research and evaluation are required to better understand how to intervene to reduce the adverse consumption of alcohol in Pacific young people (ALAC, nd). Evidence about Pacific health issues and uptake of services is scarce. There are several reasons for this:

- research/data collections often have insufficient sample size to allow sub-group analysis, or the groups are combined or prioritised (eg Māori and Pacific)
- Pacific peoples have a high non-participation rate in surveys and research
- methodology and analysis of data can fail to include issues that may be relevant to Pacific communities.

Research is required to determine how the steps in the clinical pathway, from onset of symptoms to passage through primary and subsequent care, interact and how this interaction influences health outcomes.

Many research limitations can be overcome by better research design and by engaging with Pacific peoples in a more proactive and tailored way. Strategies such as over-sampling of Pacific peoples should be automatic in any research design.

## Conclusion

Effective interventions that are delivered through the health-care system and work across the determinants of health are required to improve Pacific peoples' health. The health of Pacific peoples can be improved through acting at multiple levels, and improvement is more likely when actions are combined. Action across government and non-government agencies is recommended.

The Ministry of Health aims to improve Pacific peoples' health through the health-care system, by enabling the development of the Pacific health workforce, improving the delivery and quality of primary care, and by supporting the development of services that meet the needs of Pacific peoples.

Health outcomes can also be influenced by improving the socio-economic circumstances of Pacific peoples, as they are over-represented in areas of higher deprivation and lower skilled occupations and have higher levels of unemployment. The Ministry of Pacific Island Affairs focuses on improving the economic well-being and living standards of Pacific peoples. It does this through business development, work skills development, promoting improved success in the education system, and by collaborating with housing agencies. The Ministry has taken a 'whole of government' approach to the economic and social initiatives for Pacific peoples, by strengthening the links between local and central government and working collaboratively across government agencies and the non-governmental sector.

To improve the health of Pacific peoples, the detrimental levels of health risks experienced by Pacific peoples need to be addressed with greater urgency. Pacific peoples are exposed to greater levels of health risks and unhealthy behaviours, and Pacific youth are disproportionately exposed to these. The Pacific population is young compared with other ethnic groups in New Zealand, and will contribute significantly to New Zealand's future. The future health and well-being of Pacific peoples and by implication, that of New Zealand, will be blighted by health problems such as poor nutrition, being overweight, smoking, and harmful patterns of alcohol consumption. Failure to improve the health status of Pacific youth will perpetuate the current unequal health outcomes from chronic diseases and some cancers.

Some success has been achieved, as shown by the reduction in the use of tobacco by both Pacific peoples and New Zealand as a whole, but inequalities remain. This success needs to be built upon and other risk factors targeted with equivalent purpose. The World Health Organization recognises and promotes the importance of cross-sectoral action to improve population health, including the health of minority groups.

Improvement in nutrition, increased physical activity, reduced tobacco use, and reduced alcohol misuse are possible through changes to the built, information, fiscal, and regulatory environments. Better health can be achieved by considering factors beyond individual choice and intervening to improve unhealthy behaviours. Successes in tobacco control have been achieved by targeting of the broader determinants of tobacco use. Controlling product promotion and limiting the right to smoke in public places have made important contributions to the overall reduction of tobacco use in New Zealand.

Fiscal approaches have been used to successfully control tobacco and have the potential to be used successfully in the promotion of improved diet and responsible alcohol use, in conjunction with other measures.

Regulation of the information environment, for example, with the implementation of the 'traffic light' system, would empower individuals, allowing them to make more informed food choices. Controlling the promotion of unhealthy foods could be the most cost-effective means of reducing childhood obesity and future disability. For this to happen, agencies without direct responsibilities for health will be required to take action.

Lower socio-economic communities are more vulnerable to gambling-, smoking- and alcohol-related harm. Pacific peoples are over-represented within these communities. Controls on gambling venues and tobacco outlets have been introduced, and changes to the licensing of alcohol retailers have been proposed to give communities greater influence over the outlets trading in their local area.

Controlling the promotion of unhealthy activities and promoting more healthy options is possible by working within schools, workplaces, and in the wider local and national environment. Positive health messages and services should and can be delivered in a Pacific-specific way.

Improving health requires interventions across both the government and non-government sectors. The types of interventions and spheres of change require government to take a broader and more cooperative approach to improving the health of Pacific peoples.

Health promotion is the process of enabling people to increase control over, and improve their health. The *Ottawa Charter for Health Promotion* (1986) recognises that the fundamental conditions and resources for health include education, income, social justice, and equity. Health is a resource for human development and is dependent upon political, social, economic, behavioural, and biological factors. Available evidence-based interventions have the potential to make a difference for Pacific peoples and their health outcomes if applied broadly across the range of influences of Pacific health.

## References

- Adams, R J, Stocks, N P, Wilson, D H, Hill, C L, Gravier, S, Kickbusch, I, et al.(2009). Health literacy – a new concept for general practice? *Australian Family Physician*, 38(3), 14–7.
- Adler, A I, Stratton, I M, Neil, H A W, Yudkin, J S, Matthews, D R, Cull, C A, et al. (2000). Association of systolic blood pressure with macrovascular and microvascular complications of type 2 diabetes (UKPDS 36): Prospective observational study. *British Medical Journal*, 321(7258), 412–419. Available from [www.bmj.com](http://www.bmj.com).
- Adolescent Health Research Group (2008). *Youth'07: The health and wellbeing of secondary school students in New Zealand. Initial findings.* Auckland: The University of Auckland.
- Advice for the Ministry of Health for best practice for rheumatic fever control.* (2009). (Summary of International Workshop on Rheumatic Fever/Rheumatic Heart Disease Control in New Zealand). Auckland: Paediatric Society of New Zealand.
- Alcohol Advisory Council of New Zealand (nd). Alcohol Advisory Council of New Zealand – Campaigns. Available from [www.alcohol.org.nz](http://www.alcohol.org.nz).
- Alcohol Advisory Council of New Zealand (2002). Policy statement 5: The minimum legal age for purchasing alcohol. (PDF 171.09kb). Wellington: Alcohol Advisory Council of New Zealand. Available from [www.alcohol.org.nz](http://www.alcohol.org.nz).
- Alcohol Advisory Council of New Zealand (2009). Pacific action plan 2009–2012. Wellington: Alcohol Advisory Council of New Zealand. Available from [www.alcohol.org.nz](http://www.alcohol.org.nz).
- Alcohol Advisory Council of New Zealand (2010). Alcohol in our lives – curbing the harm. Available from <http://blog.alcohol.org.nz>.
- Alton-Lee, A (2003). Quality teaching for diverse students in schooling: best evidence synthesis. Wellington: Ministry of Education. Available from [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz).
- Auckland District Health Board (nd). Pasifika health needs assessment. Auckland: Auckland District Health Board. Available from [www.adhb.govt.nz](http://www.adhb.govt.nz).
- Auckland Regional Council (Ed.) (2005). *Auckland regional land transport strategy.* Auckland: Auckland Regional Council.
- Australian Government (2010). Taking preventative action – the Government's response to the report of the National Preventative Health Taskforce. Canberra: Commonwealth of Australia. Available from [www.preventativehealth.org.au](http://www.preventativehealth.org.au).
- Basu, A, & Brinson, D (2008). The effectiveness of interventions for reducing ambulatory sensitive hospitalisations: A systematic review. *Health Services Assessment Collaboration (HSAC) Report*, 1 (6). Available from [www.healthsac.net](http://www.healthsac.net).
- Beautrais, A L, Collings, S C D, Ehrhardt, P, Henare, K (2005). Suicide prevention: A review of evidence of risk and protective factors, and points of effective intervention. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).
- Blakely, T, Tobias, M, Atkinson, J, Yeh, L C, & Huang K (2007). Tracking disparity: trends in ethnic and socioeconomic inequalities in mortality, 1981–2004. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Blakely, T, Richardson, K, Young, J, Graham, P, Tobias, M, Callister, et al. (2009). Does mortality vary between Pacific groups? Estimating Samoan, Cook Island Māori, Tongan and Niuean mortality rates using hierarchical Bayesian modelling. *Official Statistics Research Series, 5*. Wellington: Statistics New Zealand. Available from [www.statisphere.govt.nz](http://www.statisphere.govt.nz).

Brownell, K D, & Frieden, T R (2009). Ounces of prevention – the public policy case for taxes on sugared beverages. *New England Journal of Medicine, 360*, 1805–8. Available from [www.nejm.org](http://www.nejm.org).

Campbell, S M, Roland, M O, & Buetow, S A (2000). Defining quality of care. *Social Science and Medicine, 51*, 1611–25.

Capital and Coast District Health Board (2009). *Healthy eating – health action oranga kai – oranga pumau (HEHA) plan 2009–2010*. Wellington: Capital and Coast District Health Board.

CBG Health Research Ltd (2006). Evaluation of Meningococcal B immunisation national roll-out. (Report prepared for the Ministry of Health). Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

CBG Health Research Ltd (2007). *Evaluation of the Pacific Provider Development Fund 2007.* (Prepared for the Ministry of Health). Wellington: Ministry of Health.

Counties Manukau District Health Board (nd, a). Let's beat diabetes. Available from [www.betterfuture.co.nz](http://www.betterfuture.co.nz).

Counties Manukau District Health Board (nd, b). Let's beat diabetes: Action areas. Available from [www.betterfuture.co.nz](http://www.betterfuture.co.nz).

Counties Manukau District Health Board (2006). *Pasifika Lotu Moui Health Programme: Operations Plan 2006–2010*. Auckland: Counties Manukau District Health Board.

Counties Manukau District Health Board (2007). Let's beat diabetes: Primary care action area . Available from [www.betterfuture.co.nz](http://www.betterfuture.co.nz).

Centre for Housing Research, Aotearoa New Zealand (2010). Children's housing futures. Wellington: Centre for Housing Research, Aotearoa New Zealand. Available from [www.chranz.co.nz](http://www.chranz.co.nz).

Clark, P, Macarthur, J, McDonald, T, Simmons Carlsson, C, & Caswell, P (2007). Integrated effective service provision for children and young people with physical disabilities. Wellington: Ministry of Education. Available from [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz).

Coxon, E, Anae, M, Mara, T, Wendt-Samu, D, & Finau, C (2002). *Literature review on pacific education issues.* (Final Report by Auckland Uniservices for the Ministry of Education) Wellington: Ministry of Education.

Craig, E, Jackson, C, Han, D Y, & Committee, N S (2007). Monitoring the health of New Zealand children and young people: Indicator handbook. Auckland: Paediatric Society of New Zealand, New Zealand Child and Youth Epidemiology Service. Available from [www.paediatrics.org.nz](http://www.paediatrics.org.nz).

Crampton, P, Jatrana, S, Lay-Yee, R, & Davis, P (2007). Exposure to primary medical care in New Zealand: number and duration of general practitioner visits. *New Zealand Medical Journal, 120* (1256), U2582. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

Davis, P, Suaalii-Sauni, T, Lay-Yee, R, Pearson, J (2005). Pacific patterns in primary health-care: a comparison of pacific and all patient visits to doctors: The national primary medical care survey (natmedca): 2001/02. Report 7. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

De Bourdeauhuiji, I (1998). Behavioural factors associated with physical activity in young people. In Biddle, S, Sallis, J, Cavill N (Ed.) *Young and active?* London: Health Education Authority.

Department of Health (2008). Healthy weight, healthy lives: A cross-government strategy for England. Available from [www.dh.gov.uk](http://www.dh.gov.uk).

Department of Labour (2009). *Youth in the New Zealand labour market – national monitoring series.* Wellington: Department of Labour.

Ernst & Young (2009). Review of the Pacific Provider Development Fund purchasing strategy. (Report prepared for Ministry of Health). Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

EU backs rival food label scheme (2008, 30 January). *British Broadcasting Corporation.* Available from <http://news.bbc.co.uk>.

Faculty of Public Health (2008). Traffic-light food labelling: A position statement. Available from [www.fph.org.uk](http://www.fph.org.uk).

Fink, J (2006). Ethnic trends in stroke in New Zealand: closing the gaps or widening? *New Zealand Medical Journal*, 119 (1245) U2305. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

Food Standards Agency (nd, a). Front-of-pack (FOP) nutrition labelling. Available from <http://food.gov.uk>.

Food Standards Agency (nd, b). Front-of-pack (FOP) nutrition labelling policy review. Available from <http://food.gov.uk>.

Francis Group (2009). Informing the 2009 problem gambling needs assessment (Report for the Ministry of Health). Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Gentles, D, Metcalf, P, Dyal, L, Scragg, R, Black, P, Schaaf, et al (2006). Blood pressure prevalences and levels for a multicultural population in Auckland, New Zealand: results from the Diabetes, Heart and Health Survey 2002/2003. *New Zealand Medical Journal*, 119 (1245) U2318. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

Glover, M, & Cowie, N (2010). Increasing delivery of smoking cessation treatments to Māori and Pacific smokers. *New Zealand Medical Journal*, 123 (1308) 6–8. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

Gorton, D, Ni Mhurchu, C, Chen, M H, & Dixon, R (2009). Nutrition labels: a survey of use, understanding and preferences among ethnically diverse shoppers in New Zealand. *Public Health Nutrition*, 12 (9), 1359–65.

Haby, M M, Vos, T, Carter, R, Moodie, M, Markwick, A, Magnus, A, et al (2006). A new approach to assessing the health benefit from obesity interventions in children and adolescents: The assessing cost-effectiveness in obesity project. *International Journal of Obesity* 30 (10), 1463–75.

Hassmen, P, Koivula, N, & Uutela, A (2000). Physical exercise and psychological well-being: A population study in Finland. *Preventive Medicine* 30 (1), 17–25.



- Hawker, J (2005). *Communicable disease control handbook*. Malden, Massachusetts; Oxford, England: Blackwell Publishing.
- Helu, S, Robinson, W, Grant, S, Herd, R, & Denny, S (2009). *Youth '07 The health and wellbeing of secondary school students in New Zealand: Results for Pacific young people*. Auckland: The University of Auckland.
- Holt, S, Beasley, R, & Asthma and Respiratory Foundation of New Zealand (2002). The burden of asthma in New Zealand. Wellington: Asthma and Respiratory Foundation of New Zealand. Available from [www.asthmafoundation.org.nz](http://www.asthmafoundation.org.nz).
- Housing New Zealand Corporation (2009). Orama nui – Housing strategy for Pacific peoples. Wellington: Housing New Zealand Corporation. Available from [www.hnzc.co.nz](http://www.hnzc.co.nz).
- Howden-Chapman, P, Matheson, A, Crane, J, Viggers, H, Cunningham, M, Blakely, T, et al (2007). Effect of insulating existing houses on health inequality: cluster randomised study in the community. *British Medical Journal*, 334 (460).
- Howden-Chapman, P, Pierse, N, Nicholls, S, Gillespie-Bennett, J, Viggers, H, Cunningham, M et al (2008). Effects of improved home heating on asthma in community dwelling children: randomised controlled trial. *British Medical Journal*, 337, (a1411).
- Huakau, J, Asiasiga, L, Ford, M, Pledger, M, Casswell, S, Suaalii-Sauni, T, et al (2005). New Zealand Pacific peoples' drinking style: too much or nothing at all? *New Zealand Medical Journal*, 118 (1216), U1491. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).
- Institute of Environmental Science and Research (2009). Sexually Transmitted Infections in New Zealand: Annual Surveillance Report. (Report prepared for the Ministry of Health). Wellington: Institute of Environmental Science and Research. Available from [www.surv.esr.cri.nz](http://www.surv.esr.cri.nz).
- Jatrana, S, Crampton, P, & Norris, P (2010). Ethnic differences in access to prescription medication because of cost in New Zealand. *Journal of Epidemiology and Community Health* (21 May 2010). Available from <http://jech.bmj.com>.
- Koloto & Associates Ltd (2007). *Pacific housing experiences: Developing trends and issues*. Wellington: Centre for Housing Research, Aotearoa New Zealand, and the Ministry of Pacific Island Affairs.
- Kypri, K, Chalmers, D, J, & Langley, J D (2002). Adolescent injury mortality in New Zealand and opportunities for prevention. *International Journal of Adolescent Medical Health*, 14 (1), 27–41.
- Lanumata, T, Thomson, G, & Wilson, N (2010). Pacific solutions to reducing smoking around Pacific children in New Zealand: A qualitative study of Pacific policymaker views. *New Zealand Medical Journal*, 123 (1308), 54–63.
- Lawes, C M, Tukuitonga, C F, & Scragg, R K (1999). The epidemiology of breast cancer in Pacific women in New Zealand. *New Zealand Medical Journal*, 112, 354–7. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).
- McMillen, P, Kalafatelis, E & De Bonnaire, C (2004). *The way we drink: The current attitudes and behaviour of New Zealanders (aged 12 plus) towards drinking alcohol*. Wellington: Alcohol Advisory Council of New Zealand.
- Marinerway Consulting Group (2006). Evaluation of Kai Lelei Food & Nutrition course for Pacific communities (Prepared for the Counties Manukau District Health Board). Auckland: Counties Manukau District Health Board. Available from [www.cmdhb.org.nz](http://www.cmdhb.org.nz).

Massey University Wellington, Centre for Public Health Research, (2008). Annual monitoring report 2007: National cervical screening programme. Wellington: National Screening Unit. Available from [www.nsu.govt.nz](http://www.nsu.govt.nz).

McColl, K (2009). "Fat taxes" and the financial crisis. *Lancet*, 373, 797–8.

McNaughton, H, Weatherall, M, McPherson, K, Taylor, W, & Harwood, M (2002). The comparability of community outcomes for European and non-European survivors of stroke in New Zealand. *New Zealand Medical Journal*, 115 (1149), 98–100.

Medical Council of New Zealand (2006). Standards and guidelines. Available from [www.mcnz.org.nz](http://www.mcnz.org.nz).

Medical Council of New Zealand (2008). The New Zealand medical workforce in 2008. Wellington: Medical Council of New Zealand. Available from [www.mcnz.org.nz](http://www.mcnz.org.nz).

Medical Council of New Zealand (2010). Best health outcomes for Pacific Peoples: Practice implications. Wellington: Medical Council of New Zealand. Available from [www.mcnz.org.nz](http://www.mcnz.org.nz).

Minister of Education (2009). Schools no longer required to be food police. Available from [www.national.org.nz](http://www.national.org.nz).

Minister of Health and Minister of Pacific Island Affairs (2010). *'Ala mo'ui: Pathways to Pacific health and wellbeing: 2010–2014*. Wellington: Ministry of Health.

Minister of Pacific Island Affairs (2010). Pacific and Māori teens lead cervical cancer immunisation. Available from [www.beehive.govt.nz](http://www.beehive.govt.nz).

Ministry of Education (2010). School leavers with a university entrance standard. Available from [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz).

Ministry of Health (nd, a). Immunisation coverage national and DHB data. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (nd, b). Health targets: How is your DHB performing? Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (nd, c). Pacific health resources funded by PPWDF. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (nd, d). Tobacco control and smoking: Better controls on tobacco retailing. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (nd, e). Serau: Pacific provider and workforce development fund – Programme of action 2009/10 to 2010/11. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (nd, f). The New Zealand Health Survey. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (nd, g). Tobacco control and smoking: Graphic warnings. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (nd, h). Tobacco control and smoking: Tobacco excise increase. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2001a). Inhaling inequality: Tobacco's contribution to health inequality in New Zealand. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2001b). The primary health-care strategy. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2003). NZ food NZ children: Key results of the 2002 National Children's Nutrition Survey. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2004a). Clearing the smoke: A five-year plan for tobacco control in New Zealand (2004–2009). Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2004b). Tupu ola moui: Pacific health chart book, 2004. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2005). Tobacco facts 2005. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2006a). *Health workforce development: An overview*. Wellington: Ministry of Health.

Ministry of Health (2006b). Hospital throughput 2004/05 for DHBs and their hospitals. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2006c). The annual report 2005/06 including the health and independence report: Annual report for the year ended 30 June 2006. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2007a). An indication of New Zealanders' health 2007. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2007b). Cancer: New registrations and deaths 2004. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2008a). A portrait of health: key results of the 2006/07 New Zealand Health Survey. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2008b). Diabetes and cardiovascular diseases: Quality improvement plan. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2008c). Health and independence report 2008. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2008d). Health targets moving towards healthier futures 2007/08: The results. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2008e). Healthy eating – healthy action, oranga kai – oranga pumau: Progress on implementing the HEHA strategy 2008. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2008f). Improving quality of care for Pacific peoples. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2008g). Online data tables of 2006/07 New Zealand Health Survey results. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2008h). Pacific peoples' experience of disability: A paper for the Pacific Health and Disability Action Plan review. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2008i). Pacific youth health: A paper for the Pacific Health and Disability Action Plan review. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2008j). *Suicide facts: Deaths and intentional self-harm hospitalisations 2008*. Wellington: Ministry of Health.

Ministry of Health (2008k). *Tobacco trends 2008: A brief update on monitoring indicators*. Wellington: Ministry of Health.

Ministry of Health (2009a). 2008 New Zealand Tobacco Use Survey – quitting results. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2009b). *Health targets 2009/10*. Wellington: Ministry of Health.

Ministry of Health (2009c). Implementing the ABC approach for smoking cessation: Framework and work programme. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2009d). Publicly funded hospital casemix events 1 July 2006 to 30 June 2007. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2010a). Cancer: New registrations and deaths. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2010b). Fetal and infant deaths 2006. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2010c). Lalaga: Pacific providers making a difference. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2010d). Mortality and demographic data 2007. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Health (2010e). Preventing and minimising gambling harm: Three-year service plan 2010/11–2012/13. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Ministry of Pacific Island Affairs (2010). Career futures for Pacific peoples. Wellington: Ministry of Pacific Island Affairs. Available from [www.minpac.govt.nz](http://www.minpac.govt.nz).

Ministry of Social Development (2009). The social report 2009: Te pūrongo oranga tangata 2009: Indicators of social wellbeing in New Zealand. Wellington: Ministry of Social Development. Available from [www.socialreport.msd.govt.nz](http://www.socialreport.msd.govt.nz).

Ministry of Social Development (2010). The social report 2010: Te pūrongo oranga tangata 2010: Indicators of social wellbeing in New Zealand. Wellington: Ministry of Social Development. Available from [www.socialreport.msd.govt.nz](http://www.socialreport.msd.govt.nz).

Money Pacific (2010). Financial literacy update June 2010. Available from <http://www.sendmoneypacific.org>.

National Institute for Health and Clinical Excellence (2010). *NICE public health guidance 25: Prevention of cardiovascular disease*. London: National Institute for Health and Clinical Excellence.

National Preventative Health Taskforce (2009). Australia: The healthiest country by 2020 – national preventative health strategy – overview. Canberra: Commonwealth of Australia. Available from [www.health.gov.au](http://www.health.gov.au).

National Screening Unit (nd, a) 70 percent coverage from BreastScreen South. Available from [www.nsu.govt.nz](http://www.nsu.govt.nz).

National Screening Unit (nd, b). BreastScreen Aotearoa communications campaigns. Available from [www.nsu.govt.nz](http://www.nsu.govt.nz).

National Screening Unit (nd, c). National Cervical Screening Programme: communications campaign. Available from [www.nsu.govt.nz](http://www.nsu.govt.nz).

National Screening Unit (nd, d). National Cervical Screening Programme: Communications campaign – campaign updates. Available from [www.nsu.govt.nz](http://www.nsu.govt.nz).

National Screening Unit (nd, e). National Cervical Screening Programme: Targets for 2006–2011. Available from [www.nsu.govt.nz](http://www.nsu.govt.nz).

New Zealand Law Commission (2010). Alcohol in our lives: curbing the harm. *Law Commission Report* (114).

Ni Mhurchu, C, Blakely, T, Jiang, Y, Eyles, H C, & Rodgers, A (2010). Effects of price discounts and tailored nutrition education on supermarket purchases: A randomized controlled trial. *American Journal of Clinical Nutrition*, 91, 736–47. Available from [www.ajcn.org](http://www.ajcn.org).

Nursing Council of New Zealand (nd). Competencies. Available from [www.nursingcouncil.org.nz](http://www.nursingcouncil.org.nz).

Oakley Brown, M, Wells, J E, Scott, K M, & Ministry of Health (2006). Te rau hinengaro: The New Zealand Mental Health Survey. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Odgers, C L, Caspi, A, Nagin, D S, Piquero, A R, Slutske, W S, Milne, B J, et al (2008). Is it important to prevent early exposure to drugs and alcohol among adolescents? *Psychological Science*, 19, 1037–44.

Organisation for Economic Co-operation and Development (nd). OECD Family database. Available from [www.oecd.org](http://www.oecd.org).

Page, A, & Taylor, R (2010). Independent monitoring report: Screening and assessment report of women attending BSA (women screened July 2007 to June 2009). Wellington: BreastScreen Aotearoa. Available from [www.nsu.govt.nz](http://www.nsu.govt.nz).

Pasifika Medical Association (nd). What we do. Available from [www.pacifichealth.org.nz](http://www.pacifichealth.org.nz).

Paterson, J, Percival, T, Schluter, P, Sundborn, G, Abbott, M, Carter, S, et al (2008). Cohort profile: The Pacific Islands Families (PIF) Study. *International Journal of Epidemiology*, 37 (2), 273–9. Available from <http://ije.oxfordjournals.org>.

Paterson, J, Tumama Cowley, E, Percival, T, & Williams, M (2004). Pregnancy planning by mothers of Pacific infants recently delivered at Middlemore Hospital. *New Zealand Medical Journal*, 117, (1188) U744. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

Paynter, J (2010). *National year 10 ASH snapshot survey, 1999–2009: trends in tobacco use by students aged 14–15 years* (Report prepared for Ministry of Health). Auckland: Health Sponsorship Council, and Action on Smoking and Health.

Phoenix Research (2007). Survey of public opinions about advertising of food to children: Understanding attitudes in New Zealand (Research Report for PEAK Group). Auckland: Phoenix Research.

Powers, A (2005). Diabetes Mellitus. In A S Fauci, E Braunwald, D L Kasper, S L Hauser, D L Longo, J L Jameson & J Loscalzo (Eds.) *Harrison's Online*. New York: The McGraw-Hill Companies.

Rivers, J (2005). The effectiveness of earlybird: A summary of New Zealand research evaluating an early intervention programme for parents of children with autism spectrum disorders. Wellington: Ministry of Education. Available from [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz).

Robb, G, & Seddon, M (2006). Quality improvement in New Zealand healthcare Part 6: Keeping the patient front and centre to improve healthcare quality. *New Zealand Medical Journal*, 119 (1242), U2174. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

Robinson, T, Simmons, D, Scott, D, Howard, E, Pickering, K, Cutfield, R et al (2006). Ethnic differences in type 2 diabetes care and outcomes in Auckland: A multiethnic community in New Zealand. *New Zealand Medical Journal*, 119 (1235), U1997. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

Royal New Zealand College of General Practitioners (2008). *Aiming for excellence: RNZCGP standard for New Zealand general practice*. Wellington: Royal New Zealand College of General Practitioners.

Sarfati, D, Blakely, T, Shaw, C, Cormack, D & Atkinson, J (2006). Patterns of disparity: ethnic and socio-economic trends in breast cancer mortality in New Zealand. *Cancer Causes Control* 17 671–678.

Schaaf, D (2005). Cardiovascular disease risk factors in Pacific adolescents: The Auckland high school heart survey. Doctoral dissertation, University of Auckland. Available from <https://researchspace.auckland.ac.nz>.

Scully, D, Kremer, J, Meade, M M, Graham, R, & Dudgeon, K (1998). Physical exercise and psychological well-being: A critical review. *British Journal of Sports Medicine*, 32, 111–20.

Shaw, C (2009). (Non) regulation of marketing of unhealthy food to children in New Zealand. *New Zealand Medical Journal*, 122 (1288), 76–86. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

Smith, J, Jackson, G, Orr-Walker, B, Jackson, R, Sinclair, S, Thornley, S Et al. (2010). A population-based approach to the estimation of diabetes prevalence and health resource utilisation. *New Zealand Medical Journal*, 123(1310), 62–73. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

Sport and Recreation New Zealand (nd, a). SPARC facts 1997–2001. Available from [www.activenzsurvey.org.nz](http://www.activenzsurvey.org.nz).

Sport and Recreation New Zealand (nd, b). Active New Zealand Survey. Available from [www.activenzsurvey.org.nz](http://www.activenzsurvey.org.nz).

Stansfeld, S (2006). Social support and social cohesion. In M G Marmot & R G Wilkinson (Eds), *Social determinants of health* (2nd ed). Oxford; New York: Oxford University Press.

Statistics New Zealand (2009). New Zealand Income Survey: June 2009 quarter. Wellington: Statistics New Zealand. Available from [www.stats.govt.nz](http://www.stats.govt.nz).

Statistics New Zealand (2010). Household Labour Force Survey: March 2010 quarter. Wellington: Statistics New Zealand. Available from [www.stats.govt.nz](http://www.stats.govt.nz).

Statistics New Zealand and Ministry of Pacific Island Affairs (2010). Education and Pacific peoples in New Zealand. Wellington: Author. Available from [www.stats.govt.nz](http://www.stats.govt.nz).

Stevens, J (2003). Ethnic-specific cutpoints for obesity vs country-specific guidelines for action. *International Journal of Obesity and Related Metabolic Disorders*, 27, 287–8.

Stratton, I M, Adler, A I, Neil, H A W, Matthews, D R, Manley, S E, Cull, C A, et al (2000). Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKPDS 35): Prospective observational study. *British Medical Journal*, 321, 405–412. Available from [www.bmj.com](http://www.bmj.com).

Sundborn, G, Metcalf, P A, Gentles, D, Scragg, R K, Schaaf, D, Dyal, L, et al (2008). Ethnic differences in cardiovascular disease risk factors and diabetes status for Pacific ethnic groups and Europeans in the Diabetes Heart and Health Survey (DHAH) 2002–2003, Auckland New Zealand. *New Zealand Medical Journal*, 12 (1281), 28–39.

Tait, R (2008). An outcomes framework for Pacific peoples in New Zealand. (Report for the Ministry of Pacific Island Affairs). Wellington: Martin, Jenkins & Associates Ltd. Available from [www.minpac.govt.nz](http://www.minpac.govt.nz).

Teevale, T (2010). *Obesity in Pacific adolescents: A socio-cultural study in Auckland, NZ*. Auckland: University of Auckland.

The Ottawa Charter for Health Promotion. (1986). Agreed at the First International Conference on Health Promotion. Available from [www.who.int](http://www.who.int).

Thornley, S, Jackson, G, Mcrobbie, H, Sinclair, S, & Smith, J (2010). Few smokers in South Auckland access subsidised nicotine replacement therapy. *New Zealand Medical Journal*, 123 (1308), 16–27. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

Thow, A M, Jan, S, Leeder, S, & Swinburn, B (2010). The effect of fiscal policy on diet, obesity and chronic disease: A systematic review. *Bulletin of the World Health Organisation*, 88 (8), 609–14.

Tiatia, J (2008). Pacific cultural competencies: A literature review. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

Timperley, H, & Robinson, V M J (2001). Achieving school improvement through challenging and changing teachers' schema. *Journal of Educational Change* 2, 281–300.

Tobias, M, Cheung, J, Carter, K, Anderson, C, & Feigin, V L (2007). Stroke surveillance: Population-based estimates and projections for New Zealand. *Australian and New Zealand Journal of Public Health*, 31(6), 520–5.

Tobias, M, & Yeh, L C (2009). How much does health-care contribute to health gain and to health inequality? Trends in amenable mortality in New Zealand 1981–2004. *Australian and New Zealand Journal of Public Health*, 33(1), 70–8.

Tukuitonga, C F, & Bindman, A B (2002). Ethnic and gender differences in the use of coronary artery revascularisation procedures in New Zealand. *New Zealand Medical Journal*, 115, 179–82.

University of Auckland, Centre for Health Services Research and Policy (2008). *An Evaluation of the Diabetes Self-Management Education Programme*. Auckland: Auckland Uniservices.

University of Auckland, Centre for Health Services Research and Policy (2009). *Overview of the Let's Beat Diabetes Evaluation 2009*. Auckland: Auckland Uniservices.

University of Otago, School of Medicine and Health Science (nd). The New Zealand Census Mortality Study. Wellington: University of Otago. Available from [www.uow.otago.ac.nz](http://www.uow.otago.ac.nz).

Utter, J, Scragg, R, Schaaf, D, & Fitzgerald, E (2006). Nutrition and physical activity behaviours among Māori, Pacific and European children: Identifying opportunities for population-based interventions. *Australian and New Zealand Journal of Public Health*, 30, 50–6.

Wellington City Council (2010). Gambling venues policy. Wellington: Wellington City Council. Available from [www.wellington.govt.nz](http://www.wellington.govt.nz).

White, P G J, Salmond, C, Atkinson, J, Crampton, P (2008). Atlas of socioeconomic deprivation in New Zealand: NZDep2006. Wellington: Ministry of Health. Available from [www.moh.govt.nz](http://www.moh.govt.nz).

White, J, Thomson, G, & Signal, L (2010). Front-of-pack nutrition labelling: Where to now? *New Zealand Medical Journal*, 123, 12–6. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

Wilson, N, Thomson, G, & Edwards, R (2008). Use of four major tobacco control interventions in New Zealand: A review. *New Zealand Medical Journal*, 121(1276), 71–86. Available from [www.nzma.org.nz/journal](http://www.nzma.org.nz/journal).

World Health Organization (2004). Global strategy on diet, physical activity and health. Geneva: World Health Organization. Available from [www.who.int](http://www.who.int).