

**Ethnic-Specific
Health Needs Assessment
for Pacific People
in Counties Manukau**

2007

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Executive Summary

Introduction

Pacific people living in New Zealand are heterogeneous and culturally diverse, with each ethnic group having its own language, culture, customs, philosophies, traditions, history of settlement in New Zealand and health status. Previous health reports have tended to adopt a 'Tangata Pasifika' perspective to emphasise emergent pan-Pacific health risks and outcomes, and the 'by Pacific for Pacific' health services that have emerged to meet these common needs.

This Health Needs Assessment (HNA) constitutes the most extensive health status comparison attempted between the four largest Pacific ethnic groups in Counties-Manukau (CM) and New Zealand, at level 2 ethnicity. Level 2 ethnicity is more specific (e.g. Samoan, Cook Islands, Tongan, and Niuean), compared to level 1 (which groups Pacific people as a whole, termed 'All Pacific' in this document).

This analysis provides a basis for further work to:

- Identify gaps in, and guide the implementation of, Tupu Ola Moui (CMDHB Pacific Health and Disability Action Plan);¹
- Inform priority action areas for different Pacific ethnic groups;
- Provide further justification for tailoring interventions for different Pacific ethnic groups;
- Inform intervention and service design;
- Highlight potential areas for future research.

Methods

Data sources utilised in this report cover varying populations, locations, year ranges, and ethnicity classification systems. For example, sources include Census 2001, The New Zealand Health Survey 2002-2003, and The National Minimum Dataset 2003-2005 (New Zealand Health Information Service data), amongst others. Data interpretation must therefore consider this complexity at all times. Both prioritised and total response ethnicity formats have been used depending on the data source. Data was manipulated in Excel.

Small numbers have been addressed by aggregating data and creating and reporting confidence intervals where possible. In particular, care must be shown when interpreting overlapping and non-overlapping confidence intervals. Rates (e.g. hospitalizations) are age standardised to the New Zealand population (Census 2001 data) as standard. The data from the New Zealand Health Survey (NZHS) 2002/2003² is age-standardised against the WHO world population.

Data presentation includes the display of the four largest Pacific ethnic groups (so these four groups can be compared to each other), along with 'All Pacific' and 'non-Pacific/non-Māori' (so these two 'higher' level ethnicity groupings can also be compared to each other). The magnitude of the differences between Pacific ethnic groups has also been compared to the difference between 'All Pacific' and non-Pacific/non-Māori in the latter stages of the report.

The process followed for the selection of indicators included personal communication with key stakeholders and review of relevant documents such as Pacific Health strategic plans.

Limitations and Risks

This HNA has a number of limitations:

- Given the short (6 month) time-frame, and the fact that data has proved more difficult to attain and more manipulation is required at level 2 ethnicity than at level 1, a number of areas were not included in the final report e.g. oral health, terminations, Hepatitis B and emergency department attendance data was either not available or not received in time;
- Most data is only available and is therefore presented in the 'prioritised' ethnicity format which underestimates the size of the ethnic groups compared to the total number identifying with each group;
- Small numbers resulted in large confidence intervals for many outcome measures, which often made potential differences difficult or impossible to display;
- Small numbers also limited the ability to compare groups in smaller age groupings e.g. 'the elderly' could not be assessed;
- Multiple comparisons may lead to spuriously significant findings showing differences which are not 'truly' present.

A number of risks arise from this HNA:

- The focus on individual Pacific ethnic groups and inequalities between them must not detract from the relative disadvantage of 'All Pacific' groups combined versus the non-Pacific/non-Māori population in New Zealand;
- The lack of ethnic differences in outcomes for some indicators should not be used to undermine the value of culturally-tailoring interventions;
- Victim blaming (and further stigmatisation) may potentially arise, to explain the different circumstances and realities (including health status) between Pacific ethnic groups. Such an attitude would not be aligned with the spirit in which this HNA has been commissioned and conducted. Framing inequalities in terms of the economic, structural, environmental, political, historical, and societal factors (including racism) influencing health is favoured rather than simply blaming the individual or group for 'poor' results. Viewing inequalities through this wider lens opens the viewer to many more population-based interventions with a potentially broader and more sustainable effect than simply those focused on individual behaviour change.

Summary of Results

Non-Pacific/non-Māori fair better on many indicators than 'All Pacific' people including: many measures of deprivation; risk factors (e.g. smoking, weight and nutrition); life expectancy; mortality; general health status; chronic disease prevalence (e.g. diabetes); hospitalisation rates; and a number of cancer screening and women's health indicators.

No differences were found between individual Pacific ethnic groups in >110 health indicators. Differences have been shown in >50 indicators. However, the magnitude of differences found between Pacific ethnic groups was often less than the difference between 'All Pacific' as a whole and non-Pacific/non-Māori.

Individual areas of concern for the four largest Pacific ethnic groups vary with several noticeable trends. 'Samoans and Tongans' share similarities on a number of indicators as do 'Cook Islanders and Niueans'. As countries, the Cook Islands and Niue have 'free association' with New Zealand. Therefore, their residents are citizens of New Zealand and have a longer and more established migration pattern to this country (compared to Samoans and Tongans). The 'New Zealand' way of life also extends to the Cook Islands and Niue, more so than Samoa and Tonga. Cook Islanders and Niueans living in CM are more likely to have been born in New Zealand, are less likely to speak their Pacific language, and have had more exposure as a population to 'New Zealand culture' and its potential impacts on health. For example, Cook Island females have a relatively high prevalence of current smoking (and starting smoking early), and harmful alcohol-related behaviours.

Samoa and Tonga do not share the same intimate relationship with New Zealand. Samoans and Tongans living in CM are less likely (than Cook Islanders and Niueans) to have been born in New Zealand and are more likely to be able to speak their Pacific language. They are more likely to live in overcrowded homes, less likely to use home heating, and more likely to have four or more dependent children. In addition, hospitalisation rates are higher for Samoan and Tongan adults and children for 'all causes' and for other more specific indicators. For example, Samoan and Tongan childhood respiratory-related hospitalisation rates are higher than Cook Island and Niuean rates (e.g. acute bronchiolitis, pneumonia, other respiratory infections for Samoans and Tongans, and asthma rates for Samoans). Samoan and Tongan women are also having more babies, having their first babies later, with higher percentages of births being caesareans or complicated by diabetes in pregnancy.

A more detailed summary of results by ethnicity is included after the recommendations in this executive summary.

Conclusions

- ***There are many inequalities between All Pacific and non-Pacific/non-Māori and these inequalities are often large;***
- ***Amongst Pacific ethnic groups there are more similarities than differences, and the differences tend to be smaller than those between All Pacific and non-Pacific/non-Māori;***
- ***Where differences do exist amongst Pacific ethnic groups a pattern seems to be emerging. Samoans and Tongans share similarities on several indicators, as do Cook Islanders and Niueans;***
- ***There are some specific areas where each Pacific ethnic group is faring less well than some of the others.***

Recommendations

For Further Work/Research

The Pacific team at CMDHB should consider the need for further work/research to clarify certain issues raised in this HNA:

- What factors could explain the trend of 'Cook Islanders and Niueans' appearing similar on several indicators, as do 'Samoans and Tongans'. How much of this is due to: deprivation differences; ethnic or cultural differences; acculturation/changes in culture including exposure to 'New Zealand culture' here or in the Islands (especially for Cook Islanders and Niueans); different durations of settlement (years in NZ); the NZ health system being difficult to 'navigate' for some (including the accessibility, appropriateness and relevance of the system); a combination of the above?;
- Smoking - More information is needed regarding smoking behaviours amongst Pacific ethnic groups. The high Cook Island female rates need to be addressed;
- Child Hospitalisation - Why are Samoan and Tongan rates higher than Cook Island and Niuean? Including investigating the potential causes of the high hospitalisation rates for childhood respiratory illnesses in Samoans and Tongans e.g. differences in home heating?;
- Adult Hospitalisation - Why are Samoan and Tongan rates generally higher than Cook Island and Niuean?;

- Teenage Deliveries - Why are rates so high in Cook Island females? Do the number of teenage deliveries accurately reflect pregnancies?;
- Age of Mothers at First Delivery - Why are Cook Island and Niuean women on average having their first baby earlier than Samoan and Tongan women?;
- Education - The findings that Samoans and Tongans in CM are more likely to be educated to certain levels than Cook Islanders and Niueans is in contrast to what has been thought previously. This needs to be looked at in more detail;
- Data quality on High Priority Health Issues - More robust and up to date information is required on high priority illnesses/risk factors such as diabetes and obesity.

Regarding Service Intervention Issues

Areas needing consideration include:

- Tailoring Services - To what extent and how can services be tailored to reflect the differences shown amongst Pacific ethnic groups;
- Caesareans - What is the significance of lower caesarean section rates for Pacific people in CM than Pacific people in the rest of NZ? Can this be explained by age differences? Could this represent reduced intervention in CM or higher than recommended/appropriate levels of intervention in the rest of New Zealand? More consideration of whether Pacific women in CM are being offered the right level of intervention is required.

For Dissemination

The results of this HNA have already been disseminated through:

- Presentations to the CMDHB Pacific Health Team during their planning day, the CMDHB Pacific Health Advisory Committee, Pacific Women's Health Research & Development Unit (MMH), leading New Zealand-based Pacific researchers (University of Auckland); and to visiting hospital heads of department from Samoa.

Results should be further disseminated through:

- Additional presentations as required including at Pacific health symposiums/conferences in New Zealand or the Pacific Islands if possible;
- The submission of literature articles to relevant journals;
- Direct distribution to relevant stakeholders, those who provided input or have shown interest in the project, and those who this data may be of use to;
- Making the document public, via acquiring an ISBN number and posting on relevant websites.

Summary of Results by Ethnicity

Further detail of results by ethnic group is presented below:

- Firstly, All Pacific is compared to non-Pacific/non-Maori;
- Secondly, comparisons amongst the Pacific ethnic groups are outlined beginning with negative findings (where no differences were found);
- Thirdly, positive findings (where differences were found) amongst the Pacific ethnic groups are shown. These positive findings are split into Trends (comparing 'Samoans and Tongans' to 'Cook Islanders and Niueans') followed by key findings for each Pacific ethnic group (Samoans, Cook Islanders, Tongans, and Niueans individually).

Comparing All Pacific versus Non-Pacific/non-Māori

- | |
|---|
| <ul style="list-style-type: none">• <i>There are many inequalities between All Pacific and non-Pacific/non-Māori and these inequalities are often large;</i> |
|---|

Non-Pacific/non-Māori fair better on many more indicators than 'All Pacific' people. The number of indicators showing this well-known trend are too numerous to outline here. However, in summary and from this HNA, All Pacific fare relatively poorly on:

- Many measures of deprivation (e.g. decile, income, employment, motor vehicle access);
- Overcrowding;
- Education;
- Risk factors (e.g. smoking, weight, nutrition, and gambling measures);
- Life expectancy;
- Mortality (infants, children and adults);
- General health status;
- Chronic disease prevalence (e.g. diabetes);
- Mental illness;
- Hospitalisation rates (children and adults);
- Screening (cervical and breast);
- Women's health (e.g. teenage delivery rates, diabetes in pregnancy, hospitalisations for PID and ectopic pregnancy).

Comparing the Different Pacific Ethnic Groups

- **Amongst Pacific ethnic groups there are more similarities than differences, and the differences tend to be smaller than those between All Pacific and non-Pacific/non-Māori;**

For example, no differences were found between individual Pacific ethnic groups in >110 health indicators (see 'negative findings' below). However, differences have been shown in >50 indicators supporting what many have thought previously, that the different Pacific ethnic groups living in CM do have some differences in health needs.

'Negative' Findings (where differences were not found)

On many occasions no differences were found between the level 2 Pacific ethnic groups (Samoans, Cook Islanders, Tongans and Niueans). Examples include:

- Risk Factors
 - Adult prevalence of obesity;
- Health Outcomes
 - Life expectancy at birth in Counties-Manukau (CM);
 - Rates in any of the top ten causes of adult potentially avoidable mortality;
 - Prevalence of diabetes in the New Zealand Health Survey (NZHS), heart disease, stroke, cancer, asthma (<= 45 years of age), spinal disorders, osteoporosis, or chronic obstructive respiratory disease (CORD);
 - 12 month prevalence of 'any mental disorder', 'any anxiety disorder', 'any mood disorder', or 'any drug disorder';
- Adult Health Care Utilisation
 - Hospitalisation rates for diabetes, pneumonia, stomach cancer, or gout (in CM);
 - Adult male potentially avoidable hospitalisation (PAH) rates for angina and chest pain, cellulitis, asthma, or kidney/urinary infection;
 - Adult surgical intervention rates for angiography, angioplasty, coronary artery bypass grafting (CABG), total hip joint replacement, total knee joint replacement, cholecystectomy, or cataract extraction (in CM);
 - Adult female surgical intervention rates for hysterectomy and assisted delivery;
 - Adult female Self-reported cervical smears (20-69 years of age), over previous 3 years;
 - Adult female self-reported mammogram (50-64 years of age), self-reported mammograms (20-69 years of age), self-reported mammograms (15+ years of age) - all over previous 3 years
- Child Health
 - Infant mortality for all-causes (in CM or All NZ);
 - Child (0-14 years) mortality rates for low birthweight (in All NZ);
 - Early childhood (0-4 years) PAH rates for ENT infections, kidney/urinary infection, epilepsy, meningococcal infection, whooping cough, and failure to thrive;
 - Early childhood (0-4 years) hospitalisation rates for bronchiectasis, congenital anomalies, road traffic injury, neural tube defects, birth trauma and asphyxia;
 - Child (5-14 years) PAH rates for ENT infections, cellulitis, dental conditions, rheumatic fever/heart disease, epilepsy, respiratory infections: other, kidney/urinary infection;
- Women's/Maternal Health
 - Percentage of all deliveries that were complicated by pre-eclampsia;
 - Hospitalisation rates for hysterectomy, pelvic inflammatory disease and ectopic pregnancy.

'Positive' Findings (where differences were found) - Trends

- ***Where differences do exist amongst Pacific ethnic groups a pattern seems to be emerging. Samoans and Tongans share similarities on several indicators, as do Cook Islanders and Niueans;***

Two main trends have been found in this HNA. 'Samoans and Tongans' share similarities on a number of indicators as do 'Cook Islanders and Niueans'. The Cook Islands and Niue have a closer relationship with New Zealand in that they are said to be self-governing in 'free association' with New Zealand. Their residents are citizens of New Zealand, have access to NZ health care, and are also exposed to 'New Zealand culture' in the Cook Islands and Niue.

Trends for 'Samoans and Tongans'

Demography and Socioeconomic Circumstances

- In CM, Samoans and Tongans when compared to Cook Islanders and Niueans are:
 - Less likely to have been born in NZ or to have lived here for 'more than 20 years';
 - More likely to be able to speak their corresponding language of Pacific ethnic origin, or 'any Pacific language';
 - More likely to have no income;
 - Less likely to have no qualification;
 - More likely to have 'any secondary school qualification', or 'an overseas secondary school qualification';
 - More likely to own or partly own their usual residence;
 - Less likely to live in homes which have 'at least 1 spare bedroom' or with 'no bedrooms required and none spare';
 - More likely to live in homes 'needing at least 1 more bedroom';
 - Less likely to use home heating;
 - More likely to have access to a motor vehicle;
 - Less likely to have access to a telephone and higher percentage having no access to telecommunication systems e.g. telephones, faxes or the internet;
 - More likely to be looking after a member of own household who is ill or who has a disability;
 - More likely to have 4 or more dependent children and less likely to have 1 and 2 dependent children.

Adult Health Care Utilisation

- In CM, adult Samoan and Tongan females have significantly:
 - Higher PAH rates for stroke than Niuean females.
- In CM, adult Samoan and Tongan males have significantly:
 - Higher hospitalisation rates for all causes than Cook Island and Niuean males;
 - Higher PAH rates for CORD than Cook Island males.

Child Health

- In CM, Samoan and Tongan females have:
 - Lower percentages of births being low birthweight than Cook Island and Niuean females;
 - Significantly higher early childhood (0-4 years) PAH rates for all causes than Cook Island and Niuean females;
 - Significantly higher child (5-14 years) PAH rates for pneumonia than Cook Island females.
- In CM, Samoan and Tongan males have significantly:
 - Higher early childhood (0-4 years) PAH rates for all causes, pneumonia, gastroenteritis and 'respiratory infections: other' than Cook Island and Niuean males;

- Higher early childhood (0-4 years) PAH rates for acute bronchiolitis than Cook Island males;
- Higher child (5-14 years) PAH rates for pneumonia than Cook Island males.

Women's/Maternal Health

- In CM, Samoans and Tongans have a higher:
 - Average maternal age at delivery and 'maternal age at first delivery' than Cook Islanders and Niueans;
 - Total fertility rate (TFR) than Cook Islanders and Niueans;
 - Percentage of caesareans than Cook Islanders;
 - Percentage of diabetes in pregnancy than Cook Islanders and Niueans.

Trends for 'Cook Islanders and Niueans'

Demography and Socioeconomic Circumstances

- In CM, Cook Islanders and Niueans when compared to Samoans and Tongans are:
 - More likely to have been born in New Zealand, or to have lived here for 'more than 20 years';
 - Less likely to be able to speak their corresponding language of Pacific ethnic origin, or 'any Pacific language';
 - More likely to live in the four most affluent deciles;
 - Less likely to have no income;
 - More likely to have no qualification;
 - Less likely to have 'any secondary school qualification', or 'an overseas secondary school qualification';
 - Less likely to own or partly own their usual residence;
 - More likely to live in homes which have 'at least 1 spare bedroom' or with 'no bedrooms required and none spare';
 - Less likely to live in homes 'needing at least 1 more bedroom';
 - More likely to use home heating;
 - Less likely to have access to a motor vehicle;
 - More likely to have access to a telephone and lower percentage having no access to telecommunication systems e.g. telephones, faxes or the internet;
 - Less likely to be looking after a member of own household who is ill or who has a disability;
 - Less likely to have 4 or more dependent children and more likely to have 1 and 2 dependent children.

Adult Health Care Utilisation

- In CM, adult Cook Island and Niuean males have significantly:
 - Lower hospitalisation rates for all causes than Samoan and Tongan males.

Child Health

- In CM, Cook Island and Niuean females have:
 - Higher percentages of births being low birthweight than Samoans and Tongans;
 - Significantly lower early childhood (0-4 years) PAH rates for all causes than Samoan and Tongan females;
 - Lower child (5-14 years) PAH rates for asthma than Samoan females.
- In CM, Cook Island and Niuean males have significantly:
 - Lower early childhood (0-4 years) PAH rates for all causes, pneumonia, gastroenteritis and 'respiratory infections: other' than Samoan and Tongan males.

Women's/Maternal Health

- In CM, Cook Islanders and Niueans have a lower:
 - Average maternal age at delivery and 'maternal age at first delivery' than Samoans and Tongans;
 - TFR than Samoans and Tongans;
 - Percentage of diabetes in pregnancy than Samoans and Tongans.

'Positive' Findings - for Each Pacific Ethnic Group

- ***There are some specific areas where each Pacific ethnic group is faring less well than some of the others.***

Samoans

The areas of concern for Samoans, where they fare relatively poorly compared to one or more of the other Pacific ethnic groups (Tongans, Cook Islanders and Niueans), include:

- Income - Relatively high % with no income;
- Overcrowding - Relatively high % living in homes 'needing at least 1 more bedroom';
- Home Heating - Relatively low % using home heating;
- Telecommunications - Relatively low % with access to a telephone;
- Gambling - Relatively high male prevalence (amongst males aged 30-65 years) of reporting going into debt or borrowing money due to gambling;
- Life-expectancy - Relatively low female life expectancy at birth;
- Mortality - Relatively high adult female mortality rate for all-causes;
- Hospitalisation
 - Relatively high adult female - angina and chest pain, myocardial infarction, stroke, kidney/urinary infection and congestive heart failure, and asthma;
 - Relatively high adult male - all-causes, congestive heart failure, stroke and CORD;
- Child hospitalisation rates
 - Relatively high early childhood (0-4 years) female - all-causes, acute bronchiolitis, asthma, pneumonia, 'respiratory infections: other' and cellulitis;
 - Relatively high child (5-14 years) female - all-causes, asthma, pneumonia;
 - Relatively high early childhood (0-4 years) male - all-causes, acute bronchiolitis, asthma, pneumonia, 'respiratory infections: other' and gastroenteritis;
 - Relatively high child (5-14 years) male - pneumonia and gastroenteritis;
- Delivery - Having first babies relatively late;
- Caesareans - Relatively high % births complicated by caesareans;
- Diabetes in Pregnancy - Relatively high % pregnancies complicated by diabetes in pregnancy.

Tongans

The areas of concern for Tongans, where they fare relatively poorly compared to one or more of the other Pacific ethnic groups (Samoans, Cook Islanders and Niueans), include:

- Deprivation Decile - Relatively high % living in 2 most deprived deciles and low % living in 4 most affluent deciles;
- Income
 - Relatively high % with no income and earning less than \$20,000 per year;
 - Relatively low % earning over \$40,000 per year;
- Employment - Relatively high % not in the labour force;
- Overcrowding - Relatively high % living in homes 'needing at least 1 more bedroom';
- Home heating - Relatively low % using home heating;
- Telecommunications - Relatively low % with access to a telephone;
- Hospitalisation rates
 - Relatively high adult female - stroke, road traffic injury, caesarean sections;
 - Relatively high adult male - all-causes, CORD and myocardial infarction;
- Child hospitalisation rates
 - Relatively high early childhood (0-4 years) female - all-causes, dental conditions;
 - Relatively high child (5-14 years) female - pneumonia;

- Relatively high early childhood (0-4 years) male - all-causes, pneumonia, 'respiratory infections: other', acute bronchiolitis, gastroenteritis and dental conditions;
- Relatively high child (5-14 years) male - pneumonia;
- Deliveries - Having first babies relatively late (and having the most babies);
- Caesareans - Relatively high % births complicated by caesareans;
- Diabetes in Pregnancy - Relatively high % pregnancies complicated by diabetes in pregnancy.

Cook Islanders

The areas of concern for Cook Islanders, where they fare relatively poorly compared to one or more of the other Pacific ethnic groups (Niueans, Samoans and Tongans), include:

- Employment - Relatively high % unemployed;
- Education - Relatively high % with no qualification;
- Homeownership - Relatively low % owning own home;
- Language - Relatively low % able to speak Cook Island Māori;
- Smoking - Relatively high prevalence of adult females currently smoking (and starting smoking early);
- Alcohol
 - Adult females consume relatively high amounts of alcohol on an occasion and have a higher prevalence of drinking enough to feel drunk once per week;
 - Relatively high adult 12 month prevalence of any alcohol disorder;
- Blood pressure - Relatively high adult male prevalence of hypertension;
- Life expectancy - Female relatively low;
- Mortality - Adult female relatively high;
- Hospitalisation
 - For congestive heart failure relatively high in females;
- Birth weight - Relatively high % births being LBW;
- Child Mortality - (0-14 years) relatively high for all-causes;
- Teenage Delivery - Relatively high.

Niueans

The areas of concern for Niueans, where they fare relatively poorly compared to one or more of the other Pacific ethnic groups (Cook Islanders, Samoans and Tongans), include:

- Home Ownership - Relatively low % owning own home;
- Vehicle access - Relatively low % with access to a motor vehicle;
- Education
 - Relatively high % with no qualification;
 - Relatively low % with any secondary school qualification;
- Language - Relatively low % able to speak Niuean or any Pacific language;
- Physical Activity - Relatively low for adult males;
- Diabetes - Relatively high prevalence (in the South Auckland Diabetes Project 1992-1995);
- Birth weight - Relatively high % births being LBW;
- Assisted Delivery - Relatively high % of births being complicated by assisted delivery.

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Treaty of Waitangi

The “Treaty of Waitangi” establishes the unique and special relationship between Māori and the Crown. As a Crown agency Counties Manukau District Health Board considers the Treaty of Waitangi principles of partnership, participation and active protection of Māori Health interests, co-operation and utmost good faith, to be implicit conditions of the nature in which the internal organisation of Counties Manukau District Health Board responds to Māori Health. Equally Counties Manukau District Health Board requires that these principles shall be explicitly expressed in agreements between Counties Manukau District Health Board and providers.

Disclaimer

Information within the report may be freely used provided the source is acknowledged. Every effort has been made to ensure that the information in this report is correct. Counties Manukau District Health Board and the author will not accept any responsibility for information which is incorrect and where action has been taken as a result of the information in this report.

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Abbreviations

ARPHS	Auckland Regional Public Health Service
BMI	Body Mass Index
CABG	Coronary Artery Bypass Graft
CAU	Census Area Unit
CCM	Chronic Care Management
CI	Confidence Interval
CM	Counties Manukau
CMDHB	Counties Manukau District Health Board
CORD	Chronic Obstructive Respiratory Disease
CVD	Cardiovascular Disease
DHB	District Health Board
DOB	Date of Birth
ENT	Ear, Nose and Throat
HbA1C	Haemoglobin A1C
HNA	Health Needs Assessment
ICD	International Classification of Diseases
IHD	Ischaemic Heart Disease
LBW	Low Birth Weight
LE	Life Expectancy
MMH	Middlemore Hospital
NHI	National Health Index
NIR	National Immunisation Register
NMDS	National Minimum Data Set
NZHIS	New Zealand Health Information Service
NZHS	New Zealand Health Survey
PAH	Potentially Avoidable Hospitalisation
PAM	Potentially Avoidable Mortality
PDACS	Pacific Drugs & Alcohol Consumption Survey
PHI	Public Health Intelligence
SNZ	Statistics New Zealand
TFR	Total Fertility Rate
WDHB	Waitemata District Health Board
WHO	World Health Organization

1 Introduction

Pacific people living in New Zealand are heterogeneous and culturally diverse, with each ethnic group having its own language, culture, customs, philosophies, traditions, history of settlement in New Zealand and health status.^{3, 4} However, to many New Zealanders the generic concept of *Pacific Islanders* is considered to be a homogenous grouping (thereby ignoring the uniqueness of the different groups).^{4, 5} Dr Melani Anae (previous Director of Pacific Studies at the University of Auckland) highlighted a need to “critically examine and understand what culture, cultural identity and ethnicity means not for some kind of generic Pacific Islander, but for the different ethnic minority populations caught within this pan-ethnic identity”.⁴ Indeed, rather than seeing themselves in a generic ‘Pacific community’ Pacific people often “align themselves variously, and at different times, along ethnic, geographic, church, family, school, age/gender-based, youth/elders, Island-born, New Zealand-born, and occupational lines, or a mix of these”.⁶ The issue of labelling, and the right to diversity in labelling, is important for many reasons. Perhaps the most significant being the negative connotations attached by some to the ‘Pacific Islander’ label through “the distorted and stereotypic image of Pacific Islanders as overstayers”.⁴ Indeed, in the early 1970’s, Pacific peoples (especially Samoans and Tongans) were targeted in a way which became unacceptable to many at that time and indeed to following generations.⁴

‘Pacific people’ in this document refers to populations of Pacific Island ethnic origin living in New Zealand, represented by over 20 different Polynesian, Melanesian and Micronesian cultures (Samoan, Cook Islands, Tongan, Niuean, Fijian and Tokelauan being the six main ethnic groups).⁷ Within each of these ethnic groups, there is further diversity between those born in the Pacific Islands and those born in New Zealand.⁸

Samoan social groups are differentiated in notions of extended family lines, Cook Islanders in island identities (there are many islands which make up the Cook Island group), Niueans in village identities (a dozen or so villages on one island), and Tongans in class identities (nobles as opposed to commoners).^{4, 9}

However, these groups do share a high degree of church affiliation.¹⁰ Pacific people view health as a holistic concept that includes spiritual, emotional, mental, physical and social wellbeing. Indeed, many Pacific peoples view the world through a spiritual lens with spiritual wellbeing seen as an essential part of good health.^{10, 11} The emphasis is on the total wellbeing of the individual within the context of the family,³ which in the Pacific community includes both the nuclear and extended family.¹² A Pacific person is considered healthy if they are able to meet their own and society’s expectations.⁷ These concepts, values and beliefs have been recognised as integral to Pacific people’s health through the initiation by CMDHB of comprehensive long term programmes such as ‘Lotu Moui’ that successfully integrate ethnic specific culturally- and spiritually-tailored health promotion through Pacific churches.

Previous health reports have tended to adopt a ‘Tangata Pasifika’ perspective to emphasise emergent pan-Pacific health risks and outcomes, and the ‘by Pacific for Pacific’ health services that are emerging to meet these common needs.⁸ For example, a comprehensive Health Needs Assessment (HNA) in 2005 found that overall Pacific health can improve.¹³ Pacific people were found to have a life expectancy at birth 5-8 years less than for the European/other group (5 for females, 8 for males). Mortality for diabetes, stroke, respiratory disease, and all-causes were also high. Pacific people in CMDHB were also far more likely to be obese, smoke more tobacco, and have a relatively poor diet. In particular, being a male Pacific person puts one at high risk, yet they have one of the lowest attendances at general practice. Pacific people were also found to have a higher rate of considering themselves to be in ‘good or better’ health than other ethnic groups. In CMDHB they were also more likely to state that they have attended a Pacific-specific service in the previous 12 months than those from the rest of Auckland or nationally.¹³

This report draws on the guidelines for HNA as outlined by the Ministry of Health,¹⁴ and is aligned with key policy documents including: Tupu Ola Moui – Pacific Health Chart Book,⁸

Tupu Ola Moui - CMDHB Pacific Health and Disability Action Plan;¹ The Health of Pacific Peoples;¹⁵ Healthy Eating - Healthy Action;³ The New Zealand Health Strategy;¹⁶ The Primary Health Care Strategy;¹⁶ and several other relevant documents.¹⁷⁻²⁰

In particular, it does not attempt to repeat work already conducted e.g. in Tupu Ola Moui (The Pacific Health Chart Book 2004)⁸ and Counties Manukau Population Health Indicators.¹³ Rather, it focuses more specifically on the needs of the four largest Pacific ethnic groups in CMDHB (Samoan, Cook Islands, Tongan and Niuean) and attempts to identify differences in health need between them. This more targeted ethnic-specific analysis of the Pacific population in CMDHB will hopefully provide insights into the potential gaps in need and services amongst these diverse groups, aiding decision-making and tailoring of interventions in a culturally specific way.

This is important because ignoring the impact of different world views of health on patient perspectives and their impact on health outcomes contributes to the health inequalities among ethnic minority populations in the following ways:

- Patients may choose not to access needed services for fear of being misunderstood or disrespected;
- Providers may miss opportunities for screening or assessment because they are not familiar with the prevalence of conditions among Pacific populations;
- Providers may fail to take into account differing responses to medication, treatment or care options;
- Providers may lack knowledge about traditional remedies, leading to harmful drug interactions or incomplete care planning to take account of other therapies or services being used;
- Providers may make diagnostic errors resulting from miscommunication;
- Patients may not adhere to medical advice because they do not understand or do not trust the provider.²¹⁻²³

In addition to the many potential benefits resulting from ethnic-specific research and tailoring of interventions highlighted above, risks are involved. The focus on individual Pacific ethnic groups and inequalities between them:

- Must not detract from the relative disadvantage of 'All Pacific' groups combined versus the 'non-Pacific/non-Māori' population in New Zealand. In this HNA, the largest difference between the individual Pacific ethnic groups has been found to be less than the difference between All Pacific and non-Pacific/non-Māori for many outcome measures. However, several outcomes show greater differences within the Pacific ethnic groups than between All Pacific and non-Pacific/non-Māori;
- Runs the risk of confusing the presence of differences in outcomes with the likely effect of utilising cultural differences to improve interventions. For example, if health differences are not shown between the individual Pacific ethnic groups this does not mean that tailoring interventions in a culturally appropriate and relevant manner to each group is not valid and indeed useful;
- Raises the potential for victim blaming (and further stigmatisation) to explain the different circumstances and realities (including health status) between Pacific ethnic groups. Such an attitude would not be aligned with the spirit in which this HNA has been commissioned and conducted. Framing inequalities in terms of the economic, structural, environmental, political, historical, and societal factors (including racism) influencing health is more productive than simply blaming the individual or group for 'poor' results. Viewing inequalities through this wider lens opens the viewer to many more population-based interventions with a potentially broader and more sustainable effect than simply those focused on individual behaviour change.

2 Aims

To assess significant differences/inequalities in health status between the 4 largest Pacific ethnic groups living in CMDHB at level 2 ethnicity (Samoan, Cook Islands, Tongan, and Niuean).

To compare these differences where possible/appropriate to the difference between 'All Pacific' and non-Pacific/non-Māori.

To provide a basis for further work to:

- Identify gaps in, and guide the implementation of, Tupu Ola Moui (CMDHB Pacific Health and Disability Action Plan);¹
- Inform priority action areas for different Pacific ethnic groups;
- Provide further justification for tailoring interventions for different Pacific ethnic groups;
- Inform which interventions need specific tailoring and to whom;
- Inform intervention and service design;
- Highlight potential areas for future research.

3 Methods

Data presented in this report comes from a variety of sources, which cover varying year ranges, locations, and ethnicity classification systems. Interpretation of this data must consider this complexity at all times.

This section firstly describes the data sources used and how it was manipulated (*Section 3.1* on page 4). Sources covered different populations and year ranges e.g. Census 2001, New Zealand Health Survey 2002-2003, and National Minimum Dataset (New Zealand Health Information Service data) 2003-2005. Data was manipulated in Excel.

Secondly, data issues are outlined regarding small numbers, age-standardising and measures of precision (*Section 3.2* on page 5). Small numbers have been addressed by aggregating data and creating and reporting confidence intervals where possible. In this HNA, rates are age standardised to the New Zealand population (Census 2001 data) as standard. The data from the New Zealand Health Survey (NZHS) 2002/2003² is age-standardised against the WHO world population. Care must be shown when interpreting overlapping and non-overlapping confidence intervals.

Thirdly, data presentation issues are highlighted (*Section 3.3* on page 6). This includes the display of the four largest Pacific ethnic groups (so these four groups can be compared to each other), along with 'All Pacific' and 'non-Pacific/non-Māori' (so these two groups can also be compared to each other).

Fourthly, the pros and cons of the two ethnicity classification systems used, prioritised and total response formats, are listed (*Section 3.3* on page 6).

Finally, the rationale for the selection of indicators is discussed (*Section 3.5* on page 8). The process included personal communication with key stakeholders and review of relevant documents including Pacific Health strategic plans.

3.1 Data Sources and Use

Due to the size and breadth of this report data was initially sourced from readily available sources and those that were known to the senior public health staff at CMDHB. Data sources are described below with the organization or individuals it was received from stated first, followed by the name of the database, and finally a description of the type of information used:

- Statistics New Zealand and internal CMDHB data analyst:
 - Population/Census data (2001);
 - § Demographic and deprivation information.
- Public Health Intelligence:
 - New Zealand Health Survey 2002/2003;
 - § Health status information including risk factor, chronic disease prevalence and screening data.
- Pacific Research and Development Services, SHORE Whariki:
 - 2003 Pacific Drugs & Alcohol Consumption Survey (PDACS);²⁴
 - § Health Behaviour information relating to Alcohol and other drugs.
- Foliaki, S, Kokaua, J, Schaaf, D, Tukuitonga, C:
 - New Zealand Mental Health Survey 2003/2004;²⁵
 - § Mental illness prevalence.
- New Zealand Health Information Service (NZHIS) and internal CMDHB data analyst:
 - National Minimum Data Set (NMDS);
 - § Life expectancy, mortality, hospitalizations, surgical procedures and maternal health data. Encompassing an aggregation of several years e.g. 2003-2005. The National Minimum Data Set (NMDS) is a national collection of public and private hospital discharge information, including clinical information, for inpatients and day patients indexed using the National Health Index (NHI) number. It is used for "policy formation, performance monitoring, research and review. It provides statistical information, reports, and analyses about the trends in the delivery of hospital inpatient and day patient health services both nationally and on a provider basis. It is also used for funding purposes".²⁶
- Counties-Manukau District Health Board (CMDHB) and CMDHB personnel:
 - Chronic Care Management (CCM) database;
 - § Diabetes data on those individuals in the diabetes chronic care management programme. The programme is designed to support patients with chronic conditions in the community where they can be followed up on a regular basis throughout each year. The programme gives patients with a chronic condition the opportunity to work with their general practice team to help improve the management of their condition.²⁷
- Counties-Manukau District Health Board (CMDHB) and CMDHB personnel:
 - Kidslink immunisation statistics database;
 - § Immunization and well child data.

Data was analysed using Excel and was often received in formats requiring labour intensive manipulation. No formal statistical tests were undertaken to detect differences between groups. Manual comparisons were done comparing upper and lower 95% confidence intervals (See Section 3.2.3 on page 5).

3.2 Data Issues

3.2.1 Dealing with Small Numbers

Because small numbers can affect the reliability of results,²⁸ an important challenge for this HNA is how to deal with this issue. Problems with reliability generally arise when the numerator (number of health events) is small, and thus the effects of random variation can be substantial.²⁸ As a result, rates or percentages based on small numbers are likely to fluctuate widely from year to year, even when the actual difference in the numerator counts is not meaningful.

The following techniques can be used to deal with small numerators (e.g. less than 20):

- Increase the size of the numerator by aggregating data. Data can be aggregated by collapsing age groups, geographic areas or diagnostic groups, or combining multiple years of data.²⁸
- Report confidence intervals for rates, because these indicate the uncertainty that arises from random variation.²⁸

In instances where the above techniques are not feasible, the following techniques can also be used:

- For numerators less than 5, report the number of events, but do not calculate the rate.²⁸
- For numerators between 5 and 20, report both the number and rate, but always include a footnote indicating that the rate is based on a small number of events and is therefore likely to be imprecise.²⁸

Risk factor and health care utilisation data provided by PHI from the NZHS 2002/2003 was only provided for this HNA if the numerator was at least 10 (in line with their policy).

Table 3.2.1 Number of people in the New Zealand Health Survey 2002/2003, by gender and ethnicity

	Samoan	Cook Island	Tongan	Niuean	All Pacific	Non Pacific Non Maori
Female	263	150	116	62	637	4462
Male	153	94	61	34	361	3188
Total	416	244	177	96	998	7650

Source: NZHS 2002/2003.

3.2.2 Age - Standardising

Standardising is one of the commonly used analytical techniques for controlling confounding factors (such as the age dependency of mortality) when making comparisons between population groups and/or over time.²⁸ In this HNA, rates are age standardised to the New Zealand population (Census 2001 data) as standard. The data from the New Zealand Health Survey (NZHS) 2002/2003² is age-standardised against the WHO world population.

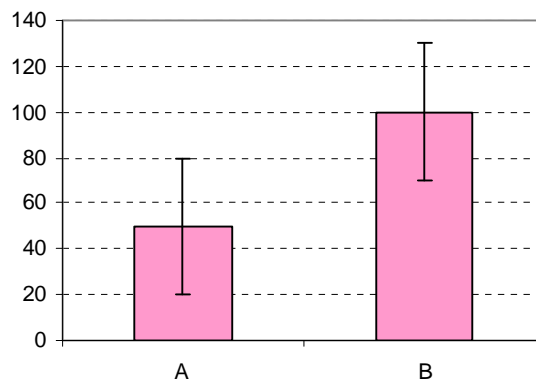
3.2.3 Implications of Measures of Precision

Due to the generally low numbers in this HNA 95% confidence intervals (CIs) have been displayed on as many graphs as possible. A 95% CI does not mean that there is a 95% probability that the interval contains the true mean.²⁹ Rather for a 95% CI, "if many samples are collected and the CI computed, in the long run about 95% of these intervals would contain the true mean".²⁹

Caution should be exercised in interpreting data displayed with CIs.³⁰ A common misconception is that overlapping CIs (*Figure 3.2.1* below) imply that there is "no difference" between two means, which is not necessarily true.^{31, 32} Indeed, the 95% confidence intervals

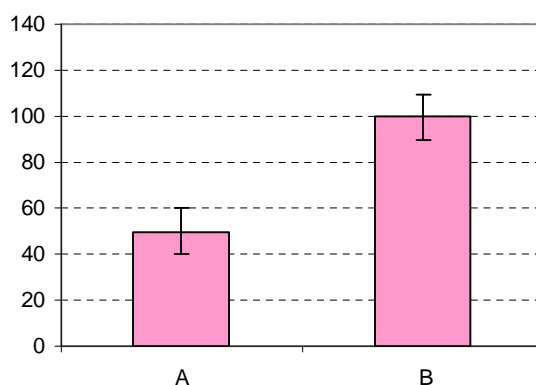
for two means can overlap while the two means are statistically significantly different from one another at the $\alpha = 0.05$ level.^{32, 33} Furthermore, examining the overlap of 95% confidence intervals to test hypotheses is conservative, and may make it difficult to detect significant differences in means.³⁰ While this may sometimes be a good approximation to a statistical test, it is not equivalent to one.^{33, 34} However, it is useful when many comparisons are being performed, e.g. with an alpha of 0.05, 1 in 20 results are likely to be positive.

Figure 3.2.1: Example of overlapping 95% confidence intervals



However, if two confidence intervals do not overlap (*Figure 3.2.2 below*), a comparable statistical test would always indicate a statistically significant difference.³³ When 95% CIs for the means of two independent populations do not overlap, there will indeed be a statistically significant difference between the means (at the 0.05 level of significance).³¹

Figure 3.2.2: Example of non-overlapping 95% confidence intervals



3.3 Data Presentation

Data are presented in this HNA with the aims in mind. Where possible, they display level 2 data for the 4 largest Pacific ethnic groups to allow consideration of any differences. This is the priority for this HNA. In most graphs this level 2 data is presented alongside 'All Pacific' and 'non-Pacific/non-Māori' data (the latter being a generally 'healthier' population). Note that 'All Pacific' data includes all of the level 2 ethnic groups beyond the 4 considered in detail in this HNA (e.g. In addition to Samoan, Cook Islanders, Tongans and Niueans, 'All Pacific' includes Fijians, Tokelauans, Tuvaluans etc).

Such data is presented for CMDHB, 'Rest of NZ' (all of NZ excluding CM) or 'All NZ' (depending on whether the numerator data was sufficient or available from these areas). Data was always sought for CM specifically. However, when level 2 ethnicity data for CM was not adequate, the level 2 ethnicity data for 'All NZ' was generally used. For example, the priority

was placed on finding level 2 ethnicity data (in CM or All NZ) rather than 'All Pacific' data at the CM or All NZ level (which is readily available in a number of other documents).^{8, 13, 15, 17}

Where possible an analytical epidemiological approach has been followed (with confidence intervals displayed). This approach is important especially where the numbers are low, to prevent displaying misleading results. Calendar years rather than financial have been used for the extraction and presentation of data.

This HNA follows a number of general methodological recommendations from Public Health Intelligence (PHI). They state that:

- Gender and ethnicity are more favourable terms in keeping with self-determination (than sex and race);
- Information should be displayed in 5 year age groups 0-4, 5-9, 10-14 etc or in life cycle stages where possible e.g. early childhood (0-4), childhood (5-14), youth (15-24), young adults (25-44), middle aged adults (45-64), Older adults (65-74), and the very old (75+ or 75-84 and 85+).²⁸

For the purposes of this report children have generally been defined as 0-14 years and adults 15+ years of age (as per the CM population health indicators document).¹³ However, for child health (*Section 9* on page 91) the 0-14 age group has been split into 0-4 and 5-14 to get a more accurate picture of the health needs of these specific age groupings.

3.4 Ethnicity Classification

3.4.1 Rationale for Ethnic Group Selection

This HNA focuses on the 4 largest Pacific ethnic groups in CMDHB (Samoan, Cook Islands, Tongan, and Niuean). Additional Pacific ethnic groups (e.g. Fijian, Tokelauan, Tuvaluan etc) were not included separately due to the low populations and numbers of events (increasing imprecision), for health indicator data for these groups. Currently proportionality of population is used by the Pacific Team at CMDHB to determine resource allocation.

3.4.2 Ethnicity

Statistics New Zealand's definition of ethnicity is favoured in this document. Revolving around a sense of common origins, a common and distinctive history and destiny, dimensions of collective cultural identity and/or a sense of unique solidarity.²⁸ Ethnicity should be self-identified and people should be free to identify with more than one ethnic group,²⁸ or change their ethnicity over time.

Furthermore, ethnicity data needs to be collected in the same way in the health and disability sector as in Census (collected by Statistics New Zealand) because:

- Ethnicity statistics are frequently based on the census figures;
- Rates of hospitalisation are often calculated by comparing hospital and census datasets to determine proportions of a population;
- If they are not collected in the same way the data can not be compared validly e.g. there is a loss of numerator/denominator consistency.

Ethnicity data is categorized, presented and labelled in two different ways in this HNA (either 'prioritised' or 'total response').

Prioritised

In the *prioritised* format each respondent is allocated to a single ethnic group using the priority system. In this system a response of “Māori” has priority over one of a Pacific ethnicity. A response of one of the less populous level 2 Pacific ethnic groups also has priority over more populous groups e.g. a response of “Niuean” has priority over one of “Tongan”, which has priority over one of “Cook Islands”, which in turn has priority over a response of “Samoan”. The aim of prioritisation is to ensure that ethnic groups of policy importance or of small size are not swamped by the New Zealand European ethnic group or other larger ethnic groups.²⁸ A positive of this approach is that it produces data that are easy to work with, as each individual only appears once. For this reason the vast majority of information presented in this HNA follows this format. This is not to say that data was not sought in the total response format, but rather that data sources were generally not prepared or able to provide information in a non-prioritised way. Unfortunately, the prioritised format may bias the resulting statistics. The size of each ethnic group will be under-estimated compared to the total number identifying with each group. This is an unavoidable limitation of much data presented in this HNA.

Total Response

In the *total response* format each respondent is counted in each of the ethnic groups that they reported. However, because an individual may report more than one ethnic group, the sum of the ethnic group populations will exceed the total population. This produces problems when monitoring changes in the ethnic composition of a population.

An advantage of this format is that it allows for the representation of all those people who identify with any given ethnic group.²⁸ This was the preferred way of presenting data in this HNA as it has the potential to increase the numbers in each Pacific ethnic group. For example, it prevents the ‘siphoning’ of Pacific people into the Māori ethnic group and of the individual level 2 Pacific ethnic groups into each other. This format has been used for the population, risk factor and health care utilisation data used from the New Zealand Health Survey (NZHS), obtained from PHI. However, as stated above data is rarely available, or is not valid to use, in this format.

For example, from direct calculations in the mortality data set the recording of more than one ethnicity is low (only ~3% of records have a second ethnicity recorded). It is likely that in the census the percentage recording more than one ethnicity would be considerably higher. Using total response data for this purpose is therefore less valid than using prioritised data. For example, rates calculated using total response data are likely to be lower (a biased undercount) than using prioritised data, given the likelihood of recording multiple ethnicities in mortality data is lower than in census population data (numerator/denominator inconsistency).

In this report consistency has always been kept between the numerator and denominator with regards to ethnicity recording. For example, if total response data has been used for the numerator then total response data has been used for the denominator. This is also the case for prioritised data.

3.5 Indicator Selection Rationale

Much consideration was given to the rationale and process for the selection of indicators in this HNA. This included consultation within the manager of the Pacific Team at CMDHB (Margie Fepulea’i) and with Public Health Medicine Specialists in the DHB (Dr Tom Robinson and Dr Gary Jackson). The selection of indicators was informed by both the aims and objectives of the HNA and the desire for the document to be action oriented and targeted - not simply a repetition or expansion of previous documents.

The key documents informing the selection of indicators included Tupu Ola Moui (CMDHB Pacific Health and Disability Action Plan 2006-2010),¹ Tupu Ola Moui (Pacific Health Chart Book 2004),⁸ CMDHB Population Health Indicators,¹³ The Health of Pacific Peoples 2005,¹⁵

and Priorities for Māori and Pacific Health: Evidence from Epidemiology 2001.¹⁷ The criteria used to select indicators for a summary booklet of 'Tupu Ola Moui: Pacific Health Chart Book 2004' were: high impact; high inequality; modifiable; and good data quality.¹⁵ A background document on health needs assessment in New Zealand also states that "care should be taken to identify those issues that impose a significant disease burden and from which change might result in substantial benefit."^{14, 35} Where possible this HNA has followed these recommendations. However, with this HNA primarily focusing on data at *level 2* ethnicity, the availability of such data has had a significant effect on the choice of indicators presented. The general approach has been to get as much data as possible to analyse in the short time frame available (6 months). This is not to say that those indicators not displayed were not important, but that the information may not have been available or not possible to obtain given the time constraints.

4 Limitations

This HNA has a number of limitations:

- Given the short (6 month) time-frame, and the fact that data has proved more difficult to attain and more manipulation is required at level 2 ethnicity than at level 1, a number of areas were not included in the final report e.g. oral health, terminations, Hepatitis B and emergency department attendance data was either not available or not received in time;
- Most data is only available and is therefore presented in the 'prioritised' ethnicity format which underestimates the size of the ethnic groups compared to the total number identifying with each group;
- Small numbers resulted in large confidence intervals for many outcome measures, which often made potential differences difficult to display;
- Small numbers also limited the ability to compare groups in smaller age groupings e.g. "the elderly" could not be assessed;
- Multiple comparisons may lead to spuriously significant findings showing differences which are not 'truly' present.

5 Demography and Socioeconomic Circumstances

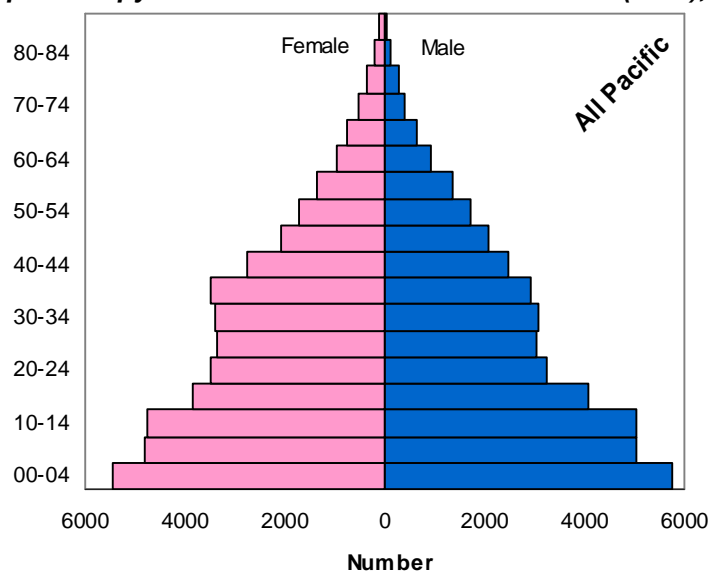
This section presents data in addition to the overall Pacific population ('All Pacific') data available in the separate document CM Population Health Indicators.¹³ It covers in either prioritised or total response formats (and by ethnicity and gender in some instances):

- The age structure of the Pacific population in CMDHB;
- Current population breakdown, size and growth projections to 2026;
- Suburb of residence in CM;
- Birthplace and years lived in NZ;
- Languages spoken;
- Deprivation measures e.g. decile, income, education, home ownership, household crowding, use of home heating, and access to a motor vehicle or telecommunications;
- Paid and unpaid work;
- Number of dependents.

5.1 Population Age Structure

The age structure of the Pacific population in CM is shown in *Figure 5.1.1* below. Overall population data was produced by Statistics New Zealand in July 2004 from projections based on the 2001 census for the resident population^a (for the Ministry of Health), using prioritised ethnicity.¹³ The wide base of the pyramid in reflects a relatively young age structure.

Figure 5.1.1: Population pyramid for All Pacific residents^a in CM (2004), prioritised



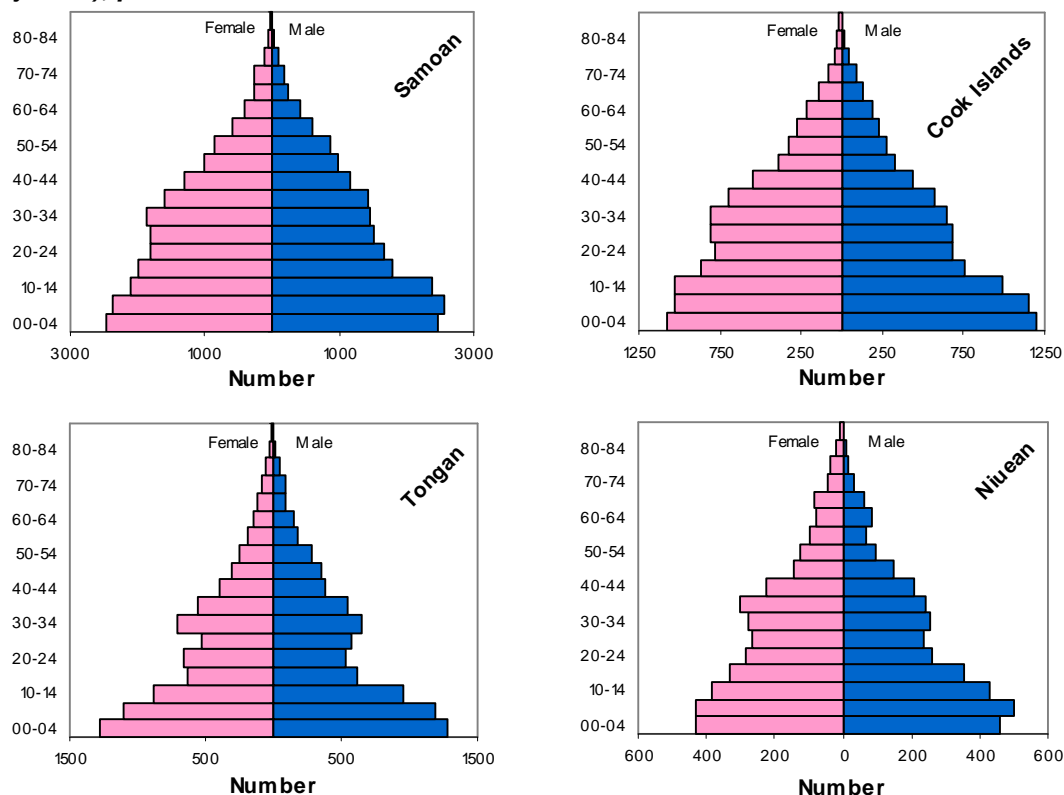
Source: Census 2001.

^a The resident population includes estimates for under-enumeration and people temporarily overseas at the time of the census. It is used for DHB population-based funding.

The age structure of the 4 largest Pacific ethnic groups is shown in *Figure 5.1.2* below. Population data has been produced by Statistics New Zealand from the 2001 census for the usually resident population, prioritised by 'level 2 ethnicity'. The data used to construct the pyramids below has been adjusted for the percentage population growth in the total Pacific population in CM from 2001-2006. The population projections were based on the resident population of CM from the 2001 census.¹³ Given that level 2 data (specific to each Pacific

ethnic group) at the DHB level was only available for the usually resident population further adjustment was necessary. The Pacific resident population has been estimated from the usually resident population using the post-enumeration survey following the 2001 census. This showed that the undercount of Pacific people on census night was high at 5.2%.³⁶

Figure 5.1.2: Population pyramids for the four largest Pacific ethnic groups in CM (2006 adjusted), prioritised



Source: Census 2001.

Note: Different scales used for each pyramid. This figure shows the resident populations after adjusting for the undercount of Pacific people in the 2001 census and the growth of the entire Pacific population from 2001-2006.

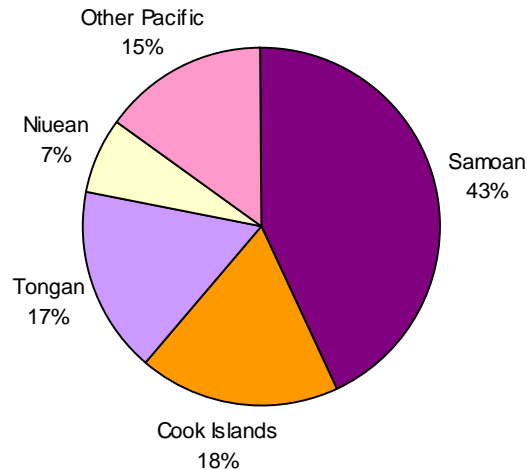
The population age structure for residents of CM, in the 4 largest Pacific ethnic groups (Figure 5.1.2 above), follow a relatively similar distribution (e.g. a relatively young age structure) to the total Pacific population of CM (see Figure 5.1.1). However, there is some symmetrical 'scalloping' (relative reduction) in the Tongan population between 15-29 years of age.

Gender differences are also present in all ethnic groups especially for young adults with more females living in CM than males.

5.2 Population Breakdown, Size, and Growth

The percentage of Pacific people in CM split into the 4 largest level 2 Pacific ethnic groups and 'other Pacific' is shown in *Figure 5.2.1* below. The 4 ethnic groups which are the focus of this HNA make up 85% of the total Pacific population of CM.

Figure 5.2.1: Percentage of the Pacific population in CM, by level 2 ethnicity (2006), prioritised



Sources: 2001 Census and CMDHB population projections as at Oct 2005.

The change in population according to ethnic group for CM from 2001-2026 using data from Census 2001 and CMDHB population projections is shown in *Table 5.2.1* below. Because projections are not available at level 2 ethnicity (specific Pacific ethnic groups) the percentage change in total Pacific population has been applied to growth in each individual Pacific ethnic group. The total Pacific population in CM is projected to grow 80% from 2001-2026 compared to a growth of only 39% in the generally 'healthier' non-Pacific/non-Māori population.

Table 5.2.1: Projected population increase in CM from 2001 to 2026, by ethnicity, prioritised

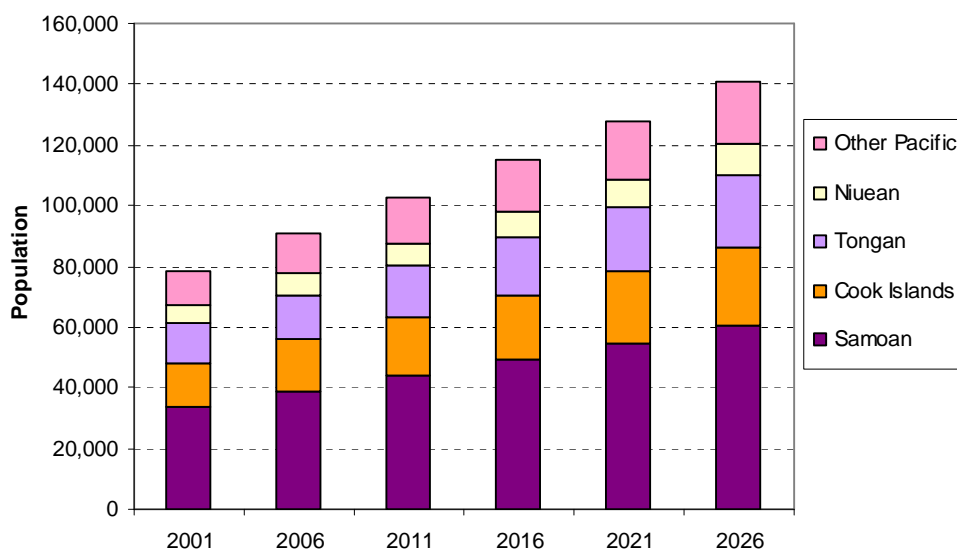
Ethnic Group	Year						% change
	2001	2006	2011	2016	2021	2026	2001- 2026
Samoan	33600	38900	44100	49200	54600	60400	-
Cook Islands	14500	16800	19000	21200	23600	26100	-
Tongan	13100	15100	17100	19100	21200	23500	-
Niuean	5800	6700	7600	8500	9400	10400	-
Other Pacific	11500	13300	15100	16900	18700	20700	-
All Pacific	78500	90800	103000	114900	127500	141100	80%
Non-Pacific Non-Maori	245930	276750	299340	314530	328670	341140	39%

Sources: 2001 Census and CMDHB population projections as at Oct 2005.

Note: % change in total 'All Pacific' population has been applied to growth in each individual Pacific ethnic group.

The projected increase in CM of the total Pacific population split by specific Pacific ethnic group is shown in *Figure 5.2.2* below.

Figure 5.2.2: Projected increase in CM Pacific population from 2001 to 2026, by ethnicity, prioritised

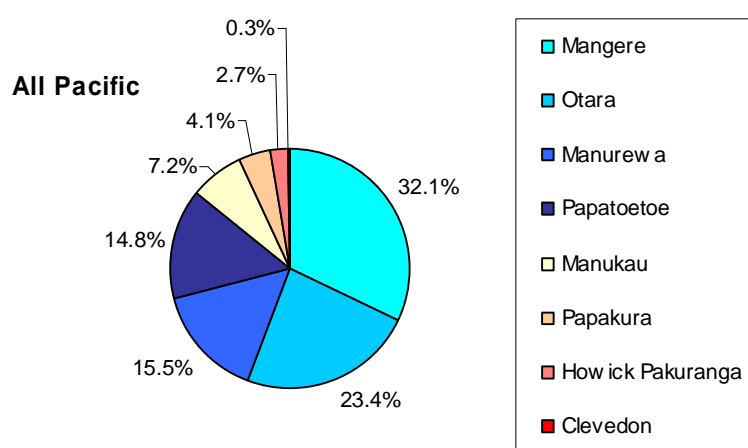


Sources: 2001 Census and CMDHB population projections as at Oct 2005.
 Note: % change in total Pacific population has been applied to growth in each individual Pacific ethnic group.

5.3 Area of Residence

The suburbs in which CM Pacific people as a whole are living (from Census 2001) are shown in Figure 5.3.1 below. There is no consistently applied protocol for determining which census area units (CAUs) should be aggregated to form specific suburbs in New Zealand. For the purposes of this report the allocation of CAUs to specific suburbs follows previous formats used at CMDHB (see Table 17.2.1 on page 142 in the appendices). A high proportion of 'All Pacific' people in CM reside in Mangere, Otara, Manurewa or Papatoetoe (nearly 86%). Approximately 14% of Pacific people in CM live in Manukau, Papakura, Howick Pakuranga or Clevedon.

Figure 5.3.1: Percentage of 'All Pacific' people living in each Counties Manukau suburb (2001), prioritised



Source: Census 2001.
 Note: Franklin suburb is missing due to incomplete CAU data –this suburb has very small numbers. Clevedon is the suburb with the smallest percent shown.

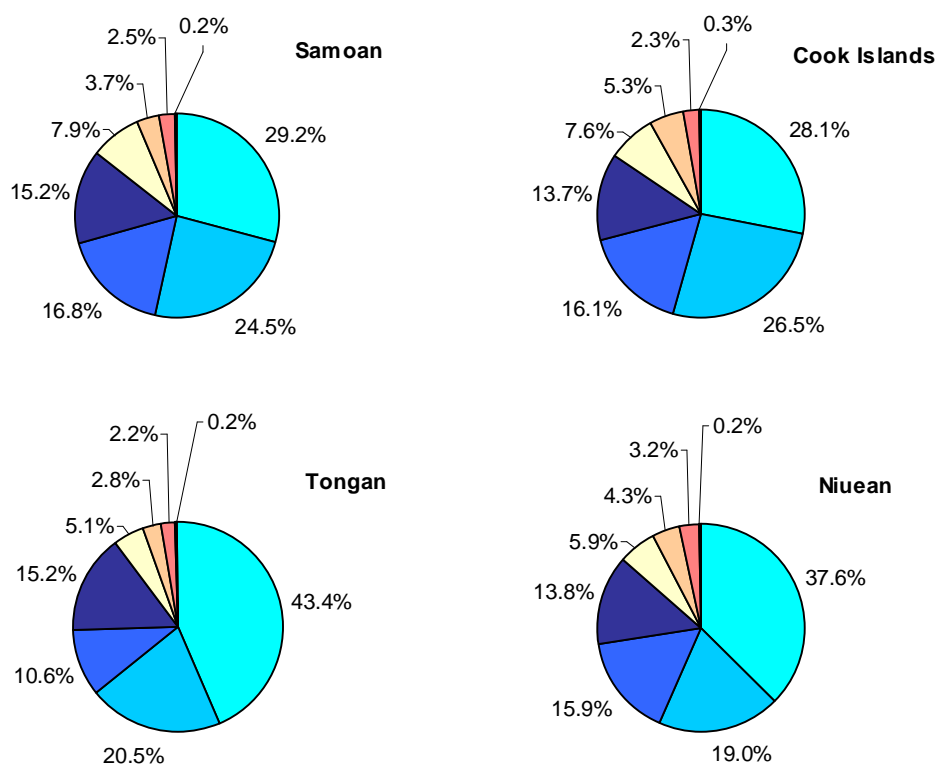
The distribution of the four largest Pacific groups is relatively even across CM (see Figure 5.3.2 below). For example, a similar percentage of each group live in either Mangere, Otara or Manurewa e.g. Samoans, Cook Islanders, Tongans and Niueans (70.5%, 70.7%, 74.5%

and 72.5% respectively). Each ethnic group also has a low percentage of people living in the more affluent suburb grouping of 'Howick Pakuranga or Clevedon' (all <3.4%). While all of the Pacific groups below have a high percentage living in either Otara and Mangere, a greater percentage of Tongans (63.9%) live in these suburbs than Samoans, Cook Islanders, or Niueans (53.7%, 54.6% and 56.6% respectively).

A greater percentage of Tongans (43.4%) and Niueans (37.6%) live in Mangere than Samoans (29.2%) and Cook Islanders (28.1%). Conversely, a greater percentage of Samoans (24.5%) and Cook Islanders (26.5%) live in Otara than Tongans (20.5%) and Niueans (19.0%).

Figure 5.3.2: Percentage of each Pacific ethnic group living in Counties Manukau suburbs (2001), prioritised

Note: Legend is as per Figure 5.3.1 above.



Source: Census 2001.

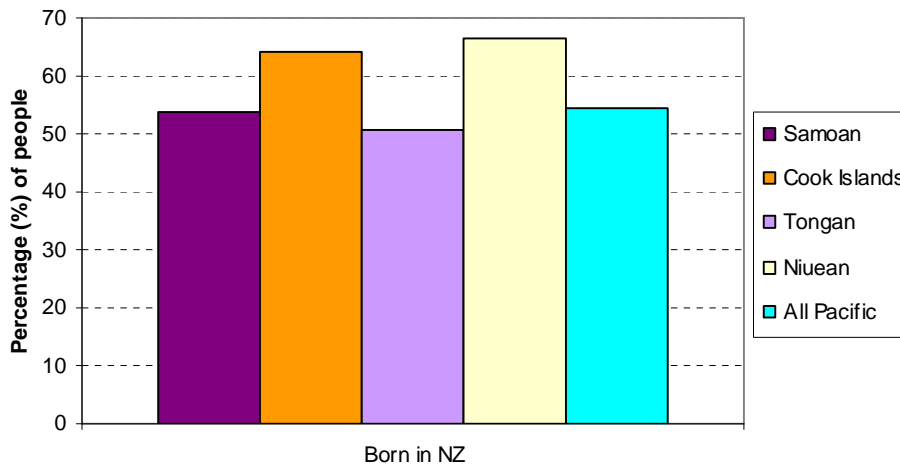
Note: Franklin suburb is missing due to incomplete CAU data –this suburb has very small numbers. Clevedon is the suburb with the smallest percent shown.

5.4 Birthplace and Migration

Birthplace by Ethnicity

Over 50% of All Pacific people living in CM are born in NZ (*Figure 5.4.1* below). In CM, Samoans and Tongans have a lower percentage having been born in New Zealand (53.7 and 50.7% respectively) than Cook Islanders and Niueans (64.1 and 66.6% respectively).

Figure 5.4.1: Percentage of Pacific people in CM born in New Zealand, by ethnicity (2001), total response

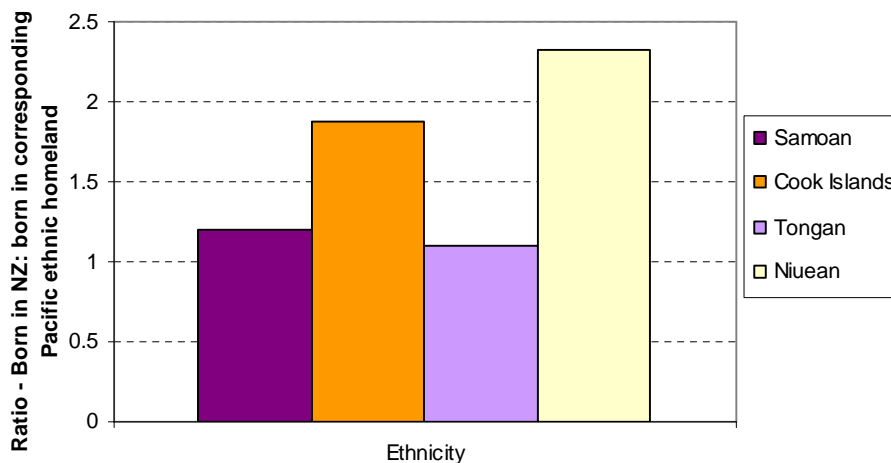


Source: Census 2001.

Note: Usually Resident Population.

Amongst CM residents, Cook Islanders and Niueans have a higher ratio having been born in New Zealand (1.9 and 2.3 respectively) compared to their Pacific country of ethnic origin, than Samoans and Tongans (1.2 and 1.1 respectively). See *Figure 5.4.2* below.

Figure 5.4.2: Ratio of being born in NZ to being born in corresponding Pacific country of ethnic origin, by ethnicity, CM residents (2001), prioritised



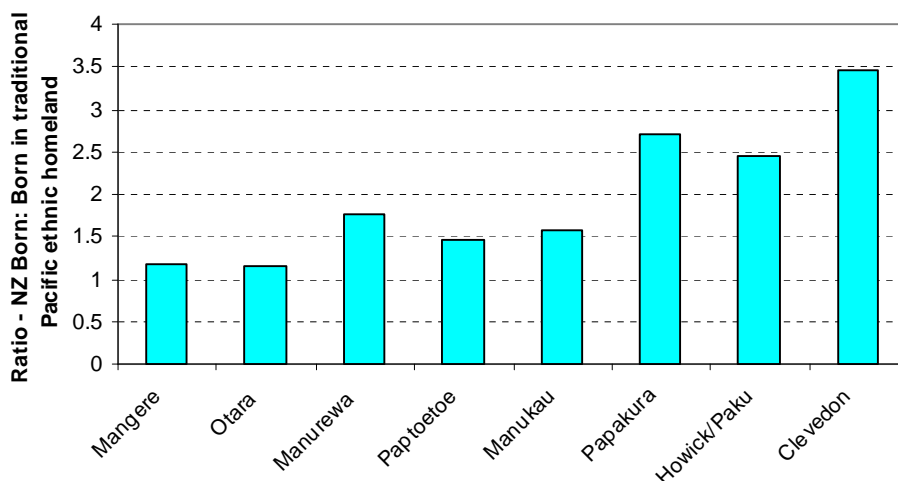
Source: Census 2001.

These trends may have an impact on not only cultural and socio-economic factors but also the ability of the different ethnic groups to navigate the New Zealand health system because of language barriers or eligibility rules. Cook Islanders and Niueans have New Zealand citizenship.

Birthplace by CM Suburb

Mangere, Otara, Manurewa, Papatoetoe and Manukau have a lower ratio of Pacific CM residents being born in New Zealand than in their Pacific country of ethnic origin (1.2-1.8) compared to Papakura, Howick/Pakuranga and Clevedon (2.4-3.5). Those NZ-born appear more likely to gain entry to wealthier suburbs (*Figure 5.4.3 below*).

Figure 5.4.3: Ratio of being born in NZ to being born in corresponding Pacific country of ethnic origin, by CM suburb, CM Pacific residents (only Samoans, Cook Islanders, Tongans and Niueans combined), (2001), prioritised

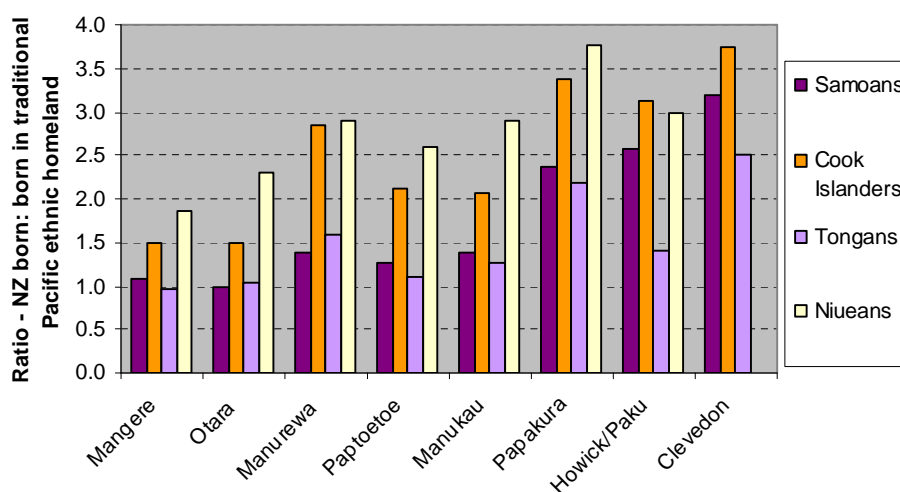


Source: Census 2001.

Birthplace by CM Suburb and Ethnicity

Amongst CM residents, a similar pattern is consistently shown across all CM suburbs e.g. Cook Islanders and Niueans display a higher ratio of people (in each suburb) having been born in New Zealand compared to their Pacific country of ethnic origin, than Samoans and Tongans (*Figure 5.4.4 below*).

Figure 5.4.4: Ratio of being born in NZ to being born in corresponding Pacific country of ethnic origin (CM residents), by ethnicity and CM suburb (2001), prioritised

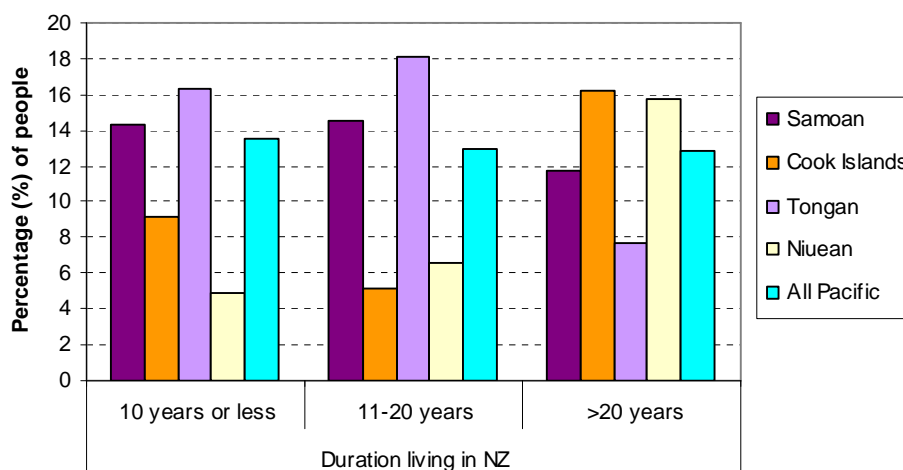


Source: Census 2001.

Duration Living in New Zealand (including people born in NZ and those that were not)

In CM, a higher percentage of Samoans and Tongans have lived in NZ for 'less than 10 years' or between '11 and 20 years' than Cook Islanders and Niueans, who have a higher percentage having lived in NZ for 'more than 20 years' (Figure 5.4.5 below). Note that Cook Islanders and Niueans have New Zealand citizenship.

Figure 5.4.5: Percentage of Pacific people living in CM, by duration in New Zealand and ethnicity (2001), total response

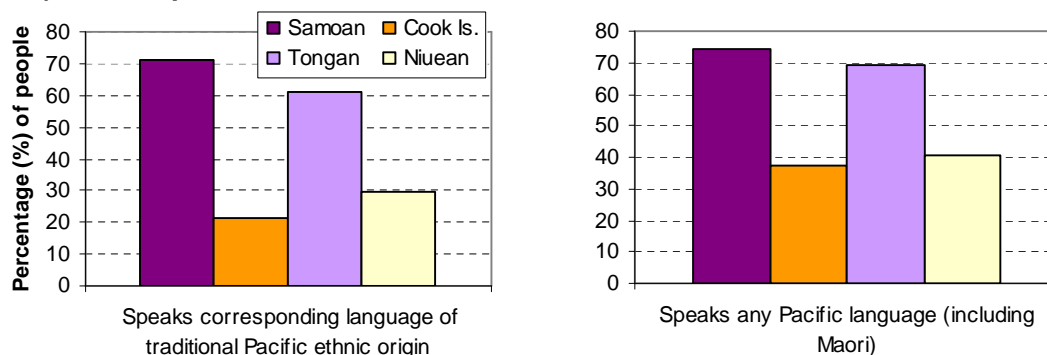


Source: Census 2001.
Note: Usually Resident Population.

5.5 Language

In CM, Samoans and Tongans have a higher percentage able to speak their corresponding language of Pacific ethnic origin (e.g. 71.1% of Samoans speak Samoan and 61.2% of Tongans speak Tongan) than Cook Islanders and Niueans (21.5% of Cook Islanders speak Cook Island Māori and 29.5% of Niueans speak Niuean). Samoans and Tongans are also more likely to speak any Pacific language including Te Reo (74.4 and 69.1% respectively) than Cook Islanders and Niueans (37.3 and 40.9% respectively). Note that this data is in the total response format (Figure 5.5.1 below), so individuals who identified with more than one ethnic group have been counted in both groups.

Figure 5.5.1: Percentage of Pacific people in CM (of those able to speak) speaking corresponding language of Pacific ethnic origin and any Pacific language, by ethnicity (2001), total response



Source: Census 2001.
Note: Usually Resident Population.

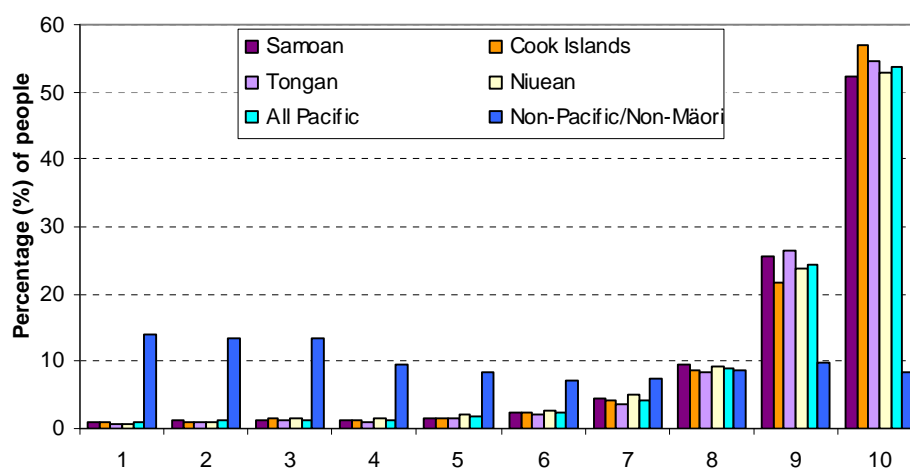
5.6 Deprivation Measures

The deprivation measures in this section either directly impact negatively on health (e.g. overcrowding/lack of home heating and respiratory disease), or are markers of deprivation (negatively impacting on health in a variety of ways).

Deprivation by Decile

In CM, all level 2 Pacific ethnic groups, and Pacific people as a whole, are more likely to live in the most deprived deciles than non-Pacific/non-Māori (*Figure 5.6.1 below*).

Figure 5.6.1: Percentage of people in CM per deprivation decile, by ethnicity (2001), total response

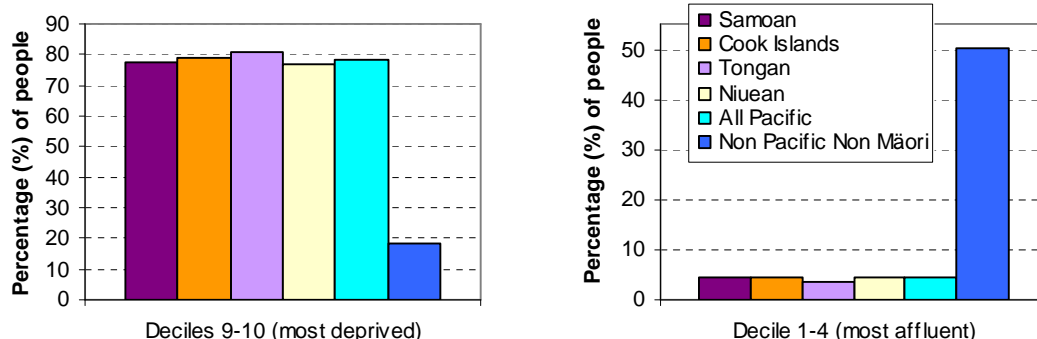


Source: Census 2001.

Note: Usually Resident Population.

In CM, each level 2 Pacific ethnic group has a high percentage of people living in the two most deprived deciles (76.6 - 81.0%), and a low percentage living in the four most affluent deciles (3.7 - 4.3%). Tongans living in CM have the highest percentage of people living in the two most deprived deciles (81.0%), followed by Cook Islanders, Samoans and Niueans (78.9, 77.7 and 76.6% respectively). Tongans also have the lowest percentage of people living in the four most affluent deciles (3.7%), followed by Samoans, Cook Islanders and Niueans (between 4.2 - 4.3%). Note that the absolute differences are small and that there are larger inequalities between All Pacific and non-Pacific/non-Māori (*Figure 5.6.2 below*).

Figure 5.6.2: Percentage of Pacific people in CM living in two most deprived deciles and four most affluent deciles, by ethnicity (2001), total response



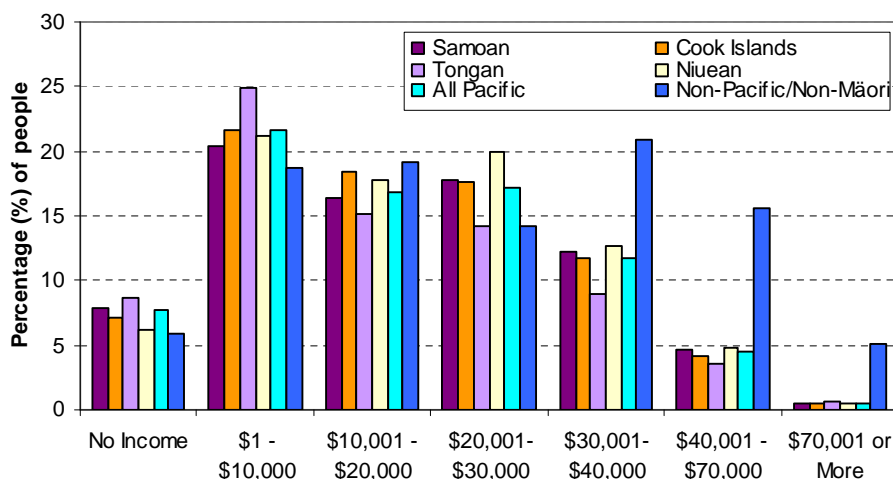
Source: Census 2001.

Note: Usually Resident Population.

Personal Income

In CM, all level 2 Pacific ethnic groups, and Pacific people as a whole, have a higher percentage with no income or earning less than \$10,000 per year than non-Pacific/non-Māori (Figure 5.6.3 below). They are also less likely to earn over \$30,000 per year than non-Pacific/non-Māori.

Figure 5.6.3: Percentage of people in CM, 15+ years of age, by personal income and ethnicity (2001), total response

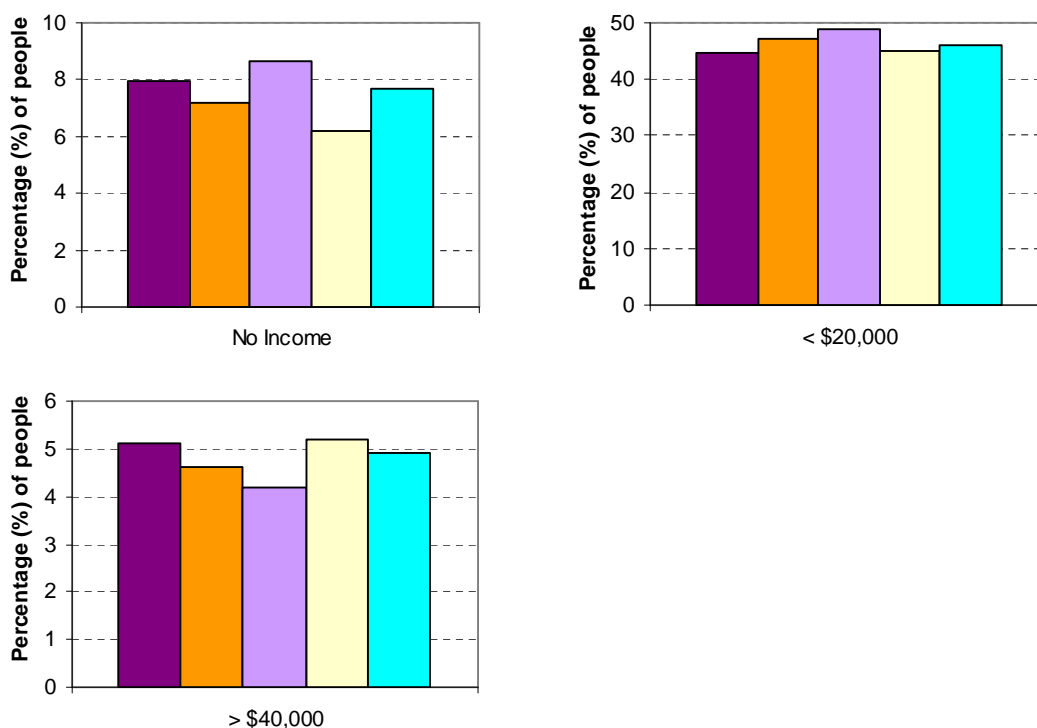


Source: 2001Census.

Note: Usually Resident Population.

In CM, a large proportion (>40%) of people in each level 2 Pacific ethnic group earn less than \$20,000 per year. Samoans and Tongans have a higher percentage with no income (7.9 and 8.6% respectively) than Cook Islanders and Niueans (7.2 and 6.2% respectively). Tongans are the most likely to earn less than \$20,000 per year (48.8%) followed by Cook Islanders, Niueans and Samoans (47.1, 45.1 and 44.7 % respectively). Tongans are also least likely to earn over \$40,000 per year (4.2%) followed by Cook Islanders, Samoans and Niueans (4.6, 5.1 and 5.2% respectively). Note that the absolute differences are small (Figure 5.6.4 below).

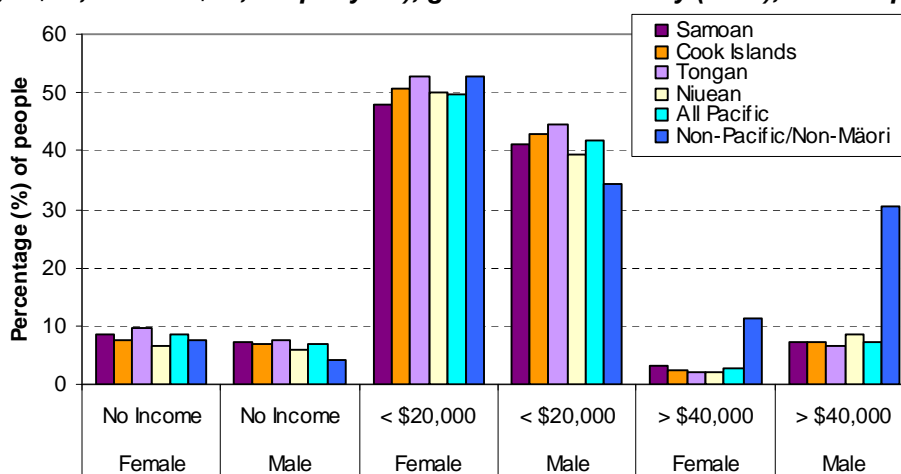
Figure 5.6.4: Percentage of Pacific people in CM, 15+ years of age, by personal income (zero income, <\$20,000 or >\$40,000 per year) and ethnicity (2001), total response



Source: Census 2001.
 Note: Usually Resident Population.

In CM, amongst all the level 2 Pacific ethnic groups, females are more likely to earn 'no income' or <\$20,000 per year, and less likely to earn >\$40,000 per year, than males (Figure 5.6.5 below).

Figure 5.6.5: Percentage of people in CM, 15+ years of age, by personal income (zero income, <\$20,000 or >\$40,000 per year), gender and ethnicity (2001), total response

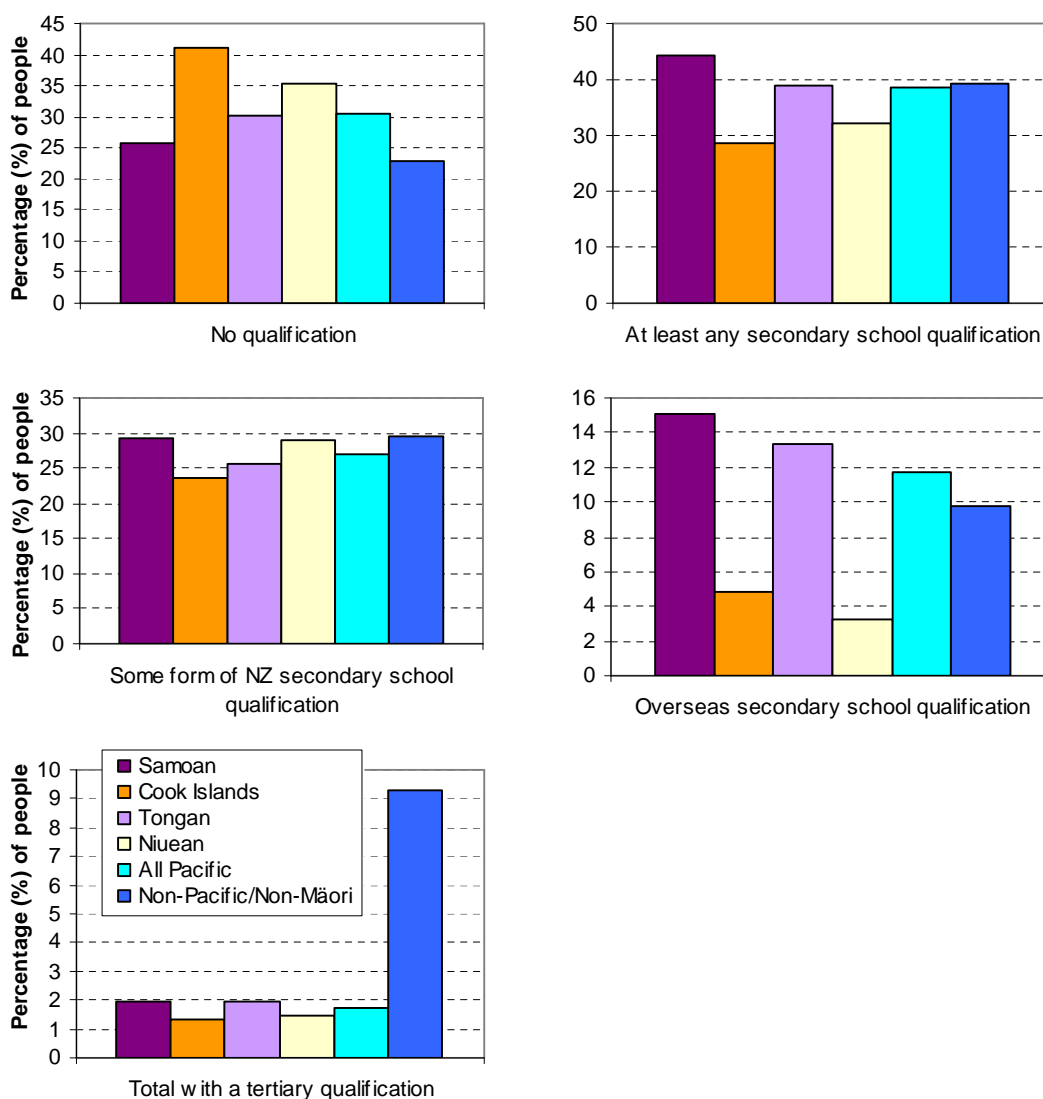


Source: Census 2001.
 Note: Usually Resident Population.

Education

In CM, adult Samoans and Tongans have a lower percentage with no qualification (25.8 and 30.2% respectively) than Cook Islanders and Niueans (41.0 and 35.3% respectively). Adult Samoans and Tongans are also more likely to have 'any secondary school qualification' (44.3 and 38.8% respectively) than Cook Islanders and Niueans (28.5 and 32.1% respectively). Adult Samoans and Tongans are more likely to have an overseas secondary school qualification (15.1 and 13.3% respectively) than Cook Islanders and Niueans (4.9 and 3.2% respectively). Adult Samoans and Niueans are more likely to have any New Zealand secondary school qualification (29.2 and 28.9% respectively) than Cook Islanders and Tongans (23.6 and 25.5% respectively). Adult Samoans and Niueans are more likely to have a tertiary qualification (both 1.9%) than Cook Islanders and Tongans (1.3 and 1.5% respectively). Note that absolute percentages are low. All Pacific are more likely to have no qualification, and are less likely to have some form of secondary school qualification than non-Pacific/non-Māori (Figure 5.6.6 below). All Pacific are far less likely to have a tertiary qualification (1.8%) than non-Pacific/non-Māori (9.3%).

Figure 5.6.6: Percentage of people in CM, 15+ years of age, by level and place of education and ethnicity (2001), total response



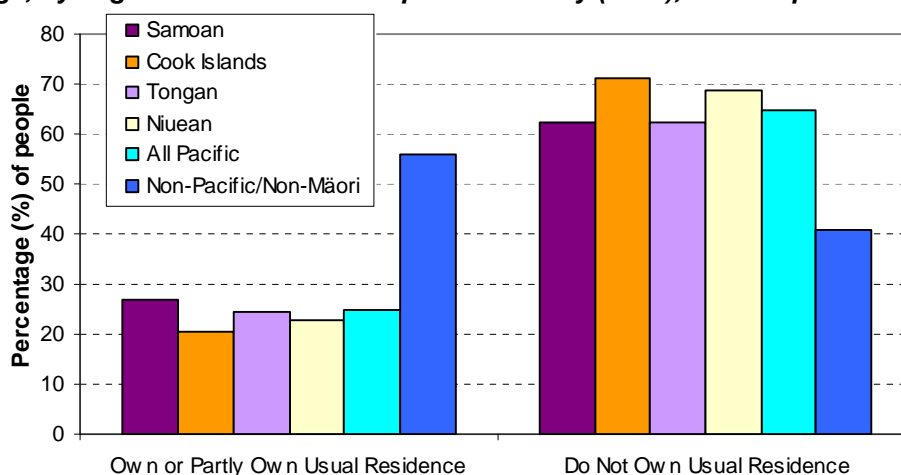
Source: Census 2001.

Note: Other qualifications were not included in this analysis (e.g. basic, intermediate, skilled or advanced vocational training and not elsewhere included) meaning that percentages for no qualification + secondary + tertiary do not add up to 100%. Usually Resident Population.

Home Ownership

In CM, Samoans and Tongans have a higher percentage owning or partly owning their usual residence (62.5% of both do not own their usual residence) than Cook Islanders and Niueans (71.2 and 68.6% respectively do not own their usual residence). All level 2 Pacific ethnic groups (20.6 - 27.0%), and Pacific people as a whole (24.9%), are less likely to own or partly own their usual residence than the non-Pacific/non-Māori population (56.1%). See *Figure 5.6.7* below.

Figure 5.6.7: Percentage of people in CM, 15+ years of age in private occupied dwellings, by degree of home ownership and ethnicity (2001), total response



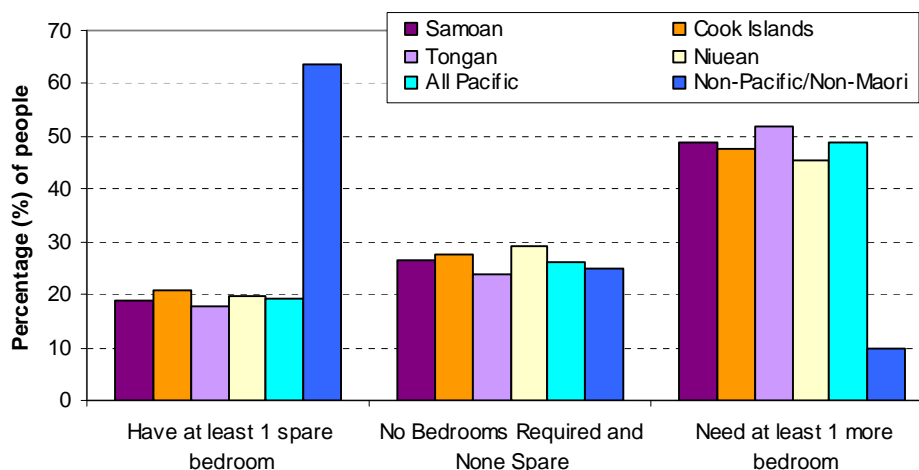
Source: Census 2001.

Note: Percentages for those owning and not owning their usual residence do not add up to 100% because of a group in the census classified as 'not elsewhere included'. Usually Resident Population.

Household Crowding

In CM, Samoans and Tongans have a lower percentage of people living in homes which have at least 1 spare bedroom (18.8 and 17.7% respectively) than Cook Islanders and Niueans (20.7 and 19.8% respectively). Samoans and Tongans have a lower percentage of people living in homes with 'no bedrooms required and none spare' (26.4 and 24.0% respectively) than Cook Islanders and Niueans (27.4 and 29.2% respectively). Samoans and Tongans have a higher percentage of people living in homes needing at least 1 more bedroom (48.8 and 51.7% respectively) than Cook Islanders and Niueans (47.7 and 45.3% respectively). This correlates with differences in average family size (see Section 5.8 on page 26). All Pacific people have a lower percentage living in homes which have at least 1 spare bedroom (19.4%) than non-Pacific/non-Māori (63.5%). All Pacific people also have a higher percentage of people living in homes needing at least 1 more bedroom (48.7%) than non-Pacific/non-Māori (9.8%). See *Figure 5.6.8* below.

Figure 5.6.8: Percentage of people in CM, in private occupied dwellings, by level of household crowding and ethnicity (2001), total response



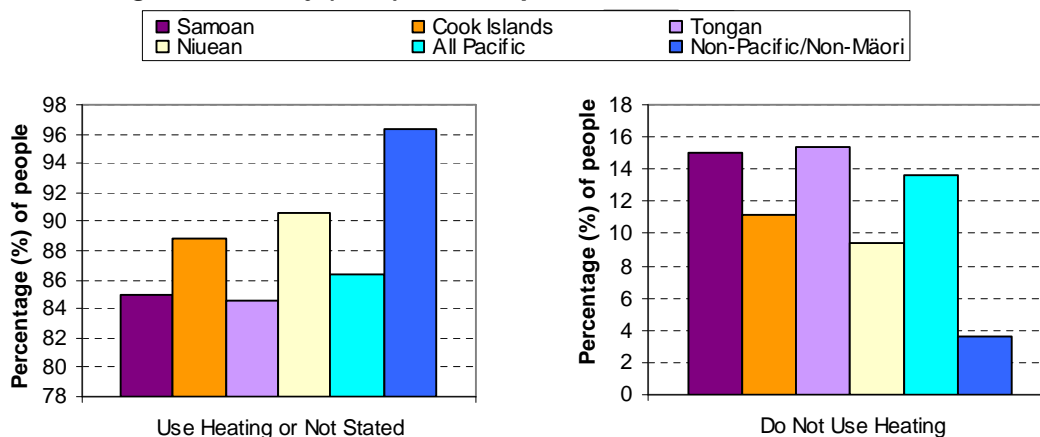
Source: Census 2001.

Note: Usually Resident Population (excludes absentees). Using the 'Canadian Crowding' system.

Use of Home Heating

In CM, Samoans and Tongans have a lower percentage using home heating (85.0 and 84.6% respectively) than Cook Islanders and Niueans (88.9 and 90.6% respectively). Conversely, Samoans and Tongans are more likely to not use home heating (15.0 and 15.4% respectively) than Cook Islanders and Niueans (11.2 and 9.4% respectively). In CM, all level 2 Pacific ethnic groups, and Pacific people as a whole (86.4%), are less likely to use home heating than non-Pacific/non-Māori (96.4%). Conversely, All Pacific people are also more likely to not use home heating (13.6%) than non-Pacific/non-Māori (3.6%). See Figure 5.6.9 below

Figure 5.6.9: Percentage of people in CM, in private occupied dwellings, by use of home heating and ethnicity (2001), total response



Source: Census 2001.

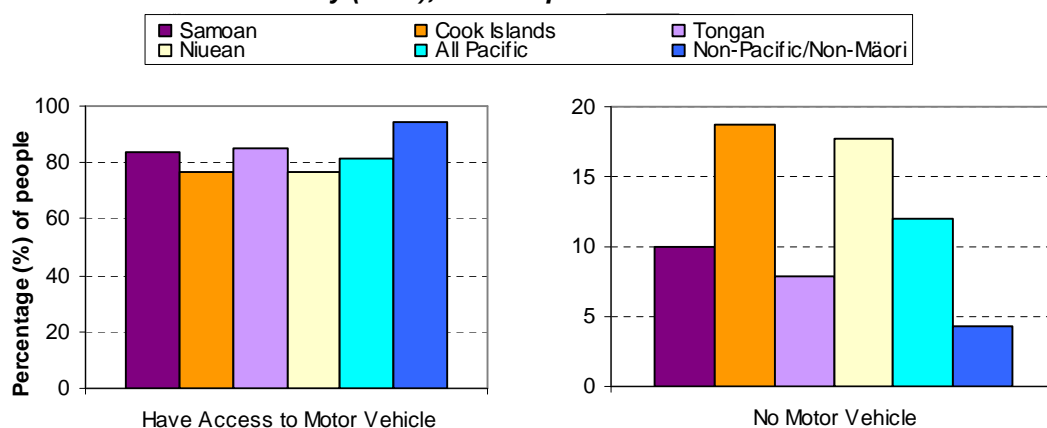
Note: Usually Resident Population.

Access To A Motor Vehicle

In CM, Samoans and Tongans have a higher percentage having access to a motor vehicle (83.5 and 85.0% respectively) than Cook Islanders and Niueans (76.7 and 76.9% respectively). Conversely, Samoans and Tongans are less likely to have no motor vehicle (10.0 and 7.8% respectively) than Cook Islanders and Niueans (18.8 and 17.8% respectively). In CM, All Pacific are less likely to have access to a motor vehicle (81.8%) than the non-

Pacific/non-Māori population (94.1%). Conversely, All Pacific are more likely to have no motor vehicle (12.1%) than the non-Pacific/non-Māori population (4.3%). See *Figure 5.6.10* below.

Figure 5.6.10: Percentage of people in CM, in private occupied dwellings, by access to a motor vehicle and ethnicity (2001), total response



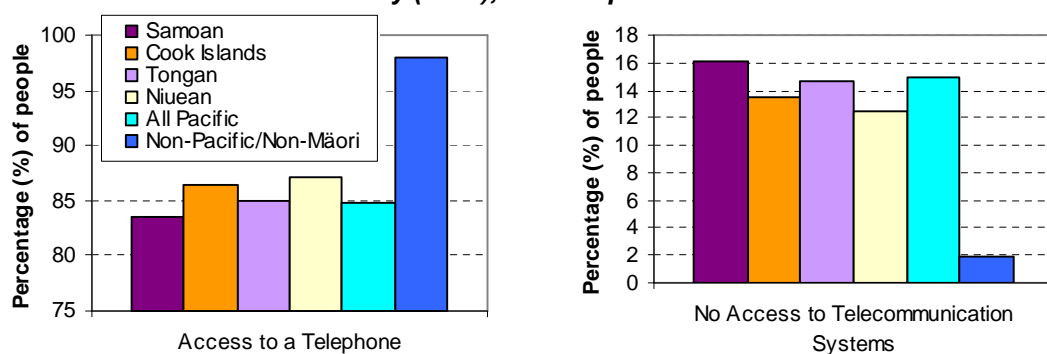
Source: Census 2001.

Note: Usually Resident Population.

Access To Telecommunications

In CM, Samoans and Tongans having a lower percentage with access to a telephone (83.5 and 84.9% respectively) than Cook Islanders and Niueans (86.3 and 87.2% respectively). Samoans and Tongans are also more likely to have no access to telecommunication systems e.g. telephones, faxes or the internet (16.1 and 14.7% respectively) than Cook Islanders and Niueans (13.5 and 12.5% respectively). In CM, all level 2 Pacific ethnic groups, and Pacific people as a whole (84.7%), are less likely to have access to a telephone than the non-Pacific/non-Māori population (98.0%). All Pacific people are also more likely to have no access to any telecommunication systems (15.0%) than the non-Pacific/non-Māori population (1.8%). See *Figure 5.6.11* below.

Figure 5.6.11: Percentage of people in CM, in private occupied dwellings, by access to telecommunications and ethnicity (2001), total response



Source: Census 2001.

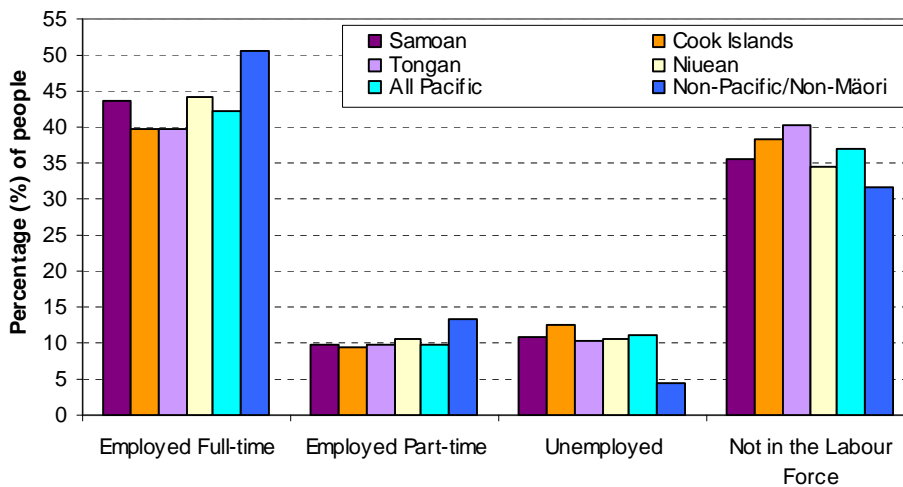
Note: 'No Access to Telecommunication Systems' includes telephones, faxes or the internet. Usually Resident Population.

5.7 Paid and Unpaid Work

Paid Employment

Adult Samoans and Niueans have a higher percentage employed full-time (43.6 and 44.3% respectively) than Cook Islanders and Tongans (39.7 and 39.8% respectively). Adult Cook Islanders have a higher percentage unemployed (12.6%) than the other level 2 Pacific ethnic groups (10.4 – 10.9%). Adult Tongans have the highest percentage not in the labour force (40.2%), followed by Cook Islanders, Samoans and Niueans (38.3, 35.6 and 34.5% respectively). All Pacific have a lower percentage employed full-time or part-time (42.2 and 9.8% respectively) than non-Pacific/non-Māori (50.6 and 13.4% respectively). All Pacific are also more likely to be unemployed (over twice the percentage) or not in the labour force (11.0 and 37.0% respectively) than non-Pacific/non-Māori (4.3 and 31.7% respectively). See Figure 5.7.1 below.

Figure 5.7.1: Percentage of people in CM, 15+ years of age, by work and labour force status and ethnicity (2001), total response



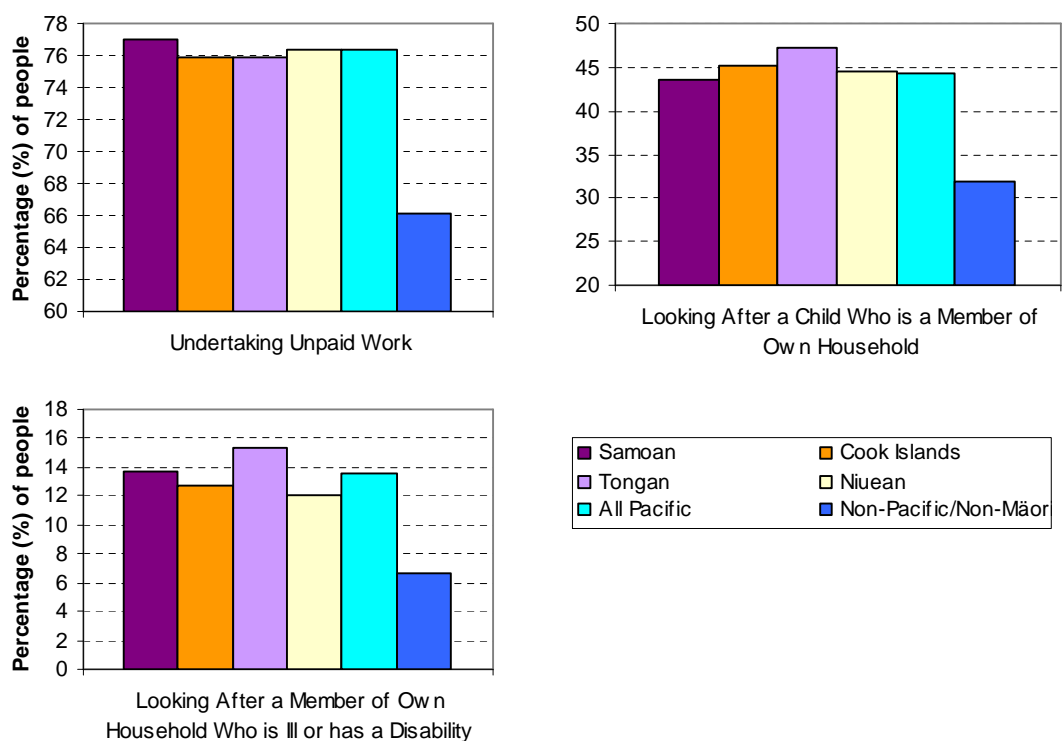
Source: Census 2001.

Note: Usually Resident Population. 'Not in the labour force' covers people who belong to the working age population, but are neither employed nor unemployed (e.g. retired, studying, at home looking after kids).

Unpaid Work

In CM, Tongans have a higher percentage of people looking after a child who is a member of their own household (47.1%) than the other level 2 Pacific ethnic groups (43.5 - 45.1%). Samoans and Tongans have a higher percentage of people looking after a member of own household who is ill or who has a disability (13.8 and 15.4% respectively) than Cook Islanders and Niueans (12.7 and 12.0% respectively). 'All Pacific' have a higher percentage of people undertaking unpaid work, looking after a child who is member of own household, or looking after a member of own household who is ill or who has a disability (76.3, 44.3 and 13.6% respectively) than non-Pacific/non-Māori (66.1, 31.9 and 6.7% respectively). See Figure 5.7.2 below.

Figure 5.7.2: Percentage of people in CM, 15+ years of age, undertaking unpaid work or looking after children, by ethnicity (2001), total response



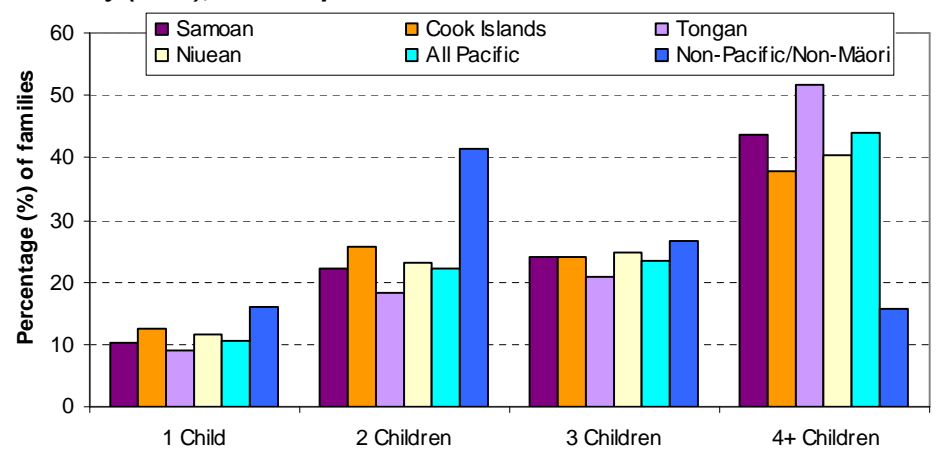
Source: Census 2001.
 Note: Usually Resident Population.

5.8 Number of Dependents

Percentage of Families by Number of Dependents

Samoan and Tongan families have a higher percentage of having 4 or more dependent children (43.6 and 51.8% respectively) than Cook Island and Niuean families (37.8 and 40.5% respectively). In contrast to the cultural and social benefits this may bring, it could contribute to a higher economic burden on these groups. Samoan and Tongan families also have a lower percentage of having 1 and 2 dependent children, than Cook Island and Niuean families. 'All Pacific' families have a much higher percentage of 4 or more dependent children (44.0%) than non-Pacific/non-Māori families (15.8%). See Figure 5.8.1 below.

Figure 5.8.1: Percentage of families by number of dependent children for families in CM, by ethnicity (2001), total response



Source: Census 2001. Note: Usually Resident Population.

5.9 Summary – Demography and Socioeconomic Circumstances

The age structure of the 4 largest Pacific ethnic groups in CM follow a similar distribution as that for the total Pacific population of CM, with an emphasis on the relatively young age groups. However, there is some symmetrical 'scalloping' (relative reduction) in the Tongan population in the age range of 15-29 years. The 4 largest Pacific ethnic groups which are the focus of this HNA make up 85% of the total Pacific population of CM. The total Pacific population in CM is projected to grow 80% from 2001-2026 compared to a growth of only 39% in the generally 'healthier' non-Pacific/non-Māori population. A high proportion of 'All Pacific' people in CM reside in Mangere, Otara, Manurewa or Papatoetoe (nearly 86%). Approximately 14% of 'All Pacific' people in CM live in Manukau, Papakura, Howick Pakuranga and Clevedon.

The distribution of the 4 largest Pacific ethnic groups is relatively similar across CM. For example, a similar percentage of each live in Mangere, Otara or Manurewa. Each group also has a low percentage of people living in the more affluent suburbs of either Howick Pakuranga or Clevedon. While all of the Pacific groups below have more than half of their CM populations living in either Otara or Mangere, a greater percentage of Tongans live in these suburbs than Samoans, Cook Islanders, or Niueans. A greater percentage of Tongans and Niueans live in Mangere than Samoans and Cook Islanders. Conversely, a greater percentage of Samoans and Cook Islanders live in Otara than Tongans and Niueans.

It must be noted that the differences found in this section between the level 2 Pacific ethnic groups are often small in relation to the differences between 'All Pacific' and non-Pacific/non-Māori.

All Level 2 Pacific ethnic groups

In CM, all of the level 2 Pacific ethnic groups have a:

- High percentage of people living in the two most deprived deciles;
- Low percentage living in the four most affluent deciles;
- Large proportion (>40%) of earning less than \$20,000 per year.

Samoans and Tongans

In CM, Samoans and Tongans have a:

- Lower percentage having been born in New Zealand, or having lived in NZ for 'more than 20 years', than Cook Islanders and Niueans;
- Higher percentage having lived in NZ for 'less than 10 years' or between '11 and 20 years' than Cook Islanders and Niueans;
- Higher percentage able to speak their corresponding language of Pacific ethnic origin, or 'any Pacific language', than Cook Islanders and Niueans;
- Higher percentage with no income than Cook Islanders and Niueans;
- Lower percentage with no qualification than Cook Islanders and Niueans;
- Higher percentage with 'any secondary school qualification', or 'an overseas secondary school qualification', than Cook Islanders and Niueans;

- Higher percentage owning or partly owning their usual residence than Cook Islanders and Niueans;
- Lower percentage living in homes which have 'at least 1 spare bedroom' or with 'no bedrooms required and none spare' than Cook Islanders and Niueans;
- Higher percentage living in homes 'needing at least 1 more bedroom' than Cook Islanders and Niueans;
- Lower percentage using home heating than Cook Islanders and Niueans;
- Higher percentage having access to a motor vehicle than Cook Islanders and Niueans;
- Lower percentage with access to a telephone and higher percentage having no access to telecommunication systems e.g. telephones, faxes or the internet than Cook Islanders and Niueans;
- Higher percentage of people looking after a member of own household who is ill or who has a disability than Cook Islanders and Niueans;
- Higher percentage of having 4 or more dependent children and a lower percentage of having 1 and 2 dependent children than Cook Islanders and Niueans.

Samoans alone

In CM, Samoans:

- Are the most likely to have any New Zealand secondary school qualification, followed by Niueans, Tongans and Cook Islanders respectively;
- Are the most likely (equal with Niueans) to have a tertiary qualification, followed by Tongans and Cook Islanders respectively (note the absolute percentages are low).

Tongans alone

In CM, Tongans:

- Have the highest percentage of people living in the two most deprived deciles and the lowest percentage of people living in the four most affluent deciles compared to the other level 2 Pacific ethnic groups;
- Have the highest percentage of people earning less than \$20,000 per year followed by Cook Islanders, Niueans and Samoans respectively;
- Have the lowest percentage of people earning over \$40,000 per year followed by Cook Islanders, Samoans and Niueans respectively (note absolute differences are small);
- Have the highest percentage not in the labour, followed by Cook Islanders, Samoans and Niueans respectively;
- Have a higher percentage of people looking after a child who is a member of their own household than the other level 2 Pacific ethnic groups.

Cook Islanders and Niueans

In CM, Cook Islanders and Niueans have a:

- Higher percentage having been born in New Zealand, or having lived in NZ for 'more than 20 years' than Samoans and Tongans
- Lower percentage having lived in NZ for 'less than 10 years' or between '11 and 20 years' than Samoans and Tongans;
- Lower percentage able to speak their corresponding language of Pacific ethnic origin, or 'any Pacific language', than Samoans and Tongans;
- Higher percentage of people living in the four most affluent deciles than Tongans;
- Lower percentage with no income than Samoans and Tongans;
- Higher percentage with no qualification than Samoans and Tongans;
- Lower percentage with 'any secondary school qualification', or 'an overseas secondary school qualification' than Samoans and Tongans;
- Lower percentage owning or partly owning their usual residence than Samoans and Tongans;
- Higher percentage living in homes which have 'at least 1 spare bedroom' or with 'no bedrooms required and none spare' than Samoans and Tongans;
- Lower percentage living in homes 'needing at least 1 more bedroom' than Samoans and Tongans;
- Higher percentage using home heating than Samoans and Tongans;
- Lower percentage having access to a motor vehicle than Samoans and Tongans;
- Higher percentage with access to a telephone and lower percentage having no access to telecommunication systems e.g. telephones, faxes or the internet than Samoans and Tongans;
- Lower percentage of people looking after a member of own household who is ill or who has a disability than Samoans and Tongans;
- Lower percentage of having 4 or more dependent children and a higher percentage of having 1 and 2 dependent children than Samoans and Tongans.

Cook Islanders alone

In CM, Cook Islanders have:

- A higher percentage unemployed than the other level 2 Pacific ethnic groups;
- The lowest percentage with a tertiary qualification, followed by Niueans, Tongans, and Samoans respectively (note the absolute percentages are low);
- The lowest percentage with 'any New Zealand secondary school qualification', followed by Tongans, Niueans and Samoans respectively.

Niueans alone

In CM, Niueans have the:

- Lowest percentage of people living in the two most deprived deciles compared to the other level 2 Pacific ethnic groups;
- Lowest percentage not in the labour force followed by Samoans, Cook Islanders, and Tongans respectively;
- Highest percentage employed full-time followed by Samoans, Tongans and Cook Islanders and respectively.

'All Pacific' and 'non-Pacific/non-Māori'

Note: Differences are generally larger than between the different Pacific ethnic groups.

In CM, 'All Pacific' people have a:

- Higher percentage living in the most deprived deciles than non-Pacific/non-Māori;
- Higher percentage with no income or earning less than \$10,000 per year and a lower percentage earning over \$30,000 per year than non-Pacific/non-Māori;
- Lower percentage employed full-time or part-time and a higher percentage unemployed or not in the labour force than non-Pacific/non-Māori;
- Higher percentage with 'no qualification', or an 'overseas secondary school qualification', and lower percentage with a 'NZ secondary school qualification' or a 'tertiary qualification' than non-Pacific/non-Māori;
- Lower percentage owning or partly owning their usual residence than non-Pacific/non-Māori;
- Lower percentage living in homes which have 'at least 1 spare bedroom' and a higher percentage living in homes 'needing at least 1 more bedroom' than non-Pacific/non-Māori;
- Lower percentage using home heating than non-Pacific/non-Māori;
- Lower percentage with access to a motor vehicle or a telephone and a higher percentage with no access to any telecommunication systems than non-Pacific/non-Māori;
- Higher percentage of people undertaking unpaid work, looking after a child who is member of own household, looking after a member of own household who is ill or who has a disability, or with 4 or more dependent children than non-Pacific/non-Māori.

Gender Differences

In CM, females:

- From all the level 2 Pacific ethnic groups are more likely to earn 'no income' or <\$20,000 per year, and are less likely to earn >\$40,000 per year, than males.

Area Differences

- Mangere, Otara, Manurewa, Papatoetoe and Manukau have a lower ratio of Pacific CM residents being born in New Zealand than in their Pacific country of ethnic origin compared to Papakura, Howick/Pakuranga and Clevedon.

6 Risk Factors

This section presents results:

- From the 2002/03 New Zealand Health Survey (NZHS),³⁷ using total response ethnicity, on physiological and lifestyle risk factors (in those 15+ years of age) for diseases such as Type 2 diabetes, cardiovascular disease and cancer. 'Lifestyle' risk factors include smoking, marijuana use, hazardous drinking, physical activity, fruit and vegetable intake, and gambling. Physiological risk factors including: hypertension, hypercholesterolaemia, overweight and obesity.
- From the NZ-wide 2003 Pacific Drugs & Alcohol Consumption Survey (PDACS),²⁴ on 'Lifestyle' risk factors (e.g. smoking, alcohol and gambling) for each of the four largest Pacific ethnic groups (Samoan, Cook Islands, Tongan and Niuean). Their results were compared to the total Pacific sample.²⁴ This has limitations when trying to show differences between groups especially when Samoans are compared to the total Pacific group as they made up nearly 50% of the sample. However, only statistically significant results were reported. 1103 Pacific people aged 13-65 years living in New Zealand were included in PDACS. 338 were Samoan, 228 Cook Islands, 232 Tongan, and 207 Niuean.²⁴ Age was categorised into those aged 13-29 years and those aged 30-65 years.²⁴

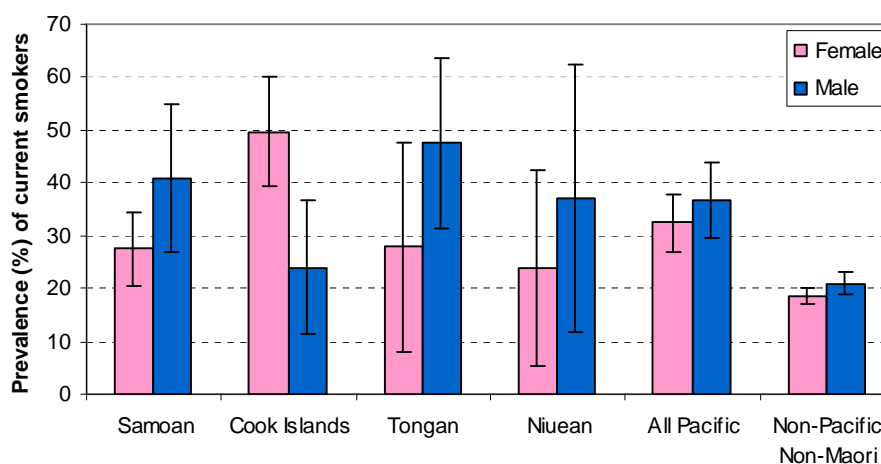
6.1 'Lifestyle' Risk Factors

SMOKING

Current Smoking (NZHS)

Individuals who were current smokers were identified in the 2002/03 NZHS questionnaire as those who smoked one or more tobacco cigarettes per day (cigars excluded). Adult Cook Island females have a significantly higher prevalence of current smoking (49.7%) than Samoan females (27.5%). Furthermore, Cook Island females show a reverse pattern in smoking prevalence in relation to males e.g. usually males are more likely to smoke than females (for most ethnic groups) however Cook Island females smoke more than males (which is similar to the pattern present in Māori). All Pacific adult females and males have significantly higher prevalence of current smoking (32.4 and 36.7% respectively) than non-Pacific/non-Māori females and males (18.6 and 21% respectively). See *Figure 6.1.1* below.

Figure 6.1.1: Age-standardised prevalence (% of adult population 15+ years of age) of current smoking in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response



Source: NZHS 2002/2003.

Used Tobacco in the last 12 months (PDACS)

The 2003 Pacific Drugs & Alcohol Consumption Survey (PDACS)²⁴ defined tobacco smoking as including ready-made cigarettes, roll-your-own tobacco, cigars and pipes. Over a third (37%) of the Pacific sample smoked tobacco in the last 12 months. In the Pacific sample, 41% of men smoked in the last 12 months and 33% of women.

PDACS²⁴ reported that in the last 12 months, on average:

- Samoan females aged 13-29 years were less likely to smoke than the total Pacific sample;
- Cook Islands females were more likely to smoke (58%) than the total Pacific sample (43%), especially in women aged 13-29 years (percentages reported here);
- Tongan females aged 30-65 years were less likely to smoke than the total Pacific sample.²⁴

Used Tobacco in the last 30 days (PDACS)

The 2003 Pacific Drugs & Alcohol Consumption Survey (PDACS)²⁴ showed that Pacific men (38%) were more likely to have smoked tobacco in the last 30 days than Pacific women (29%).

PDACS²⁴ reported that in the last 30 days, on average:

- Cook Islands females in both 13-29 and 30-65 age groups were more likely to smoke than the total Pacific sample;
- Tongan females aged 30-65 years were less likely to smoke than the total Pacific sample.²⁴

Age When Began Smoking (PDACS)

The mean age of starting regular smoking in the Pacific sample, was 17 years for males and 18 years for females.

PDACS²⁴ reported that:

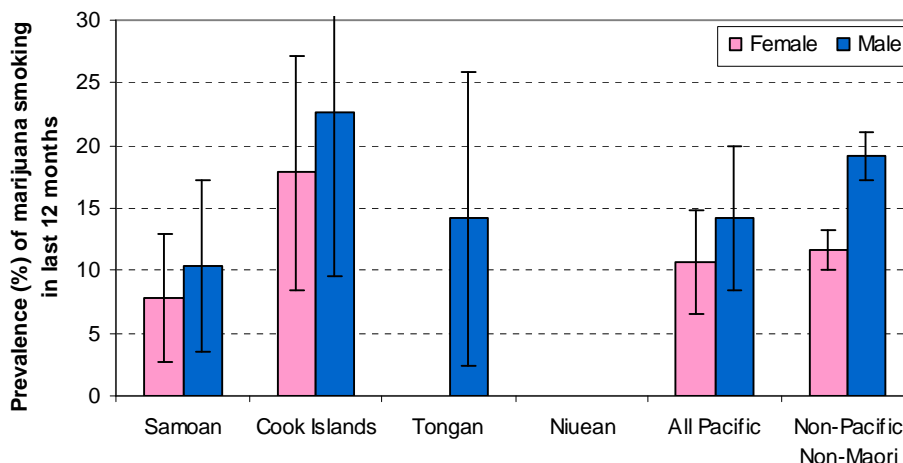
- A higher percentage of Cook Islands females aged 13-29 years started regular smoking by the age of 15 years (53%) than their total Pacific sample peers (% not reported);
- Tongan respondents aged 30-65 years were less likely to have started regular smoking by the age of 15 years than their total Pacific sample peers.²⁴

Marijuana Use in last 12 months (NZHS)

Marijuana users were identified in the 2002/03 NZHS questionnaire as any person who had used marijuana in the last 12 months.

No significant differences are shown in marijuana use between any of the ethnic groups, in either gender (*Figure 6.1.2* below).

Figure 6.1.2: Age-standardised prevalence (% of adult population 15+ years of age) of marijuana use in last 12 months in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response



Source: NZHS 2002/2003.

Marijuana Use (PDACS)

Note: PDACS data was not age-standardised which may explain the difference in 12-month prevalence between it and the NZHS.

A third of the Pacific sample had used marijuana at least once. 17% used marijuana in the last 12 months. Pacific men were more likely to have used marijuana in the last year (21%) compared to Pacific women (13%). The mean age at which marijuana was first used was 17 years old. On average Pacific respondents used marijuana 45 times per year. The main reasons for not using marijuana were 'not liking it', or 'not needing it' (30%), followed by 'health related reasons' (21%).

PDACS²⁴ reported that on average:

- Samoan females aged 30-65 years were less likely to have ever tried marijuana than the total Pacific sample;
- Tongan respondents were less likely to have ever tried marijuana than the total Pacific sample;
- Tongan females aged 30-65 years were less likely to have used marijuana in the last 12 months than the total Pacific sample.

ALCOHOL CONSUMPTION

In PDACS (one drink = 15 ml of absolute alcohol).²⁴

Percentage of Drinkers (PDACS)

Over half (57%) of the Pacific respondents consumed alcohol in the previous 12 months. Sixty one percent of males and 51% of females consumed alcohol in the previous 12 months.

PDACS²⁴ reported that on average:

- Cook Islands females in each age group were more likely to have consumed alcohol in the previous 12 months than the total Pacific sample;

- Niuean females (aged 30-65 years) were more likely to have consumed alcohol in the previous 12 months than the total Pacific sample.²⁴

Typical Quantity Consumed (PDACS)

In the total Pacific sample, the average amount consumed on a typical occasion was six drinks for women and nine to ten drinks for men.

PDACS²⁴ reported that on average:

- Samoan females aged 13-29 years and 30-65 years drank less on a typical occasion than the total Pacific sample;
- Cook Islands females drank more on a typical occasion than the total Pacific sample.²⁴

Frequency of Drinking Enough to Feel Drunk (PDACS)

A third of Pacific drinkers drank enough to feel drunk at least once a week in 2003. Forty-one percent of men and a quarter of women reported doing so.

PDACS²⁴ reported that on average:

- Samoan females, and in particular those aged 30-65 years were less likely to drink enough to feel drunk at least once a week than the total Pacific sample;
- Cook Island males of all ages were less likely to drink enough to feel drunk once per week than the total Pacific sample;
- Cook Island females aged 13-29 were more likely to drink enough to feel drunk once per week than the total Pacific sample.

Problems From Others' Drinking (PDACS)

Men were more likely to report having been physically assaulted in the last 12 months by someone who had been drinking: 18% compared with 10% of women. Women were more likely to report having been sexually harassed by someone who had been drinking: 10% compared with 5% of men.

PDACS²⁴ reported that on average:

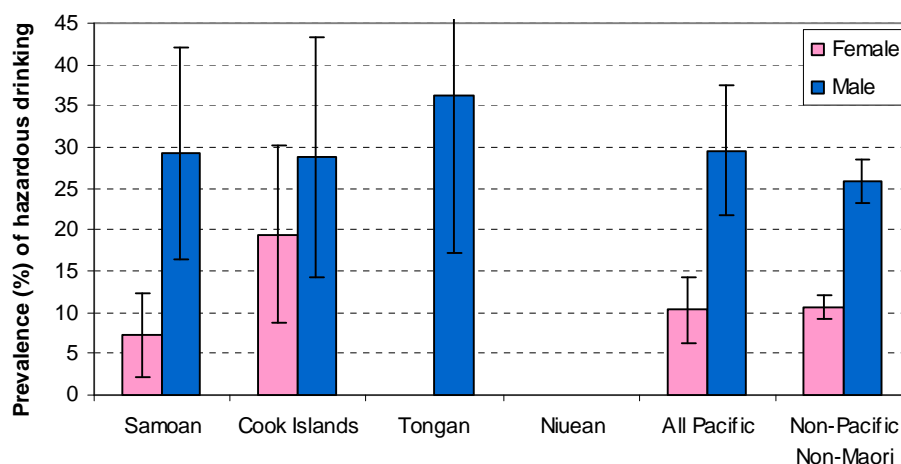
- Niuean females were less likely to be involved in an accident causing injury or major damage (0%) than their peers in the Pacific sample (4%).²⁴

Hazardous Drinking (NZHS)

Hazardous drinkers were identified in the 2002/03 NZHS questionnaire as those with an established pattern of drinking that carries a high risk of future damage to physical or mental health. This was defined as an Alcohol Use Disorders Identification Test (AUDIT) score of eight or more.

No significant differences are shown in prevalence of hazardous drinking between the level 2 Pacific ethnic groups, in either gender (*Figure 6.1.3* below). A significant gender difference is shown in hazardous drinking (All Pacific and non-Pacific/non-Māori males having higher prevalence than females in either group).

Figure 6.1.3: Age-standardised prevalence (% of adult population 15+ years of age) of hazardous drinking in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response



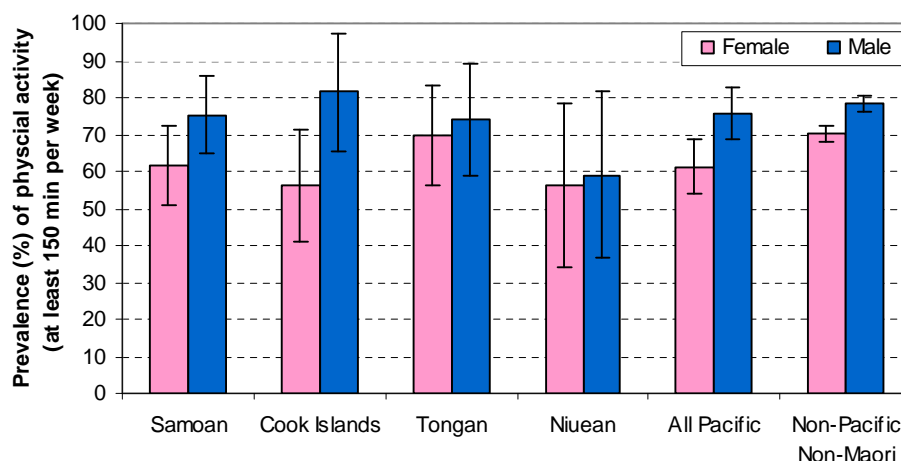
Source: NZHS 2002/2003.
 Note: Niuean (both genders) and Tongan female numbers too small.

PHYSICAL ACTIVITY

150 Minutes Per Week (NZHS)

Individuals undertaking physical activity of at least 150 minutes a week in any way were identified in the 2002/03 NZHS questionnaire. No significant differences are shown in physical activity (150 minutes per week) between any of the ethnic groups, in either gender (Figure 6.1.4 below).

Figure 6.1.4: Age-standardised prevalence (% of adult population 15+ years of age) of physical activity (at least 150 minutes per week) in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

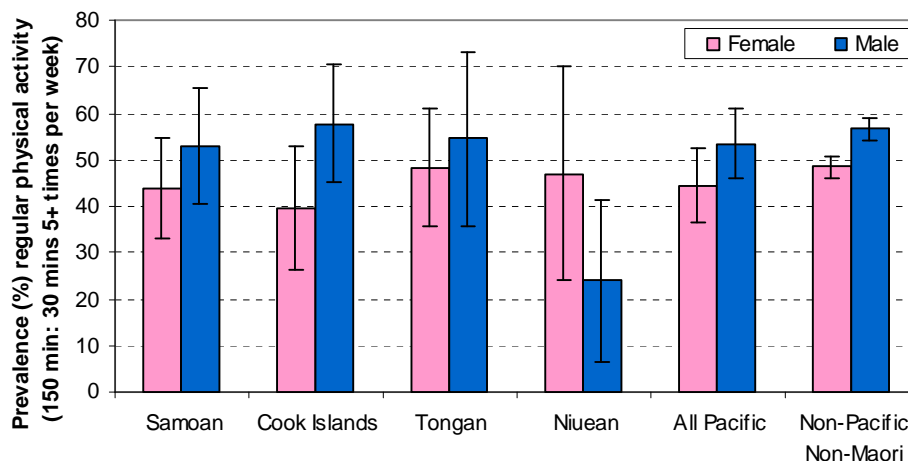


Source: NZHS 2002/2003.

Regular Physical Activity, 150 Mins: 30 Mins 5+ Times Per Week (NZHS)

Individuals undertaking regular physical activity were identified in the 2002/03 NZHS questionnaire as those undertaking at least 150 minutes of physical activity per week, comprising at least 30 minutes on five or more days of the week. In the NZHS, adult Cook Island males have a significantly higher prevalence of undertaking regular physical activity (57.8%) than Niuean males (23.9%). See Figure 6.1.5 below.

Figure 6.1.5: Age-standardised prevalence (% of adult population 15+ years of age) of regular physical activity (150 mins: 30 mins 5+ times per week) in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response



Source: NZHS 2002/2003.

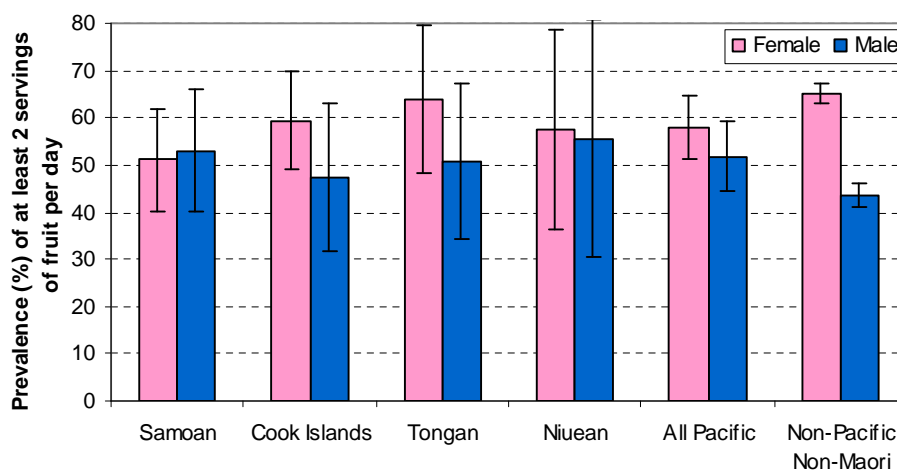
FRUIT AND VEGETABLE CONSUMPTION

Fruit and vegetable intake adequate to protect health is generally accepted to consist of two or more servings of fruit and three or more servings of vegetables per day i.e. “5+ a day”.

Fruit (NZHS)

Individuals stating they had at least two or more servings of fruit per day were identified from the 2002/03 NZHS. No significant differences are shown in prevalence of at least 2 servings of fruit per day between any of the ethnic groups, in either gender (*Figure 6.1.6* below).

Figure 6.1.6: Age-standardised prevalence (% of adult population 15+ years of age) of at least 2 servings of fruit per day in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

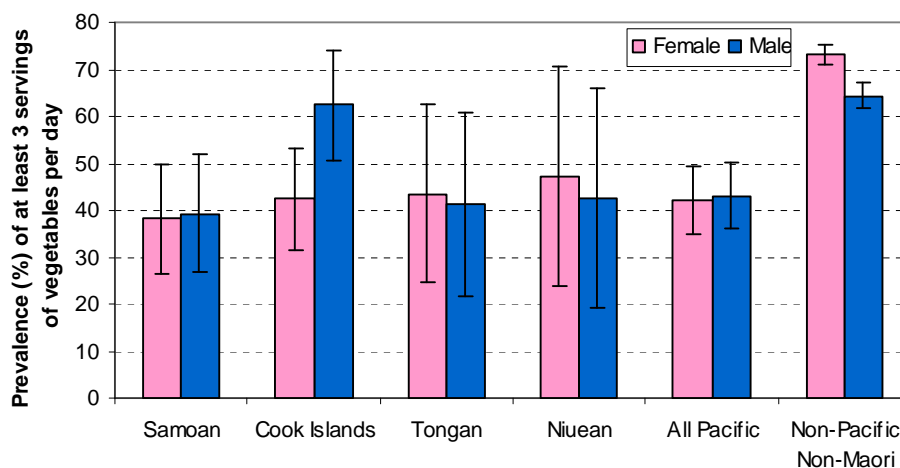


Source: NZHS 2002/2003.

Vegetables (NZHS)

Individuals stating they had at least three or more servings of vegetables per day were identified from the 2002/03 NZHS. *Figure 6.1.7* below does not show any significant differences in prevalence of at least three servings of vegetables per day between any of the level 2 Pacific ethnic groups, in either gender. All Pacific adult females and males have significantly lower prevalence of eating at least 3 servings of vegetables per day (42.0 and 43.1% respectively) than non-Pacific/non-Māori females and males (73.2 and 64.3% respectively).

Figure 6.1.7: Age-standardised prevalence (% of adult population 15+ years of age) of at least 3 servings of vegetables per day in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response



Source: NZHS 2002/2003.

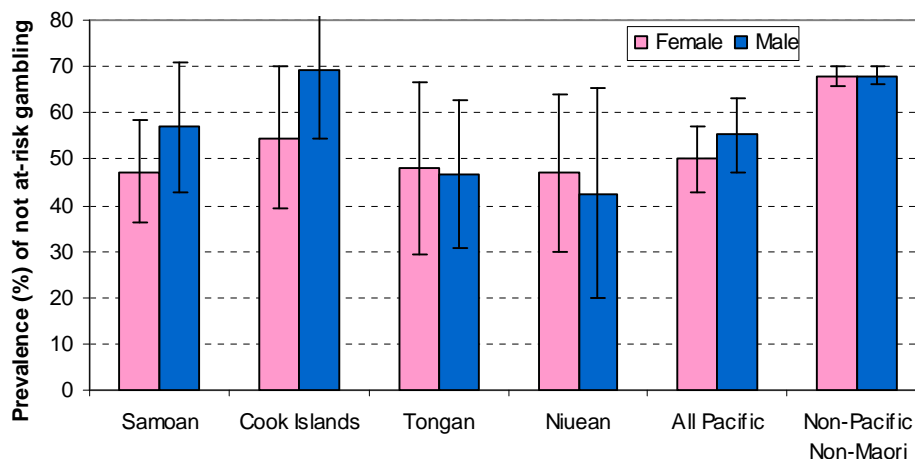
GAMBLING

Not At-Risk Gambling (NZHS)

The 2002/2003 NZHS measures gambling severity with a gambling screen, which is a set of questions used to determine whether respondents are experiencing problems due to their gambling behaviour.

The NZHS identifies at-risk gamblers as those people with at-risk gambling behaviours, and includes people experiencing mild gambling problems, who are at risk of becoming problem gamblers in the future. 'Not-at risk gamblers' are those who gamble, but not to this extent. No significant differences are shown in prevalence of not at-risk gambling between any of the level 2 Pacific ethnic groups, in either gender (*Figure 6.1.8* below). All Pacific adult females and males have significantly lower prevalence of not at-risk gambling (50.0 and 55.2% respectively) than non-Pacific/non-Māori females and males (67.8 and 68.0% respectively).

Figure 6.1.8: Age-standardised prevalence (% of adult population 15+ years of age) of not at-risk gambling in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

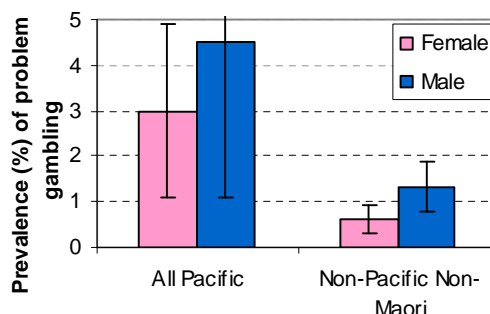


Source: NZHS 2002/2003.

Problem Gambling (NZHS)

The NZHS identifies ‘problem gamblers’ as those people with problem gambling behaviour, and includes people experiencing moderate to severe gambling problems. Data was not able to be provided for problem gambling by PHI for the level 2 Pacific ethnic groups as the numbers were too low. Adult All Pacific females have a significantly higher prevalence of problem gambling (3.0%) than non-Pacific/non-Māori females (0.5%). See Figure 6.1.9 below.

Figure 6.1.9: Age-standardised prevalence (% of adult population 15+ years of age) of problem gambling in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response



Source: NZHS 2002/2003.

Ever Gambled (PDACS)

Around 39% of Pacific men and 38% of Pacific women reported that they had ever gambled. Of the men who gambled, the gambling activities mostly undertaken were lotto, pokies and horses. Women’s gambling activities were mostly lotto, housie, the casino and pokies. The proportion of people gambling increased with age so that the 55-65 age group had the highest proportion of gamblers.

PDACS²⁴ reported that on average:

- Cook Islands females aged 13-29 were more likely to have ever gambled than the Pacific sample;
- Tongan respondents were less likely to have ever gambled than the Pacific sample;
- Tongan females were less likely to have ever gambled than the Pacific sample.²⁴

Gambling in Last Week (PDACS)

Of those who reported gambling activities in the last week, over 30% of Pacific males played lotto and bet on the horses, 16% played the pokies and 12% gambled at the casino. 37% of Pacific females played housie: 25% played lotto, 22% played the pokies and 17% gambled at the casino in the last week.

PDACS²⁴ reported that on average:

- Cook Island respondents aged 13-29, were more likely to have reported gambling in the last week than the Pacific sample;
- Cook Island females aged 13-29, were more likely to have reported gambling in the last week than the Pacific sample;
- Tongan males aged 13-29 were less likely to have reported gambling in the last week than the Pacific sample.

Reporting Concern About Gambling (PDACS)

In the last 12 months 11% of Pacific males and 15% of Pacific females reported feeling worried or sad after gambling.

PDACS²⁴ reported that on average:

- Cook Island females aged 13-29 years were more likely to have felt worried or sad after gambling than their peers in the Pacific sample;
- Cook Island males aged 30-65 years were less likely to have felt worried or sad after gambling than their peers in the Pacific sample;
- Tongan females aged 30-65 were less likely to have felt worried or sad after gambling than their peers in the Pacific sample;
- Tongan males aged 13-29 were less likely to have felt worried or sad after gambling than their peers in the Pacific sample.²⁴

Gone Into Debt or Borrowed Money To Gamble (PDACS)

3% of Pacific men and 2% of Pacific women reported going into debt or borrowing money because of gambling.

PDACS²⁴ reported that on average:

- Samoan males aged 30-65 years were more likely to report going into debt or borrowing money due to gambling than their peers in the Pacific sample;
- Tongan females were less likely to report going into debt or borrowing money due to gambling than their peers in the Pacific sample;
- Niuean males aged 13-29 years were less likely to report going into debt or borrowing money due to gambling than their peers in the Pacific sample;
- Niuean females aged 30-65 years were less likely to report going into debt or borrowing money due to gambling than their peers in the Pacific sample.²⁴

Lied To Family or Someone They Respected About Own Gambling (PDACS)

6% of Pacific males and 7% of Pacific females reported lying to their family or someone they respected about how much they gambled.

PDACS²⁴ reported that on average:

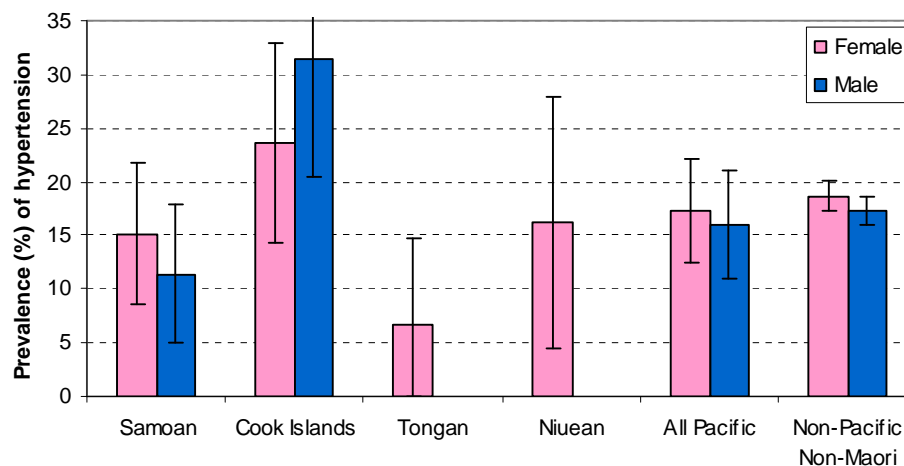
- Cook Island males aged 30-65 years were less likely to have reported lying to family or someone they respected about how much they gambled than the total Pacific sample;
- Niuean males aged 13-29 years were less likely to have reported lying to family or someone they respected about how much they gambled than the total Pacific sample.²⁴

6.2 Physiological Risk Factors

Hypertension (NZHS)

Individuals with high blood pressure were identified from the 2002/03 NZHS questionnaire as those for whom a doctor had diagnosed high blood pressure at any time (except during pregnancy). Cook Island adult males have a significantly higher prevalence of hypertension (31.5%) than Samoan males (11.4%). See *Figure 6.2.1* below.

Figure 6.2.1: Age-standardised prevalence (% of adult population 15+ years of age) of hypertension in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

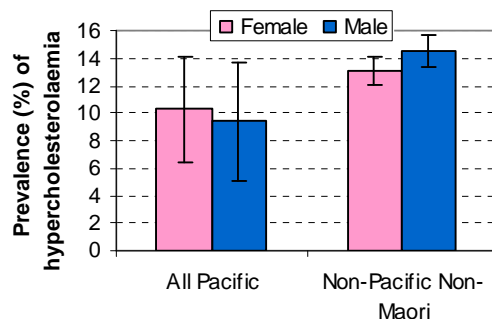


Source: NZHS 2002/2003.

Hypercholesterolaemia (NZHS)

Individuals with high blood cholesterol were identified from the 2002/03 NZHS questionnaire as those for whom a doctor had diagnosed high blood cholesterol. Data was not able to be provided for hypercholesterolaemia by PHI for the level 2 Pacific ethnic groups as the numbers were too low. No significant differences are shown in prevalence of hypercholesterolaemia between All Pacific and non-Pacific/non-Māori, in either gender (*Figure 6.2.2* below).

Figure 6.2.2: Age-standardised prevalence (% of adult population 15+ years of age) of hypercholesterolaemia in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

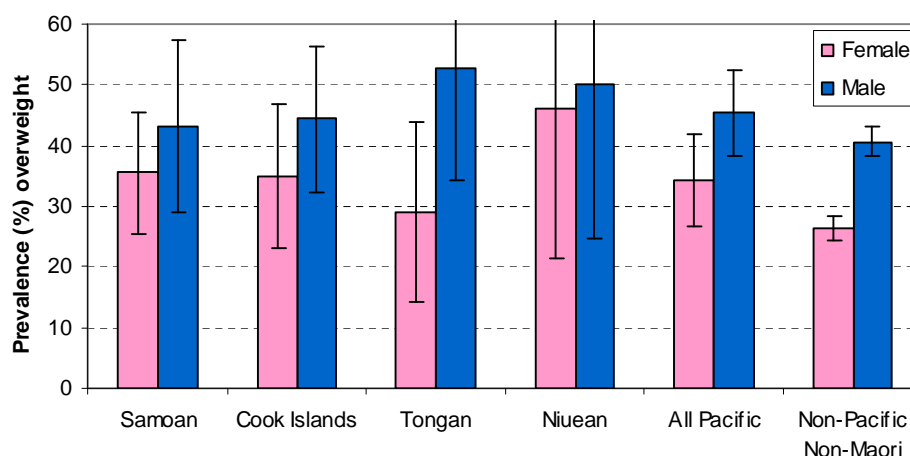


Source: NZHS 2002/2003.

Overweight, But Not Obese (NZHS)

Overweight individuals were identified from the 2002/03 NZHS questionnaire as those with a BMI (Body Mass Index) between 26.0-31.9 for Māori and Pacific, or a BMI between 25.0-29.9 for Europeans, Others and Asians. No significant differences are shown in prevalence of 'overweight (but not obese)' between any of the ethnic groups, in either gender (*Figure 6.2.3* below).

Figure 6.2.3: Age-standardised prevalence (% of adult population 15+ years of age) of overweight in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

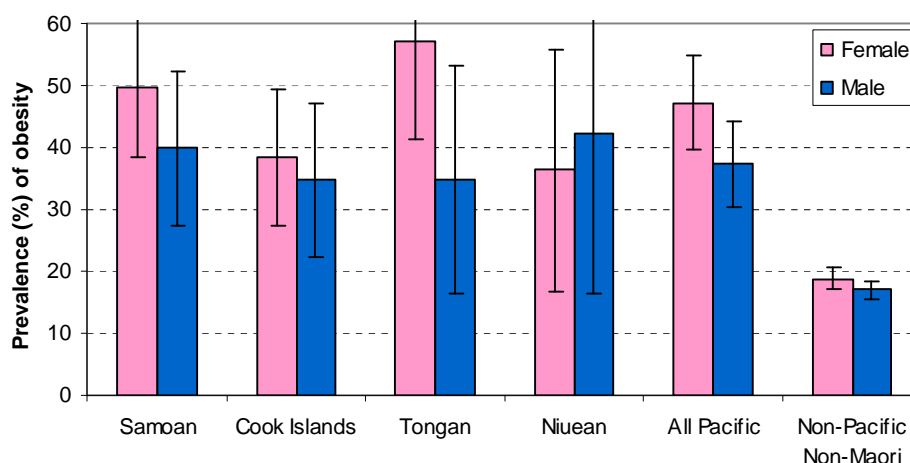


Source: NZHS 2002/2003.

Obesity (NZHS)

Obese individuals were identified from the 2002/03 NZHS questionnaire as those with a BMI ≥ 32.0 for Māori and Pacific, or a BMI ≥ 30.0 for Europeans, Others and Asians. No significant differences are shown in prevalence of obesity between any of the level 2 Pacific ethnic groups, in either gender (*Figure 6.2.4* below). All Pacific adult females and males have significantly higher prevalence of obesity (47.2 and 37.3% respectively) than non-Pacific/non-Māori females and males (18.8 and 17% respectively).

Figure 6.2.4: Age-standardised prevalence (% of adult population 15+ years of age) of obesity in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

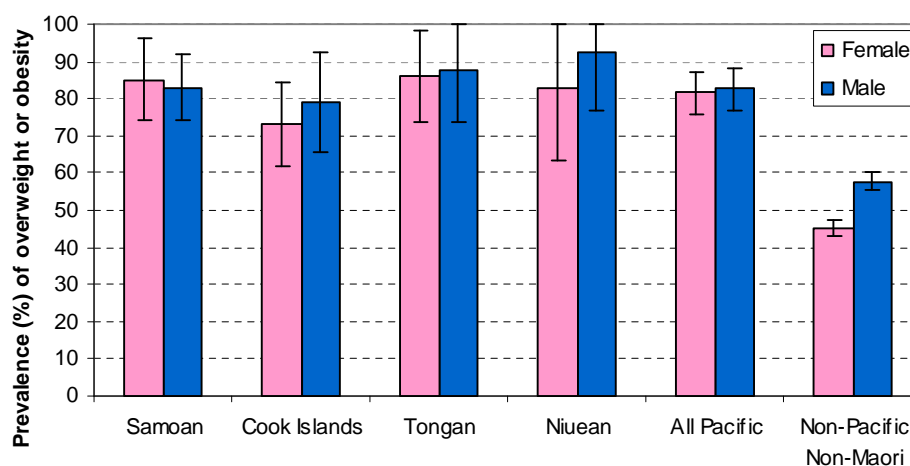


Source: NZHS 2002/2003.

'Overweight or Obesity' (NZHS)

Overweight or obese individuals were identified from the 2002/03 NZHS questionnaire as those with a BMI ≥ 26.0 for Māori and Pacific, or a BMI ≥ 25.0 for Europeans, Others and Asians. No significant differences are shown in prevalence of 'overweight or obesity' between any of the level 2 Pacific ethnic groups, in either gender (*Figure 6.2.5* below). All Pacific adult females and males have significantly higher prevalence of 'overweight or obesity' (81.5 and 82.6% respectively) than non-Pacific/non-Māori females and males (45.1 and 57.7% respectively).

Figure 6.2.5: Age-standardised prevalence (% of adult population 15+ years of age) of 'overweight or obesity' in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response



Source: NZHS 2002/2003.

6.3 Summary - Risk Factors

No significant differences were shown in the NZHS in either gender between any of the level 2 Pacific ethnic groups in adult prevalence of:

- Marijuana use, hazardous drinking, physical activity (150 minutes per week), eating at least 2 servings of fruit per day, eating at least three servings of vegetables per day, not at-risk gambling, 'overweight (but not obese)', obesity, and 'overweight or obesity'.

Data was not able to be provided in the NZHS for level 2 Pacific ethnic groups due to low numbers for adult prevalence of:

- Problem gambling or hypercholesterolaemia.

Samoans alone

Adult Samoan females have significantly:

- Lower prevalence of current smoking than Cook Island females (NZHS);
- Lower prevalence (amongst females aged 13-29 years) of smoking in the last 12 months than a total Pacific sample (PDACS);
- Lower prevalence (amongst females aged 30-65 years) of having ever tried marijuana than a total Pacific sample (PDACS);
- Lower amounts (amongst aged 13-29 years and 30-65 years) of alcohol being consumed on a typical occasion than a total Pacific sample (PDACS);
- Lower prevalence (especially amongst those aged 30-65 years) of drinking enough to feel drunk at least once a week than a total Pacific sample (PDACS).

Adult Samoan males have significantly:

- Higher prevalence (amongst males aged 30-65 years) of reporting going into debt or borrowing money due to gambling than a total Pacific sample (PDACS);
- Lower prevalence of hypertension than Cook Island males (NZHS).

Tongans alone

Adult Tongan females have significantly:

- Lower prevalence (females aged 30-65 years) of smoking in the last 12 months than a total Pacific sample (PDACS);
- Lower prevalence (females aged 30-65 years) of smoking in the last 30 days than a total Pacific sample (PDACS);
- Lower prevalence (amongst females aged 30-65 years) of using marijuana in the last 12 months than a total Pacific sample (PDACS);
- Lower prevalence of having ever gambled than a total Pacific sample (PDACS);
- Lower prevalence (amongst females aged 30-65 years) of reporting feeling worried or sad after gambling than a total Pacific sample (PDACS);

- Lower prevalence of reporting going into debt or borrowing money due to gambling than a total Pacific sample (PDACS).

Adult Tongan males have significantly:

- Lower prevalence (amongst those aged 13-29 years) of reporting gambling in the last week than a Pacific sample (PDACS);
- Lower prevalence (amongst those aged 13-29 years) of reporting feeling worried or sad after gambling than a total Pacific sample (PDACS).

All Tongan respondents had significantly:

- Lower prevalence (aged 30-65 years) of starting regular smoking by the age of 15 years than a total Pacific sample (PDACS);
- Lower prevalence of having ever tried marijuana than a total Pacific sample (PDACS);
- Lower prevalence of having ever gambled than a total Pacific sample (PDACS).

Cook Islanders alone

Adult Cook Island females have significantly:

- Higher prevalence of current smoking than Samoan females (NZHS);
- Higher prevalence (especially amongst females aged 13-29 years) of smoking in the last 12 months than a total Pacific sample (PDACS);
- Higher prevalence (amongst females in both 13-29 and 30-65 age groups) of smoking in the last 30 days than a total Pacific sample (PDACS);
- Higher percentages (amongst females aged 13-29 years) starting regular smoking by the age of 15 years than a total Pacific sample (PDACS);
- Higher prevalence (in each age group) having consumed any alcohol in the previous 12 months than a total Pacific sample (PDACS);
- Higher amounts of alcohol being consumed on a typical occasion than a total Pacific sample (PDACS);
- Higher prevalence (amongst females aged 13-29 years) of drinking enough to feel drunk once per week than a total Pacific sample (PDACS);
- Higher prevalence (amongst females aged 13-29 years) of having ever gambled than a total Pacific sample (PDACS);
- Higher prevalence (amongst females aged 13-29 years) of having reported gambling in the last week than a total Pacific sample (PDACS);
- Higher prevalence (amongst females aged 13-29 years) of reporting feeling worried or sad after gambling than a total Pacific sample (PDACS).

Adult Cook Island males have significantly:

- Lower prevalence of drinking enough to feel drunk once per week than a total Pacific sample (PDACS);

- Lower prevalence (amongst those aged 30-65 years) of reporting feeling worried or sad after gambling than a total Pacific sample (PDACS);
- Lower prevalence (amongst those aged 30-65 years) of reporting lying to family or someone they respected about how much they gambled than a total Pacific sample (PDACS);
- Higher prevalence of undertaking regular (150 mins: 30 mins 5+ times per week) physical activity than Niuean males (NZHS);
- Higher prevalence of hypertension than Samoan males (NZHS).

Niueans alone

Adult Niuean females have significantly:

- Higher prevalence (amongst females aged 30-65 years) having consumed alcohol in the previous 12 months than a total Pacific sample (PDACS);
- Lower prevalence of being involved in an accident causing injury or major damage than a total Pacific sample (PDACS);
- Lower prevalence (amongst females aged 30-65 years) of reporting going into debt or borrowing money due to gambling than a total Pacific sample (PDACS).

Adult Niuean males have significantly:

- Lower prevalence (amongst males aged 13-29 years) of reporting going into debt or borrowing money due to gambling than a total Pacific sample (PDACS);
- Lower prevalence (amongst males aged 13-29 years) of reporting lying to family or someone they respected about how much they gambled than a total Pacific sample (PDACS);
- Lower prevalence of undertaking regular (150 mins: 30 mins 5+ times per week) physical activity than Cook Island males (NZHS).

All Pacific and non-Pacific/non-Māori

No statistically significant differences were found in the NZHS between All Pacific and Non-Pacific/non-Māori in adult:

- Prevalence of marijuana use, hazardous drinking, physical activity (at least 150 minutes per week), regular physical activity (150 mins: 30 mins 5+ times per week), at least 2 servings of fruit per day, male problem gambling, hypertension, hypercholesterolaemia, 'overweight (but not obese)'.

Adult All Pacific females and males both (individually) have significantly:

- Higher prevalence of current smoking, obesity, and 'overweight or obesity' than non-Pacific/non-Māori females and males (NZHS);
- Lower prevalence of eating at least 3 servings of vegetables per day, and 'not at-risk gambling' than non-Pacific/non-Māori females and males (NZHS).

Adult All Pacific females have a significantly:

- Higher prevalence of problem gambling than non-Pacific/non-Māori females (NZHS).

Gender Differences

All Pacific and non-Pacific/non-Māori males have:

- Higher prevalence of hazardous drinking than females in either group (NZHS).

7 Health Outcomes

This section examines the following health outcomes:

- Life expectancy at birth in CM and All NZ by gender and ethnicity (prioritised ethnicity);
- Adult all-cause mortality (All NZ) by gender and ethnicity (prioritised ethnicity);
- The top ten potentially avoidable causes of mortality in adults in CM and All NZ, ranked and then by gender and ethnicity (prioritised ethnicity);
- Prevalence of major chronic diseases (total response ethnicity).

7.1 Life Expectancy

Life Expectancy in Counties-Manukau (CM)

Life expectancy (LE) is a long-standing indicator of a population's health. While it does not measure quality of life it is still of considerable importance and is used internationally as a benchmark of population health. This section examines data on the latest LE at birth, from the New Zealand Health Information Service (NZHIS).

The LEs for 'All Pacific' in CMDHB (males 72.2 and females 77.5 years) are considerably less than the LEs for the non-Pacific/non-Māori population of CMDHB (males 79.6 and females 84.1 years).¹³ However, the gap of 5.3 years between 'All Pacific' males and 'All Pacific' females in CM is similar to the gap between males and females in the total CM population of 5.2 years.¹³ See *Table 7.1.1* below.

Table 7.1.1: Life expectancy at birth (in years) in CM, by gender and ethnicity (2003-2005), prioritised

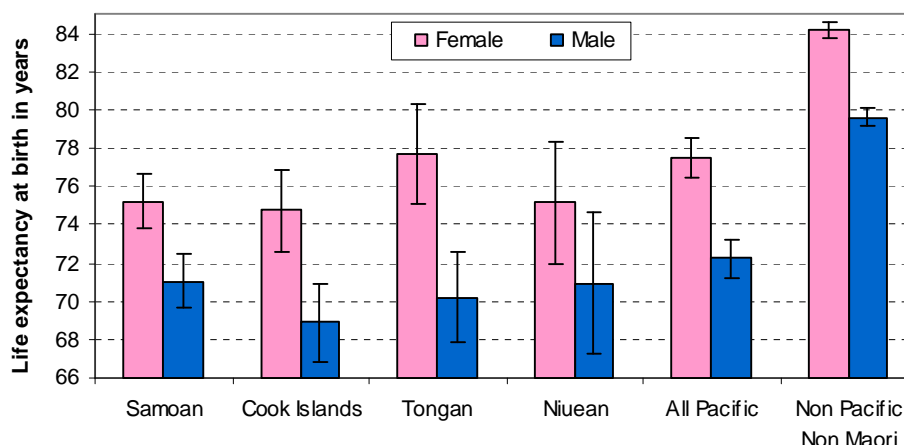
Ethnicity	Gender		Gap
	Female	Male	
Samoan	75.2	71.1	4.2
Cook Islands Maori	74.7	68.9	5.9
Tongan	77.7	70.2	7.5
Niuean	75.2	71.0	4.2
All Pacific	77.5	72.2	5.3
Non Pacific Non Maori	84.1	79.6	4.6

Source: NZHIS.

Note: Uses 2003-2005 combined data. Values are rounded to 1 decimal place.

Male LE is poor compared with females across ethnic groups (*Figure 7.1.1* below). Furthermore, 'All Pacific' and the individual Pacific ethnic group LE is poor compared to the non-Pacific/non-Māori population. All of the 95% confidence intervals within level 2 Pacific 'ethnic and gender' groups overlap.

Figure 7.1.1: Life expectancy at birth (in years) in CM, by gender and ethnicity (2003-2005), prioritised



Source: NZHIS. Note: Combined 2003-2005 data.

Life expectancy in 'All NZ'

Expanding the area from CM to All NZ reveals similar trends (see *Table 7.1.2* and *Figure 7.1.2* below). However, *Figure 7.1.2* now shows a statistically significant difference in female LE. Firstly, Cook Island female LE (76.6 years) is lower than Tongan and Niuean female LE (79.9 and 80.6 years respectively). Secondly, Samoan female LE (77.5 years) is lower than Niuean female LE (80.6 years).

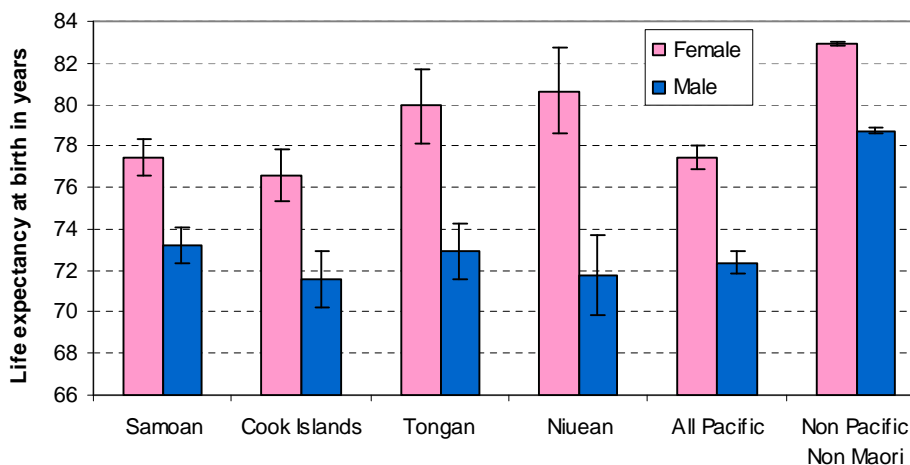
Table 7.1.2: Life expectancy at birth (in years) in All NZ, by gender and ethnicity (2003-2005), prioritised

Ethnicity	Gender		Gap
	Female	Male	
Samoan	77.5	73.2	4.3
Cook Islands Maori	76.6	71.6	5.1
Tongan	79.9	72.9	7.0
Niuean	80.6	71.8	8.9
All Pacific	77.5	72.4	5.1
Non Pacific/Non Maori	82.9	78.7	5.1

Source: NZHIS.

Note: Uses 2003-2005 combined data. Values are rounded to 1 decimal place.

Figure 7.1.2: Life expectancy at birth (in years) in All NZ, by gender and ethnicity (2003-2005), prioritised

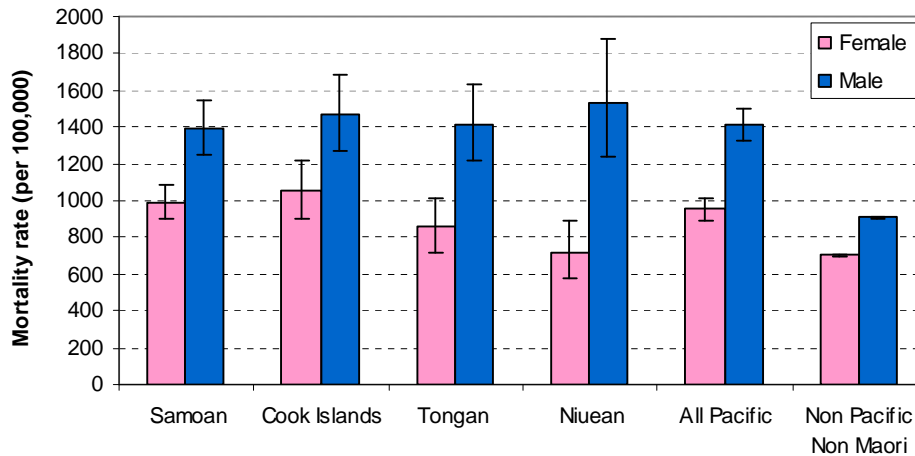


Source: NZHIS. Note: Combined 2003-2005 data.

7.2 Adult Mortality - All Cause

Data for All NZ is presented in *Figure 7.2.1* below because the number of deaths, for each level 2 Pacific ethnic group shown, is too small in CM for adequate analysis in graphical form (CIs are extremely wide). It shows that the gender gap in adult all-cause mortality is significant across all ethnic groups. Adult Niuean females have a lower all-cause mortality rate (720 per 100,000) than Samoan and Cook Island females (990 and 1050 per 100,000 respectively). In addition, in All NZ All Pacific females and males have a significantly higher adult all-cause mortality rate (953 and 1408 per 100,000 respectively) than non-Pacific/non-Māori females and males (701 and 908 per 100,000 respectively).

Figure 7.2.1: Age-standardised mortality rate (per 100,000) in All NZ for All Causes, 15+ year olds, by gender and ethnicity (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

7.3 Adult Potentially Avoidable Mortality (PAM) - Top Ten Causes

The tables below show the age-standardised rate for the top ten potentially avoidable causes of mortality in adults in CM (*Table 7.3.1*) and ALL NZ (*Table 7.3.2*). Causes of death are presented in descending order from the highest to lowest mortality rate for All Pacific people. The ranking and rate for each of these conditions is then given for each level 2 Pacific ethnic group to show any differences. CM and All NZ share the same top 9 causes of mortality. The top 5 causes for All Pacific people are ranked similarly in both CM and All NZ e.g. ischaemic heart disease the leading cause (with double the rate of diabetes or stroke), followed by diabetes, stroke, CORD, then lung cancers respectively. Rates are also fairly similar between CM and All NZ for these causes.

Mortality rates for the top 5 causes of death in CM have also been graphed below using both CM and/or All NZ data. Note that the mortality rates for 'hepatitis and liver cancer' and 'colorectal cancer' have been graphed for All NZ only as the confidence intervals were extremely wide and numbers extremely low for the CM area. Mortality rates for stomach cancer, breast cancer and rheumatic fever/heart disease have not been graphed for CM or All NZ as the confidence intervals were extremely wide and numbers extremely low even in All NZ.

Mortality in Counties-Manukau

Table 7.3.1: Age-standardised potentially avoidable mortality rate (per 100,000) in CM for top ten causes in Pacific people, 15+ year olds, males and females combined (2001-2003), prioritised

Cause of Death	All Pacific		Samoan		Cook Islands		Tongan		Niuean	
	Rank	Mortality rate	Rank	Mortality rate	Rank	Mortality rate	Rank	Mortality rate	Rank	Mortality rate
Ischaemic heart disease	1	240	1	254	1	240	1	196	1	229
Diabetes	2	121	2	123	2	126	2	111	3	100
Stroke	3	85	3	119	5	49	6	34	2	112
Chronic obstructive respiratory diseases	4	74	4	73	3	84	4	88	4	66
Lung cancers	5	69	5	67	4	54	3	99	10	17
Hepatitis and liver cancer	6	27	7	33	12	16	10	16	5	40
Colorectal cancer	7	25	8	22	11	16	5	45	6	29
Stomach cancer	8	24	6	34	9	21	8	21	-	-
Breast cancer	9	15	9	20	13	13	11	13	-	-
Rheumatic fever/heart disease	10	15	16	7	7	29	7	21	12	9

Source: NZHIS.

Note: These mortality rates have large confidence intervals and are rounded to the nearest whole number. Combined 2001-2003 data.

Mortality in All NZ

Table 7.3.2: Age-standardised potentially avoidable mortality rate (per 100,000) in All NZ for top ten causes in Pacific people, 15+ year olds, males and females combined (2001-2003), prioritised

Cause of Death	All Pacific		Samoan		Cook Islands		Tongan		Niuean	
	Rank	Mortality rate	Rank	Mortality rate	Rank	Mortality rate	Rank	Mortality rate	Rank	Mortality rate
Ischaemic heart disease	1	257	1	232	1	299	1	251	1	230
Diabetes	2	107	3	96	2	110	2	111	2	122
Stroke	3	101	2	119	3	89	4	73	3	90
Chronic obstructive respiratory diseases	4	66	4	71	4	72	5	65	4	62
Lung cancers	5	63	5	56	5	66	3	80	5	53
Breast cancer	6	25	7	27	6	34	8	25		0
Hepatitis and liver cancer	7	25	8	23	9	22	7	27	6	43
Stomach cancer	8	23	6	39	12	12	13	12	8	14
Colorectal cancer	9	21	9	22	11	15	6	30	7	20
Hypertensive disease	10	14	16	9	7	29	9	16	10	10

Source: NZHIS.

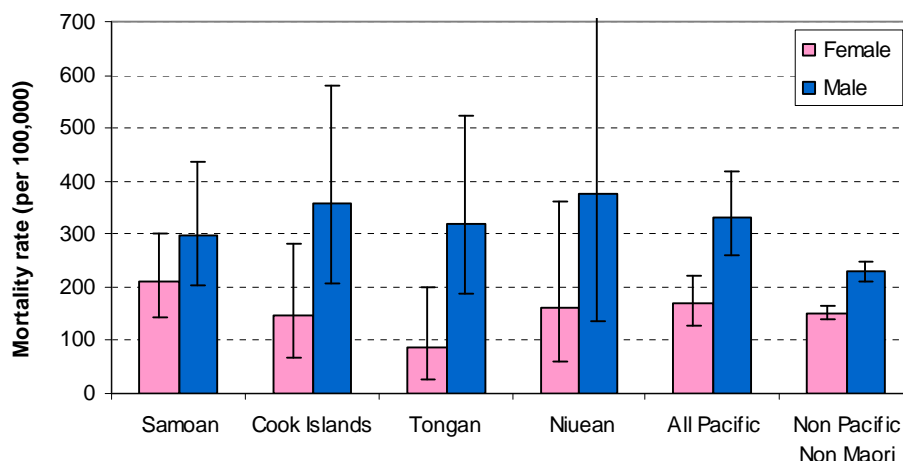
Note: These mortality rates have large confidence intervals and are rounded to the nearest whole number. Combined 2001-2003 data.

Ischaemic Heart Disease

No statistically significant differences in ischaemic heart disease mortality rates (within genders) have been shown in this data between the level 2 Pacific ethnic groups in either *Figure 7.3.1* (CM) or *Figure 7.3.2* (All NZ) below. However, a statistically significant difference has been shown (for males) between All Pacific (higher rate) and non-Pacific/non-Māori in

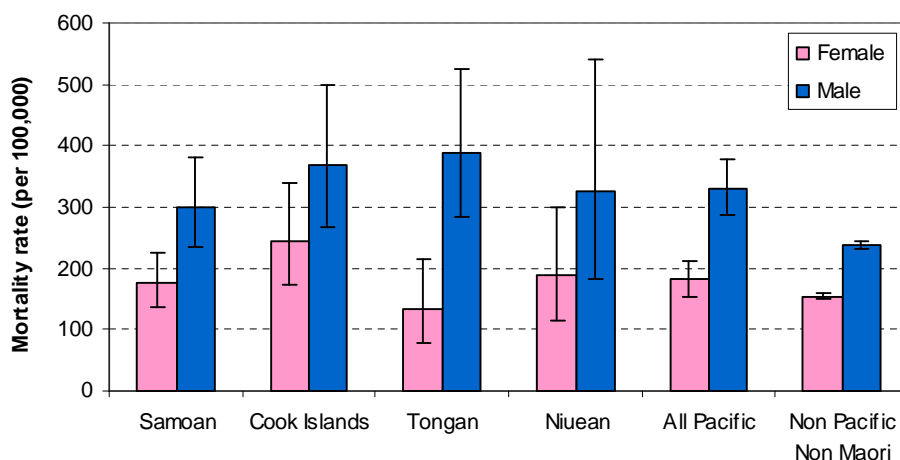
CM and All NZ. All Pacific males have higher rates (331 and 330 per 100,000 in CM and All NZ respectively) than non-Pacific/non-Māori males (229 and 238 per 100,000 in CM and All NZ respectively).

Figure 7.3.1: Age-standardised mortality rate (per 100,000) in CM for Ischaemic Heart Disease, 15+ year olds, by gender and ethnicity, (2001-2003), prioritised



Source: NZHIS.

Figure 7.3.2: Age-standardised mortality rate (per 100,000) in All NZ for Ischaemic Heart Disease, 15+ year olds, by gender and ethnicity (2001-2003), prioritised



Source: NZHIS.

Stroke, Diabetes, CORD, Lung Cancer, Hepatitis and Liver Cancer, Colorectal Cancer

Following graphical analysis, no statistically significant differences in mortality rates (within genders) for these diseases have been shown between the level 2 Pacific ethnic groups in either CM or All NZ (confidence intervals are extremely wide for this data). The mortality rates in All Pacific and non-Pacific/non-Māori only are displayed, showing statistically significant differences between these groups, in All NZ and in CM (the values in brackets). See Table 7.3.3 below.

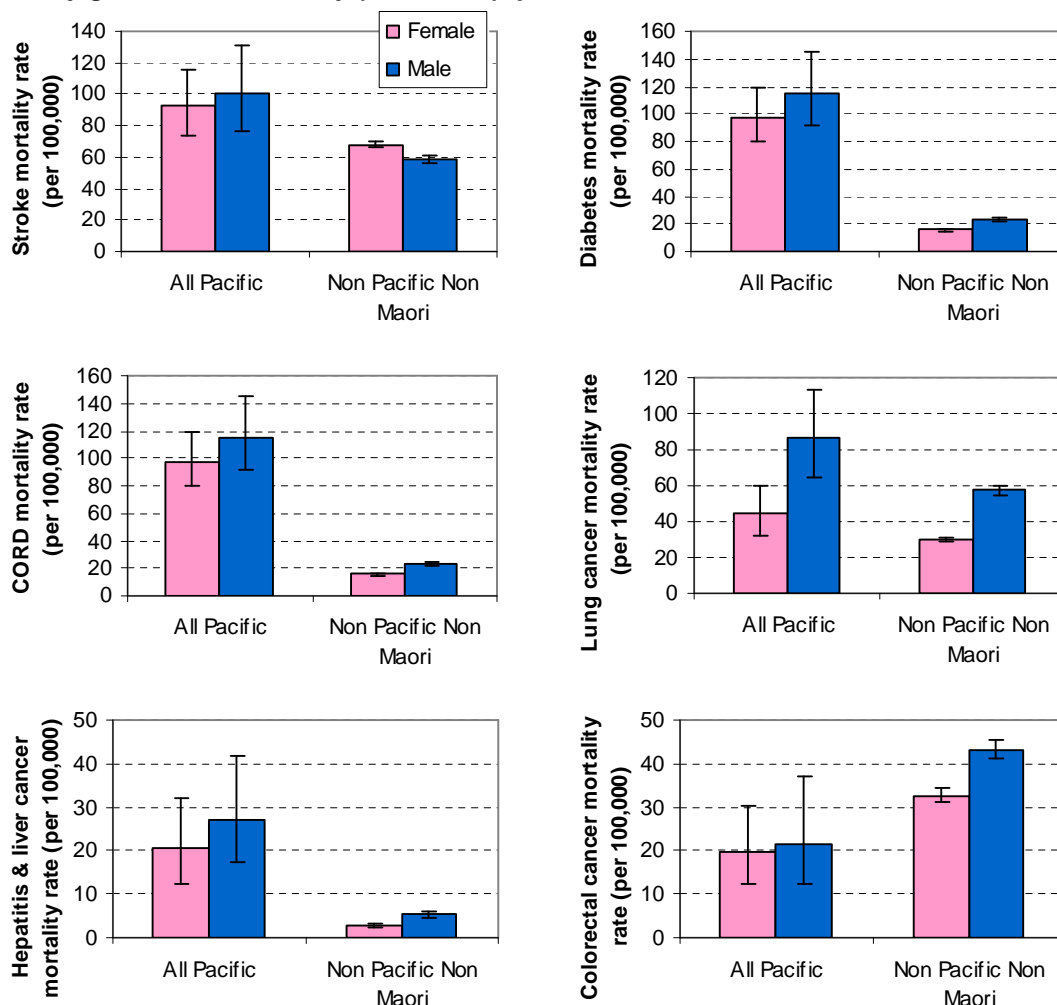
Table 7.3.3: Age-standardised mortality rate (per 100,000) in All NZ (and CM) for stroke, diabetes, CORD, lung cancer, hepatitis and liver cancer, colorectal cancer, 15+ year olds, by gender and ethnicity (2001-2003), prioritised

Disease	Gender	All Pacific	Non-Pacific/Non-Maori
Stroke	Female	93	68
	Male	101	58
Diabetes	Female (CM)	98 (106)	16 (13)
	Male (CM)	115 (143)	24 (19)
CORD	Female	98	16
	Male (CM)	115 (152)	24 (70)
Lung Cancer	Female	44	30
	Male (CM)	86 (96)	57 (48)
Hepatitis & Liver Cancer	Female	21	3
	Male	27	5
Colorectal Cancer	Female	20	33
	Male	22	43

Source: NZHIS. Note: Rates in brackets are for CM area – not All NZ. All rates above show statistically significant differences between All Pacific and non-Pacific/non-Maori.

Figure 7.3.3 below only displays All Pacific and non-Pacific/non-Māori rates. Because numbers are small for rates in CM (with extremely wide confidence intervals) data is displayed for All NZ only.

Figure 7.3.3: Age-standardised mortality rate (per 100,000) in All NZ for stroke, diabetes, CORD, lung cancer, hepatitis and liver cancer, colorectal cancer, 15+ year olds, by gender and ethnicity (2001-2003), prioritised



Source: NZHIS.

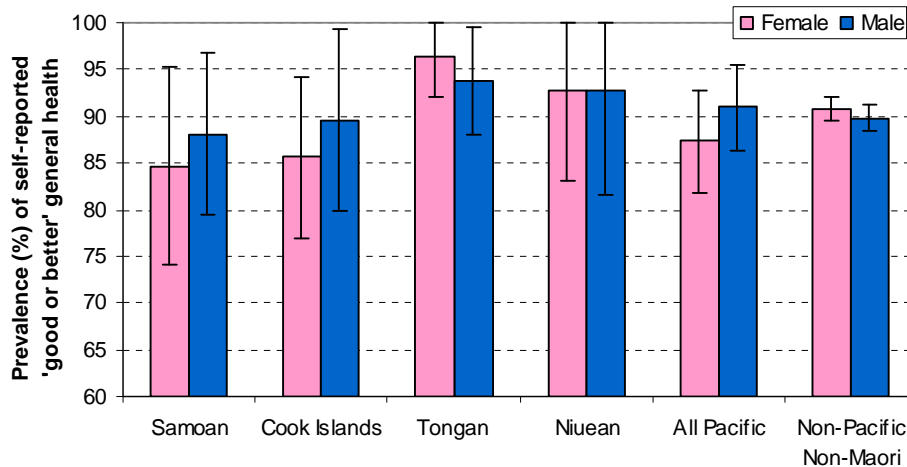
7.4 General Health Status

This section presents results obtained from the 2002/03 New Zealand Health Survey (NZHS) for self-reported general health status, SF-36 score (a questionnaire that measures self-reported health status), and ability to self care. However, due to low numbers and extremely wide confidence intervals the prevalence of 'self-care limited a lot or a little' could not be adequately compared between any of the ethnic groups.

Self-Reported 'Good or Better' General Health

Results are presented here for the prevalence of those who self-reported their general health status as 'good or better' from a range of three options, the other two being 'fair' and 'poor'. No significant differences are shown in prevalence of self-reported 'good or better' general health between any of the ethnic groups, in either gender (*Figure 7.4.1* below).

Figure 7.4.1: Age-standardised prevalence (% of adult population 15+ years of age) of self-reported 'good or better' general health in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

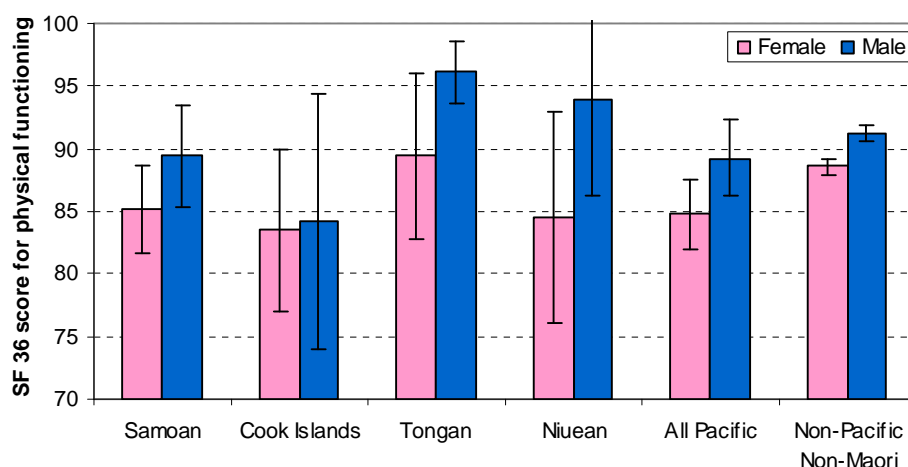


Source: NZHS 2002/2003.

SF-36 Score: Physical Functioning

Results are presented here for the adult SF-36 score for 'physical functioning', with 100 corresponding to perfect physical function and 0 to no functioning. No significant differences are shown in SF-36 score for physical functioning between any of the level 2 Pacific ethnic groups, in either gender (*Figure 7.4.2* below). Adult All Pacific females have a significantly lower SF-36 score for physical functioning (84.8%) than non-Pacific/non-Māori females (88.6%).

Figure 7.4.2: Age-standardised SF-36 score for physical functioning in All NZ, 15+ years of age, by gender and ethnicity, (NZHS 2002/2003), total response

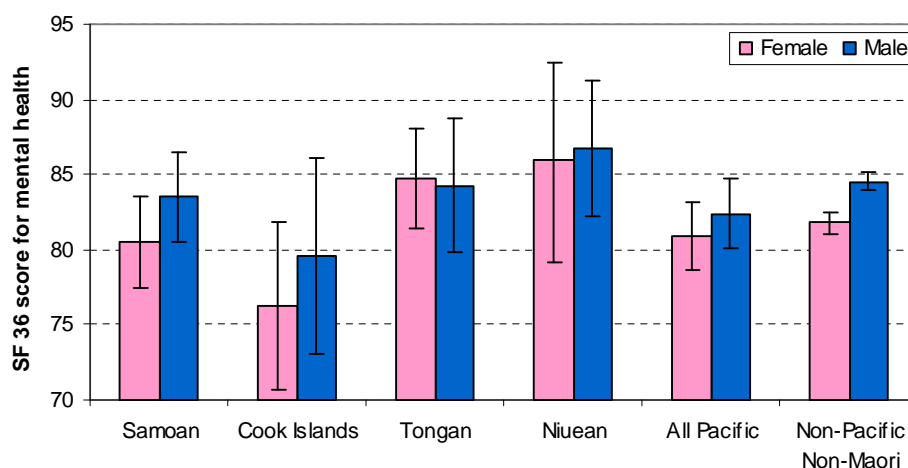


Source: NZHS 2002/2003.

SF-36 Score: Mental Health

Results are presented here for the age-standardised adult SF-36 score for 'mental health', with 100 corresponding to perfect mental health and 0 to worst mental health. No significant differences are shown in prevalence of SF-36 score for mental health between any of the ethnic groups, in either gender (Figure 7.4.3 below).

Figure 7.4.3: Age-standardised SF-36 score for mental health in All NZ, 15+ years of age, by gender and ethnicity, (NZHS 2002/2003), total response



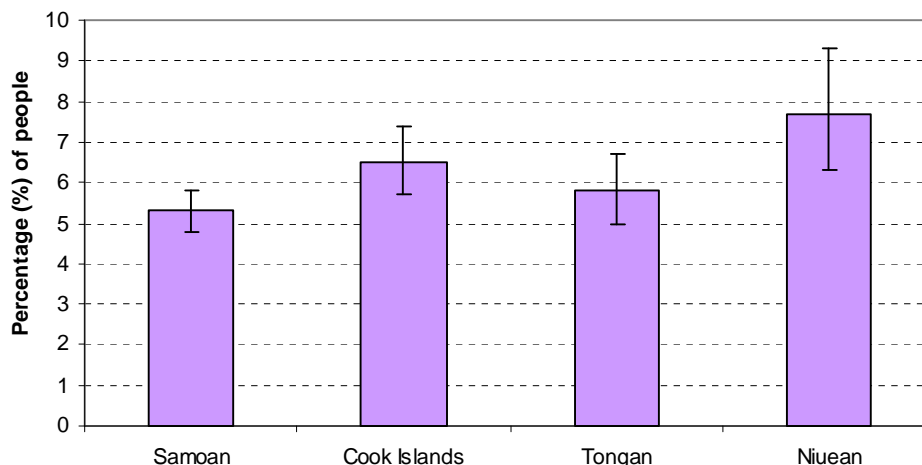
Source: NZHS 2002/2003.

7.5 Chronic Disease Prevalence

Diabetes

Limited data is available with regards to diabetes prevalence for the different Pacific ethnic groups. The only source found was from a cross-sectional household survey³⁸ conducted between 1992-1995 in the South Auckland Diabetes Project. Niueans had the highest prevalence of known diabetes amongst the level 2 Pacific ethnic groups with a significantly higher prevalence (7.7%) than Samoans (5.3%). See Figure 7.5.1 below. Evidence shows that diabetes rates increase with acculturation.³⁹ The much higher prevalence of diabetes in 'All Pacific' compared to non-Pacific/non-Māori is shown in Figure 7.5.2 on page 56.

Figure 7.5.1: Age-standardised* prevalence (% of adult population 25-74 years of age) of known diabetes, in Otara, Mangere, Papatoetoe and Otahuhu, by ethnicity, 1992-1995, modified prioritised ethnicity format



Source: Simmons et al (1999).³⁸

Note: Population excludes those reporting 'admixture' (e.g. European-Pacific, Samoan-Tongan) except where numbers were sufficient. Numbers have not been adjusted for under-ascertainment.

* Standardised to NZ population for those aged 25-74 years (SNZ 1997).

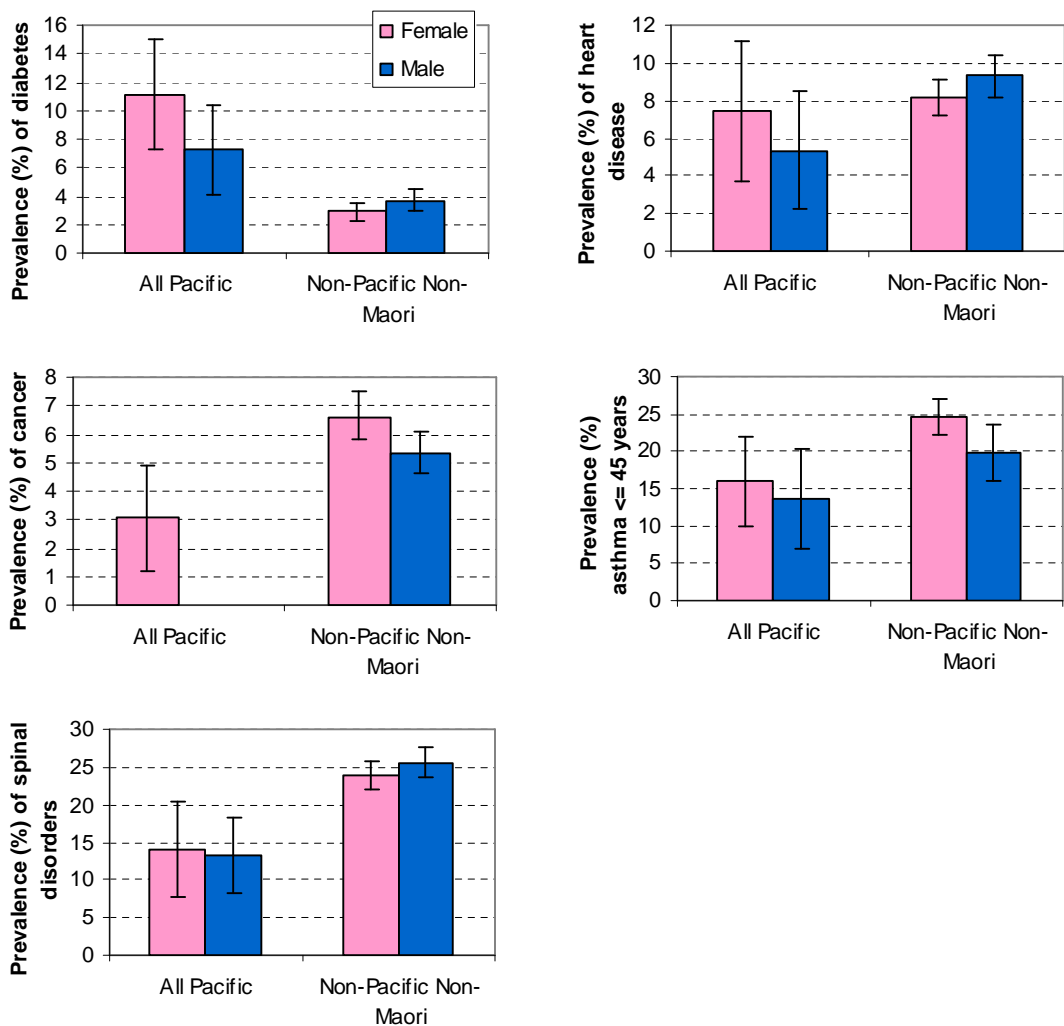
Due to low numbers and extremely wide confidence intervals the prevalence of Stroke, Osteoporosis, and CORD could not be adequately compared between the level 2 Pacific ethnic groups, or between All Pacific and non-Pacific/non-Māori.

Diabetes, Heart Disease, Cancer, Asthma, Spinal Disorders

Due to low numbers and extremely wide confidence intervals the prevalence of diabetes (from the NZHS), heart disease, cancer, asthma (<= 45 years of age), and spinal disorders could not be adequately compared between the level 2 Pacific ethnic groups. Therefore, for these diseases only the All Pacific and non-Pacific/non-Māori results have been presented.

Adult All Pacific females have a significantly higher prevalence of diabetes (11.1%) than non-Pacific/non-Māori females (2.9%). Adult All Pacific females have a significantly lower prevalence of cancer (3.1%) than non-Pacific/non-Māori females (6.6%). Adult All Pacific females have a significantly lower prevalence of asthma <= 45 years (16.0%) than non-Pacific/non-Māori females (24.6%). All Pacific adult females and males have significantly lower prevalence of spinal disorders (14.0 and 13.2% respectively) than non-Pacific/non-Māori females and males (23.9 and 25.6% respectively). No significant differences are shown in prevalence of heart disease between All Pacific and non-Pacific/non-Māori (in either gender), or in prevalence of asthma <= 45 years in males (*Figure 7.5.2* below). Note the confidence intervals were extremely wide.

Figure 7.5.2: Age-standardised prevalence (% of adult population 15+ years of age) of diabetes, heart disease, cancer, asthma (<= 45 years of age), and spinal disorders in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

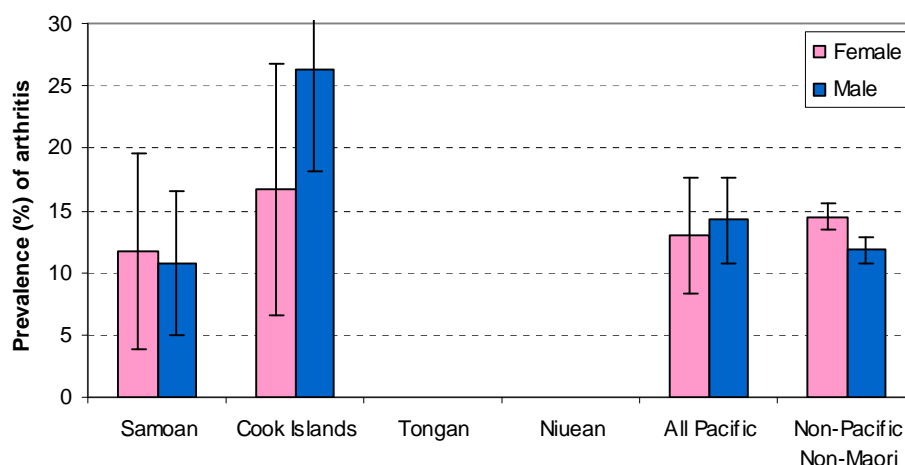


Source: NZHS 2002/2003.

Arthritis

Adult Cook Island males have a significantly higher prevalence of arthritis (26.3%) than Samoan males (10.8%). No significant differences are shown in prevalence of arthritis between All Pacific and non-Pacific/non-Māori (in either gender). See *Figure 7.5.3* below.

Figure 7.5.3: Age-standardised prevalence (% of adult population 15+ years of age) of arthritis in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response



Source: NZHS 2002/2003.

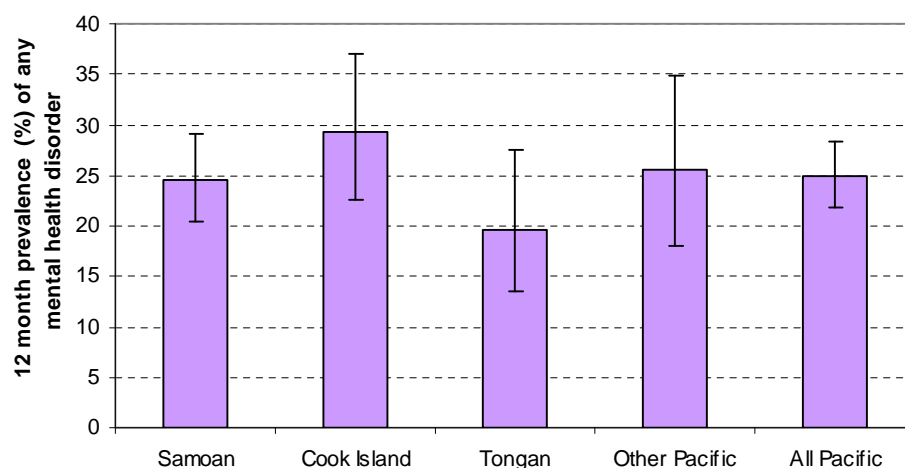
7.6 Mental Illness Prevalence

This section presents results from The New Zealand Mental Health Survey (2003-2004) in which 2,236 Pacific people were included.²⁵ Pacific people were found to have high rates of mental illness: the unadjusted 12 month prevalence for Pacific people was 25.0% compared with 20.7% for the total NZ population.²⁵ Only 25.0% of Pacific people who had experienced a serious mental disorder had visited any health service for their mental health reason compared with 58.0% of the total NZ population.²⁵ The 12 month prevalence of any mental disorder was lower among Pacific people born in the Islands (15.0% in those who migrated after age 18) than among New Zealand-born Pacific people (31.4%).²⁵

Any Mental Disorder

No statistically significant difference was shown in 12 month prevalence of 'any mental disorder' between the level 2 Pacific ethnic groups in NZ (Figure 7.6.1 below).

Figure 7.6.1: 12 month prevalence (% of adults 16+ years of age) of any mental disorder for Pacific people in All NZ, by ethnicity, (NZ Mental Health Survey 2003-2004), total response



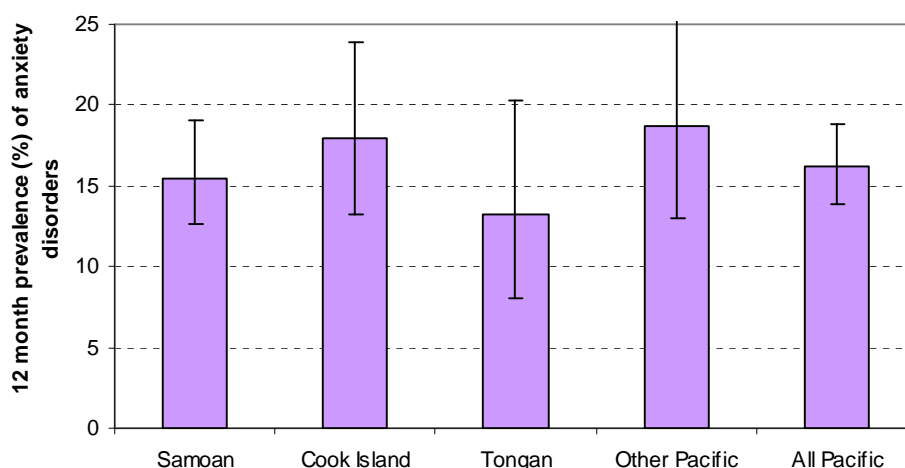
Source: The NZ Mental Health Survey 2003/2004.

Note: 'Other Pacific' includes all level 2 Pacific ethnic groups excluding Samoans, Cook Islanders, and Tongans (e.g. includes Niueans, Fijians, Tokelauans, Tuvaluans etc).

Any Anxiety Disorder

No statistically significant difference was shown in 12 month prevalence of 'any anxiety disorder' between the level 2 Pacific ethnic groups in NZ (*Figure 7.6.2* below).

Figure 7.6.2: 12 month prevalence (% of adults 16+ years of age) of any anxiety disorder for Pacific people in All NZ, by ethnicity, (NZ Mental Health Survey 2003-2004), total response



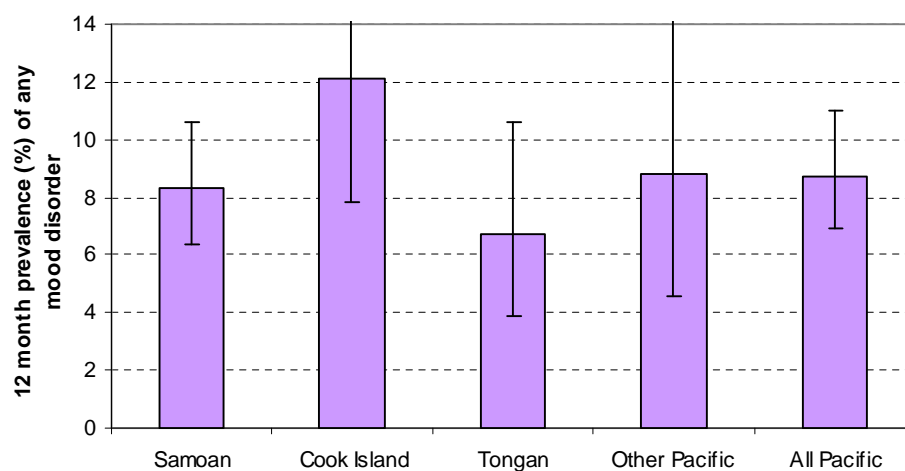
Source: The NZ Mental Health Survey 2003/2004.

Note: 'Other Pacific' includes all level 2 Pacific ethnic groups excluding Samoans, Cook Islanders, and Tongans (e.g. includes Niueans, Fijians, Tokelauans, Tuvaluans etc).

Any Mood Disorder

No statistically significant difference was shown in 12 month prevalence of 'any mood disorder' between the level 2 Pacific ethnic groups in NZ (*Figure 7.6.3* below).

Figure 7.6.3: 12 month prevalence (% of adults 16+ years of age) of any mood disorder for Pacific people in All NZ, by ethnicity, (NZ Mental Health Survey 2003-2004), total response



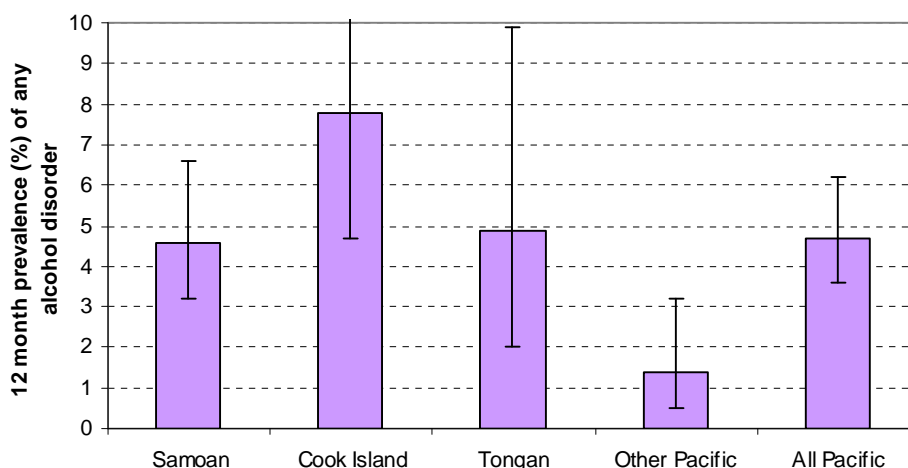
Source: The NZ Mental Health Survey 2003/2004.

Note: 'Other Pacific' includes all level 2 Pacific ethnic groups excluding Samoans, Cook Islanders, and Tongans (e.g. includes Niueans, Fijians, Tokelauans, Tuvaluans etc).

Any Alcohol Disorder

In All NZ, adult Cook Islanders have a higher 12 month prevalence of any alcohol disorder (7.8%) than 'Other Pacific' (1.4%). 'Other Pacific' includes all level 2 Pacific ethnic groups excluding Samoans, Cook Islanders, and Tongans (e.g. it includes Niueans, Fijians, Tokelauans, Tuvaluans etc). See *Figure 7.6.4* below.

Figure 7.6.4: 12 month prevalence (% of adults 16+ years of age) of any alcohol disorder for Pacific people in All NZ, by ethnicity, (NZ Mental Health Survey 2003-2004), total response



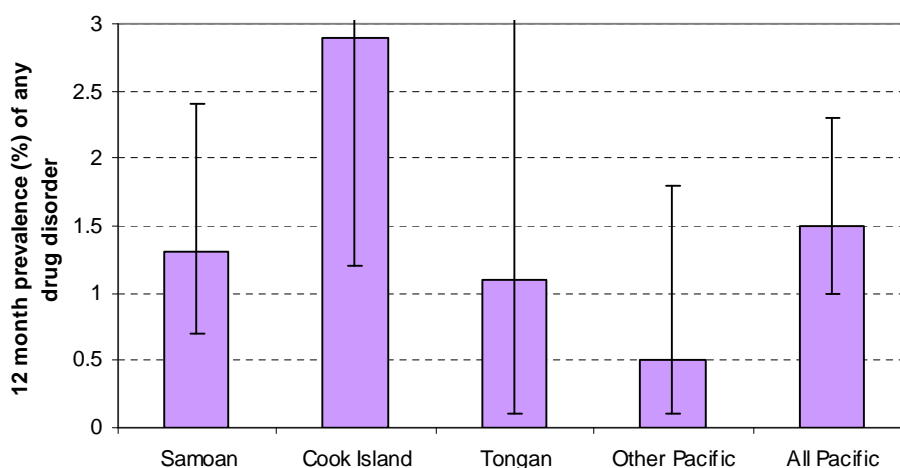
Source: The NZ Mental Health Survey 2003/2004.

Note: 'Other Pacific' includes all level 2 Pacific ethnic groups excluding Samoans, Cook Islanders, and Tongans (e.g. includes Niueans, Fijians, Tokelauans, Tuvaluans etc).

Any Drug Disorders

No statistically significant difference was shown in 12 month prevalence of 'any drug disorder' between the level 2 Pacific ethnic groups in NZ (*Figure 7.6.5* below).

Figure 7.6.5: 12 month prevalence (% of adults 16+ years of age) of any drug disorder for Pacific people in All NZ, by ethnicity, (NZ Mental Health Survey 2003-2004), total response



Source: The NZ Mental Health Survey 2003/2004.

Note: 'Other Pacific' includes all level 2 Pacific ethnic groups excluding Samoans, Cook Islanders, and Tongans (e.g. includes Niueans, Fijians, Tokelauans, Tuvaluans etc).

7.7 Summary - Health Outcomes

No statistically significant differences were shown between the level 2 Pacific ethnic groups in either gender in:

- LE at birth in CM (differences were found in All NZ);
- Rates in any of the top ten causes of PAM (within gender groups in either CM or All NZ);
- Prevalence of self-reported 'good or better' general health;
- SF-36 score for physical functioning;
- SF-36 score for mental health;
- 12 month prevalence of 'any mental disorder', 'any anxiety disorder', 'any mood disorder', or 'any drug disorder'.

Samoans and Tongans appeared to have lower prevalence of all mental illnesses compared to Cook Islanders however confidence intervals were too wide to show any statistically significant differences.

Due to low numbers and extremely wide confidence intervals the prevalence of diabetes (in CM and All NZ), heart disease, stroke, cancer, asthma (<= 45 years of age), spinal disorders, osteoporosis, CORD, and prevalence of 'self-care limited a lot or a little' could not be adequately compared between the level 2 Pacific ethnic groups.

Samoans alone

In the South Auckland Diabetes Project (1992-1995), adult Samoans had significantly lower prevalence of diabetes than Niueans.

In All NZ, adult Samoan females have a significantly:

- Lower LE at birth (77.5 years) than Niuean females (80.6 years);
- Higher all-cause mortality rate than Niuean females.

In All NZ, adult Samoan males have a significantly:

- Lower prevalence of arthritis than Cook Island males.

Tongans alone

In All NZ, adult Tongan females have a significantly:

- Higher LE at birth (79.9 years) than Cook Island females (76.6 years).

Cook Islanders alone

In All NZ, adult Cook Islanders (males and females combined) have a significantly:

- Higher 12 month prevalence of any alcohol disorder than 'Other Pacific' people (all level 2 Pacific ethnic groups excluding Samoans, Cook Islanders, and Tongans e.g. it includes Niueans, Fijians, Tokelauans, Tuvaluans etc).

In All NZ, adult Cook Island females have a significantly:

- Lower LE at birth (76.6 years) than Tongan and Niuean females (79.9 and 80.6 years respectively);
- Higher all-cause mortality rate than Niuean females.

In All NZ, adult Cook Island males have a significantly:

- Higher prevalence of arthritis than Samoan males.

Niueans alone

In the South Auckland Diabetes Project (1992-1995), adult Niueans had significantly higher prevalence of diabetes than Samoans.

In All NZ, adult Niuean females have a significantly:

- Higher LE at birth (80.6 years) than Samoan and Cook Island females (77.5 and 76.6 years respectively);
- Lower all-cause mortality rate than Samoan and Cook Island females.

All Pacific and non-Pacific/non-Māori

No statistically significant differences were found (in NZHS) between All Pacific and Non-Pacific/non-Māori in adult:

- Prevalence of self-reported 'good or better' general health, heart disease, and arthritis (in either gender);
- Prevalence of asthma <= 45 years (in males);
- SF-36 score for mental health.

In ALL NZ, All Pacific adults (females and males combined) have a:

- Significantly higher all-cause mortality rate than non-Pacific/non-Māori adults;
- Higher unadjusted 12 month prevalence of any mental illness than the total NZ population;
- Lower percentage, of those with serious mental illness, having visiting any health service for this reason than the total NZ population.

All Pacific adult females and males (individually) have a significantly:

- Lower LE than non-Pacific/non-Māori females and males (in CM and in All NZ);
- Lower prevalence of spinal disorders than non-Pacific/non-Māori females and males (NZHS).
- Lower mortality rate for colorectal cancer than non-Pacific/non-Māori females and males (in All NZ).

All Pacific adult females have significantly:

- Higher mortality rates for diabetes (in CM and All NZ), and stroke, CORD, lung cancer, and 'hepatitis and liver cancer' (in All NZ) than non-Pacific/non-Māori females;
- Lower SF-36 score for physical functioning than non-Pacific/non-Māori females (NZHS);
- Higher prevalence of diabetes than non-Pacific/non-Māori females (NZHS);

- Lower prevalence of cancer, and asthma \leq 45 years than non-Pacific/non-Māori females (NZHS).

All Pacific adult males have significantly:

- Higher mortality rates for ischaemic heart disease, diabetes, COD, and lung cancer (in CM and All NZ), and stroke and 'hepatitis and liver cancer' (in All NZ) than non-Pacific/non-Māori males.

Gender Differences

- Male LE at birth is poor compared to females across all ethnic groups.
- The gender gap in adult all-cause mortality is significant across all ethnic groups.

Migration Differences

- The 12 month prevalence of any mental disorder was lower among Pacific people born in the Islands (especially in those who migrated after age 18) than among New Zealand-born Pacific people.

8 Adult Health Care Utilisation

This section presents data on:

- Adult all cause potentially avoidable hospitalisation rates by gender and ethnicity;
- The top ten causes of adult potentially avoidable hospitalisation by ethnicity;
- Adult potentially avoidable hospitalisation rates for the top ten causes, and additional selected causes, by gender and ethnicity;
- Adult hospitalisation rates for other selected causes of hospitalisation, by gender and ethnicity;
- Adult surgical intervention rates for selected surgical procedures by gender and ethnicity;
- Diabetes Chronic Care Management (CCM) at CMDHB (number of people, HbA1c, Cholesterol, percent on a statin and albumin/creatinine ratio);
- Self-reported cervical and breast screening;
- Health care provider utilisation by gender and ethnicity - including primary (e.g. general practitioners and Pacific providers) and secondary services (public and private hospitals).

Note - for hospitalisation indicators the measure used is the number of hospitalisation, not people. Therefore the same person admitted 5 times for angina is counted as five hospitalisations for this measure.

8.1 Adult Potentially Avoidable Hospitalisations (PAH) – All Cause

Potentially avoidable hospitalisations (PAH) are admissions to hospital that might be considered to be avoidable and consist of both:

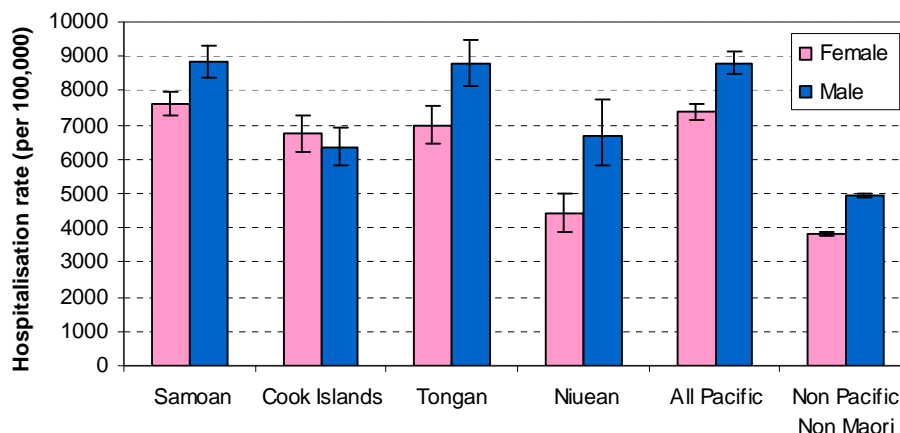
- Preventable hospitalisations - hospitalisations resulting from diseases that may be prevented through population-based health promotion strategies (e.g. tobacco tax and smoke free laws, exercise, good diet);
- Ambulatory sensitive hospitalisations - hospitalisations resulting from diseases able to be looked after in a primary health care setting (e.g. vaccine-preventable diseases, diabetes control, and asthma prevention).

PAH rate data was obtained from 2003-2005 Middlemore hospital discharge data (in CMDHB residents only) for specific conditions classified by ICD10 codes (*Table 17.1.1* on page 142 in the appendices outlines the ICD10 codes used for each cause).

Counties Manukau - All Cause

Several statistically significant differences for adult all-cause hospitalisation rates in CM are shown in *Figure 8.1.1* below. Niuean females in CM have significantly lower hospitalisation rates for all causes (4,400 per 100,000) than females in the other level 2 Pacific ethnic groups (6,700 - 7,600 per 100,000). Samoan and Tongan males have significantly higher hospitalisation rates for all causes (8,800 and 8,800 per 100,000 respectively) than Cook Island and Niuean males (6,400 and 6,700 per 100,000 respectively). All Pacific females and males have significantly higher hospitalisation rates for all causes (7,400 and 8,800 per 100,000 respectively) than non-Pacific/non-Māori females and males (3,800 and 4,900 per 100,000 respectively). Note that the results are rounded to 2 significant figures to reduce spurious precision.

Figure 8.1.1: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for All Causes, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

8.2 Adult Potentially Avoidable Hospitalisations (PAH) – Top Ten Causes

The age-standardised rate for the top ten potentially avoidable causes of hospitalisation in adults in CMs shown in *Table 8.2.1* below. Causes of hospitalisation are presented in descending order from the highest to lowest hospitalisation rate for All Pacific people. The ranking and rate for each of these conditions is then given for each level 2 Pacific ethnic group to show any differences. The top 5 causes for All Pacific people are also in the top 5 for each of the level 2 Pacific ethnic groups (e.g. angina and chest pain, CORD, pneumonia, diabetes and cellulitis), although in varying orders. *Table 17.1.1* on page 142 in the appendices outlines the ICD10 codes used for each cause.

Rates for the top 10 causes of PAH in CM have also been graphed below.

Counties-Manukau

Table 8.2.1: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for top ten causes in Pacific people, 15+ year olds, males and females combined (2003-2005), prioritised

Cause of PAH	All Pacific		Samoan		Cook Islands		Tongan		Niuean	
	Rank	Hosp. rate	Rank	Hosp. rate	Rank	Hosp. rate	Rank	Hosp. rate	Rank	Hosp. rate
Angina and chest pain	1	1130	1	1080	1	880	2	830	1	650
CORD	2	850	2	830	3	640	1	1130	4	480
Pneumonia	3	700	3	790	5	560	4	650	3	550
Diabetes	4	690	5	620	4	600	3	720	2	620
Cellulitis	5	680	4	700	2	710	5	640	5	360
Myocardial infarction	6	520	8	450	7	340	6	480	7	300
Congestive heart failure	7	420	10	420	6	520	7	350	16	90
Asthma	8	380	9	430	10	220	10	320	6	330
Stroke	9	380	6	450	9	250	8	340	12	130
Kidney/urinary infection	10	380	7	450	8	310	9	330	9	170

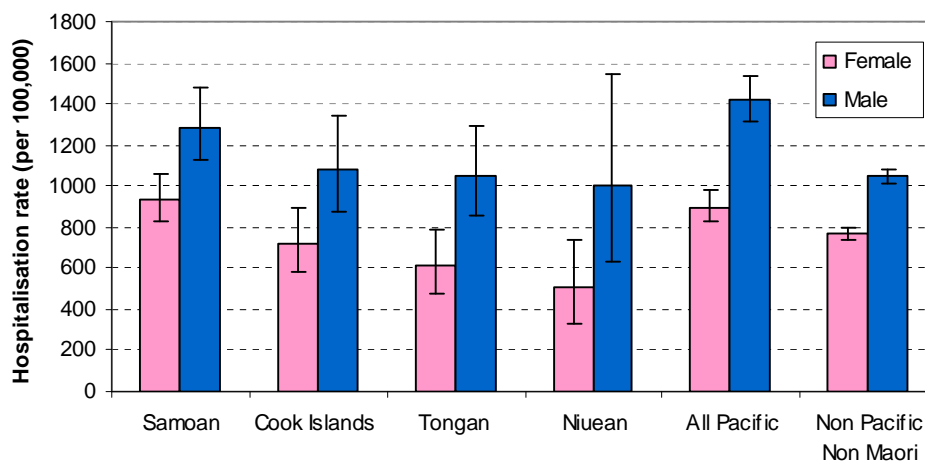
Source: NZHIS.

Note: These hospitalisation rates have large confidence intervals and are rounded to the nearest 10. Combined 2003-2005 data.

Angina and Chest Pain

A statistically significant gender difference exists amongst most ethnic groups in CM (females having lower rates of PAH for angina and chest pain than males). In addition, Samoan females have significantly higher rates (938 per 100,000) than Tongan and Niuean females (613 and 502 per 100,000 respectively). All Pacific females and males have significantly higher rates (900 and 1,420 per 100,000 respectively) than non-Pacific/non-Māori females and males (769 and 1,048 per 100,000 respectively). See *Figure 8.2.1* below.

Figure 8.2.1: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for angina and chest pain, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised

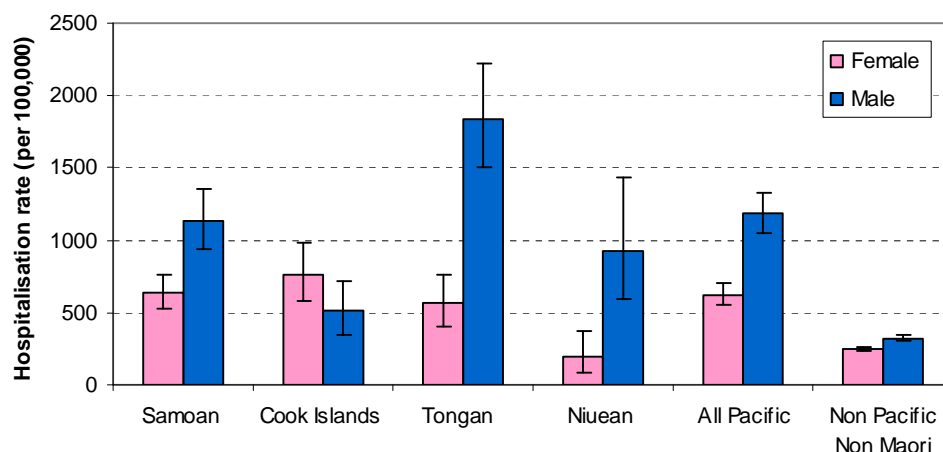


Source: NZHIS. Note: Combined 2003-2005 data.

CORD

A statistically significant gender difference is shown amongst most ethnic groups in CM (females tend to have lower rates of PAH for CORD than males). In addition, Niuean females have significantly lower rates (192 per 100,000) than females in the other level 2 Pacific ethnic groups (560 - 755 per 100,000). Samoan and Tongan males have significantly higher rates (1,130 and 1,836 per 100,000 respectively) than Cook Island males (508 per 100,000). Tongan males have significantly higher rates (1,836 per 100,000) than males in the other level 2 Pacific ethnic groups (508 - 1130 per 100,000). All Pacific females and males have significantly higher rates (624 and 1,185 per 100,000 respectively) than non-Pacific/non-Māori females and males (245 and 320 per 100,000 respectively). See *Figure 8.2.2* below.

Figure 8.2.2: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for CORD, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised

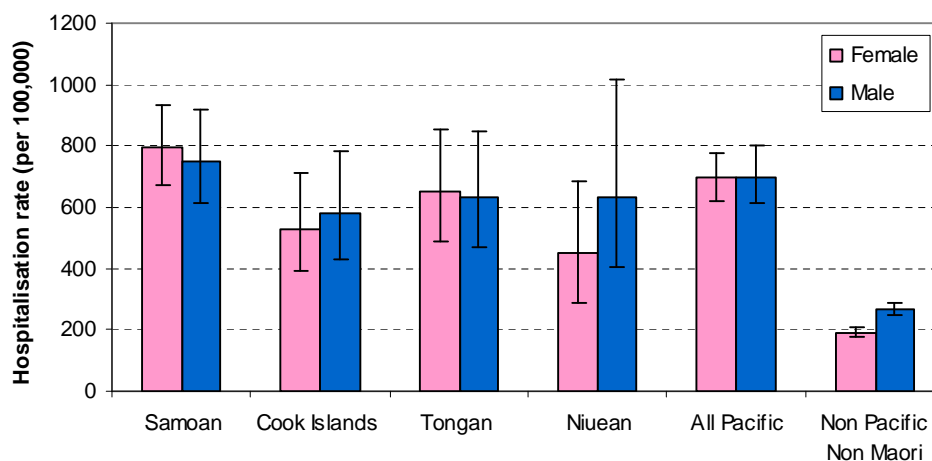


Source: NZHIS.
Note: Combined 2003-2005 data.

Respiratory Infection: Pneumonia

No statistically significant differences are shown in PAH rates for pneumonia between the level 2 Pacific ethnic groups in CM, in either gender (*Figure 8.2.3* below). All Pacific females and males have significantly higher rates (695 and 701 per 100,000 respectively) than non-Pacific/non-Māori females and males (192 and 264 per 100,000 respectively).

Figure 8.2.3: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for respiratory infection: pneumonia, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised

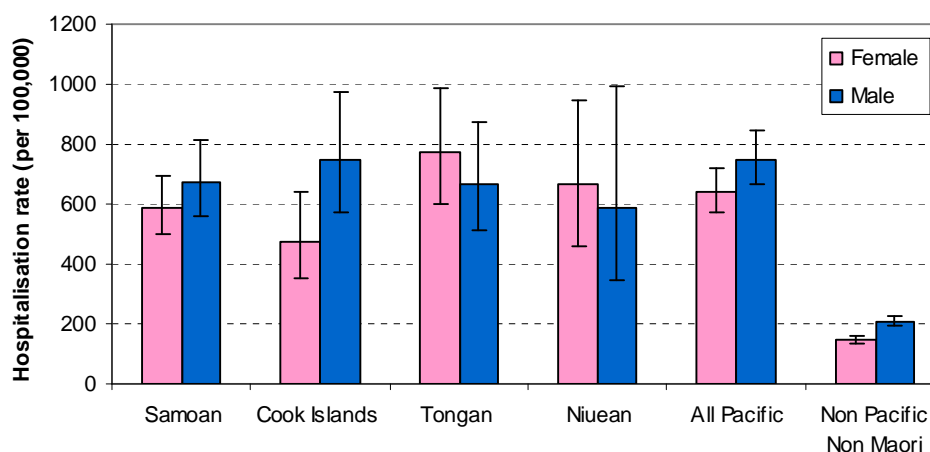


Source: NZHIS.
Note: Combined 2003-2005 data.

Diabetes

No statistically significant differences are shown in PAH rates for diabetes between the level 2 Pacific ethnic groups in CM, in either gender (*Figure 8.2.4* below). All Pacific females and males have significantly higher rates (643 and 749 per 100,000 respectively) than non-Pacific/non-Māori females and males (148 and 209 per 100,000 respectively).

Figure 8.2.4: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for diabetes, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised

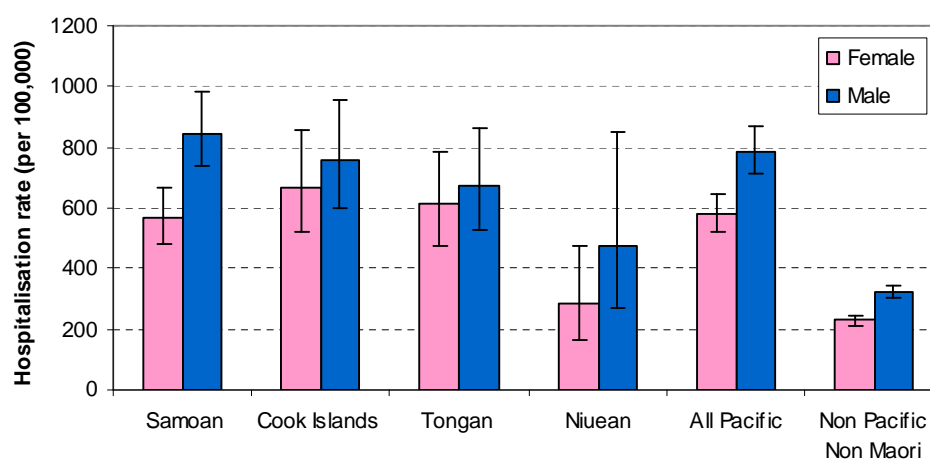


Source: NZHIS.
Note: Combined 2003-2005 data.

Cellulitis

In CM, Niuean females have significantly lower PAH rates for cellulitis (287 per 100,000) than females in the other level 2 Pacific ethnic groups (565 – 668 per 100,000). All Pacific females and males have significantly higher rates (579 and 786 per 100,000 respectively) than non-Pacific/non-Māori females and males (230 and 323 per 100,000 respectively). See *Figure 8.2.5* below.

Figure 8.2.5: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for cellulitis, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised

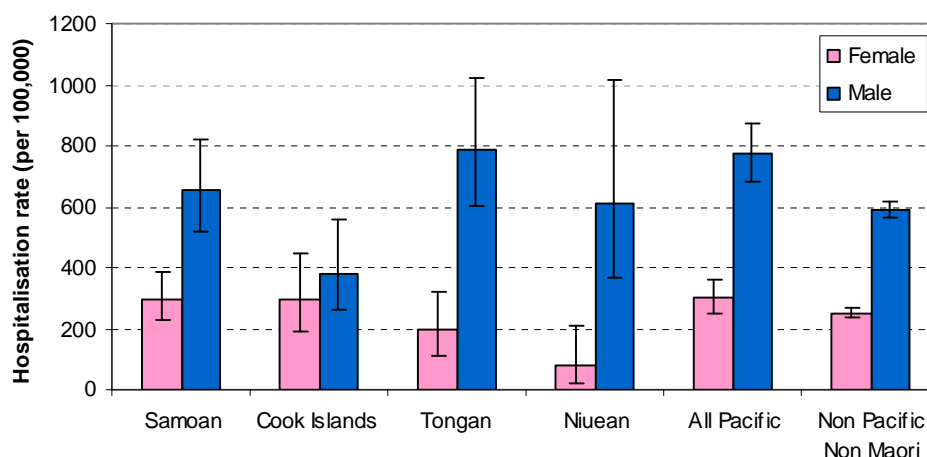


Source: NZHIS.
Note: Combined 2003-2005 data.

Myocardial Infarction

A statistically significant gender difference is shown amongst most ethnic groups in CM (females tend to have lower rates of PAH for myocardial infarction than males). In addition, Samoan females have significantly higher rates (298 per 100,000) than Niuean females (76 per 100,000). Tongan males have significantly higher rates (787 per 100,000) than Cook Island males (380 per 100,000). All Pacific males have significantly higher rates (771 per 100,000) than non-Pacific/non-Māori males (591 per 100,000). See *Figure 8.2.6* below.

Figure 8.2.6: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for myocardial infarction, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised

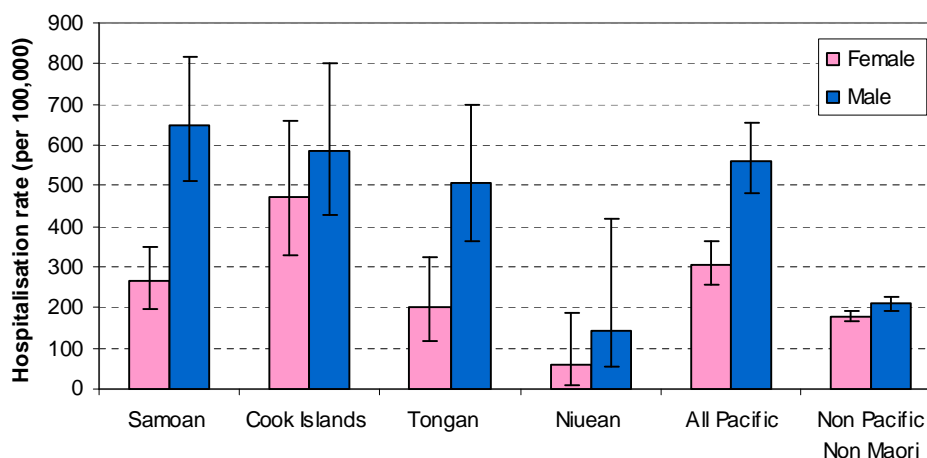


Source: NZHIS.
Note: Combined 2003-2005 data.

Congestive Heart Failure

In CM, Niuean females have significantly lower PAH rates for congestive heart failure (58 per 100,000) than Samoan and Cook Island females (263 and 471 per 100,000 respectively). Samoan males have significantly higher rates (648 per 100,000) than Niuean males (142 per 100,000). All Pacific females and males have significantly higher rates (304 and 563 per 100,000 respectively) than non-Pacific/non-Māori females and males (179 and 210 per 100,000 respectively). See *Figure 8.2.7* below.

Figure 8.2.7: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for congestive heart failure, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised

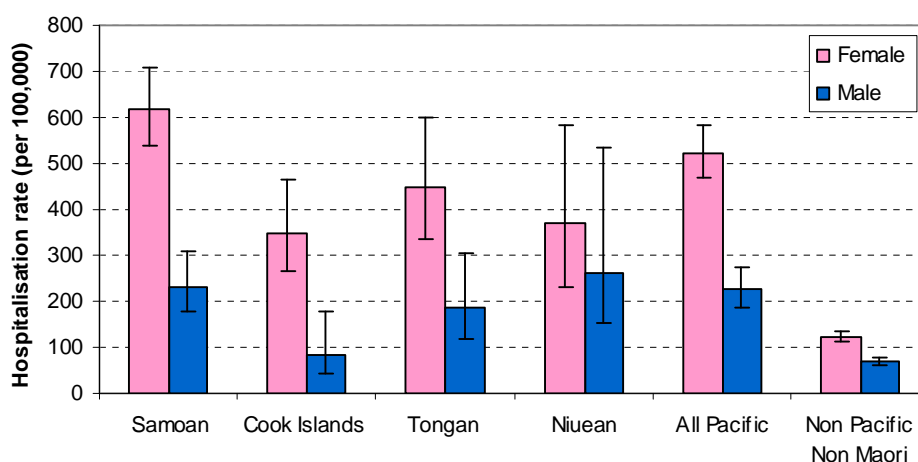


Source: NZHIS.
Note: Combined 2003-2005 data.

Asthma

A statistically significant gender difference is shown amongst most ethnic groups in CM (females tend to have higher rates of PAH for asthma than males). Samoan females have significantly higher rates (616 per 100,000) than Cook Island females (347 per 100,000). All Pacific females and males have significantly higher rates (523 and 225 per 100,000 respectively) than non-Pacific/non-Māori females and males (123 and 69 per 100,000 respectively). See *Figure 8.2.8* below. Previous research has found that asthma is more common in females than males during adulthood.⁴⁰

Figure 8.2.8: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for asthma, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised



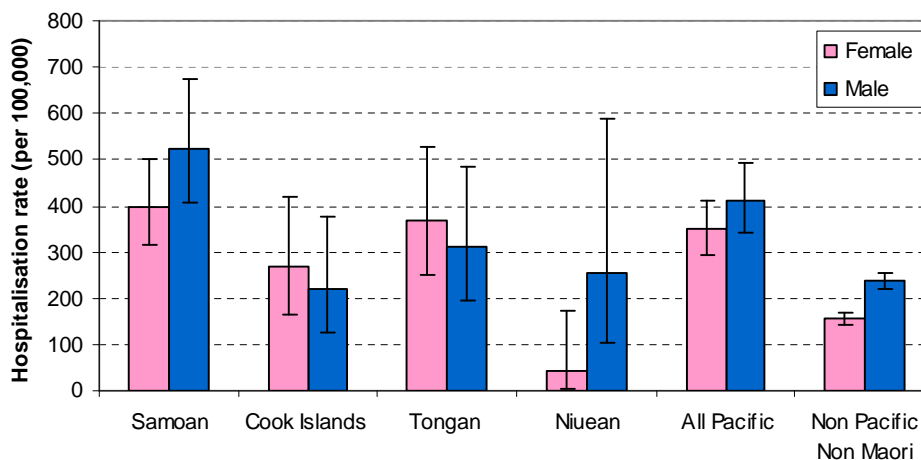
Source: NZHIS.

Note: Combined 2003-2005 data.

Stroke

In CM, Samoan and Tongan females have significantly higher PAH rates for stroke (400 and 369 per 100,000 respectively) than Niuean females (45 per 100,000). Samoan males have significantly higher rates (524 per 100,000) than Cook Island males (220 per 100,000). All Pacific females and males have significantly higher PAH rates for stroke (349 and 411 per 100,000 respectively) than non-Pacific/non-Māori females and males (156 and 237 per 100,000 respectively). See *Figure 8.2.9* below.

Figure 8.2.9: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for stroke, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised



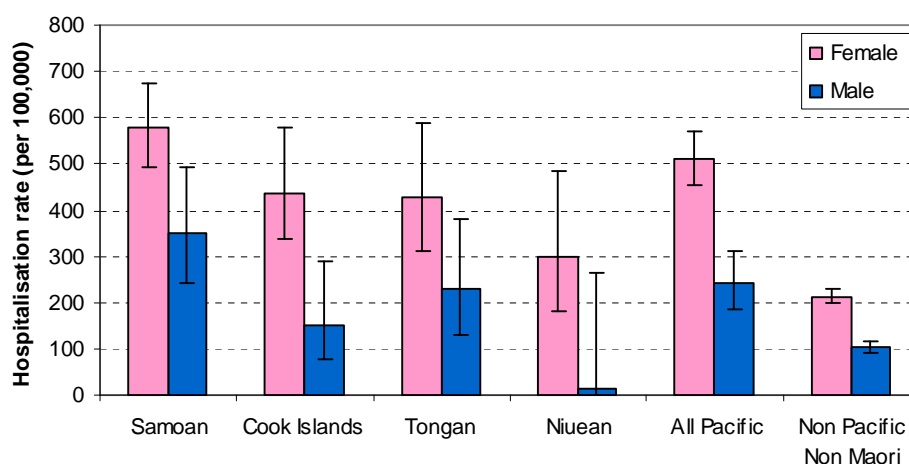
Source: NZHIS.

Note: Combined 2003-2005 data.

Kidney/Urinary Infection

In CM, Samoan females have significantly higher PAH rates for kidney/urinary infection (578 per 100,000) than Niuean females (300 per 100,000). All Pacific females and males have significantly higher rates (509 and 241 per 100,000 respectively) than non-Pacific/non-Māori females and males (212 and 104 per 100,000 respectively). See Figure 8.2.10 below.

Figure 8.2.10: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for kidney/urinary infection, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised



Source: NZHIS.

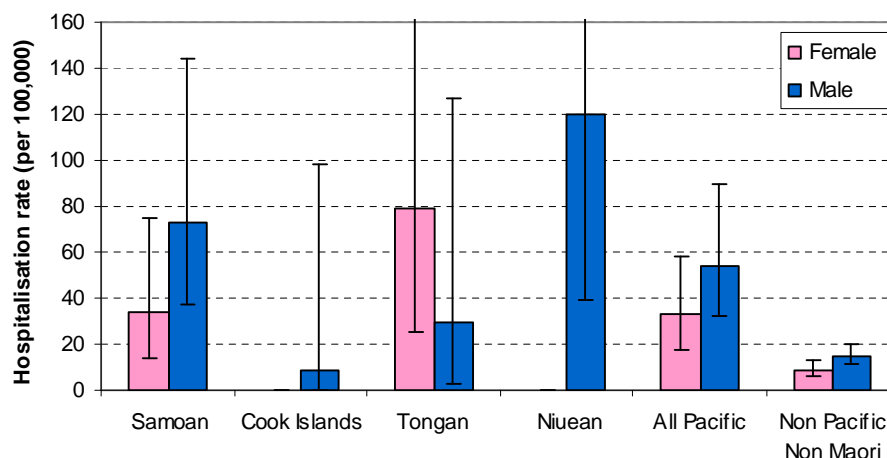
Note: Combined 2003-2005 data.

8.3 Adult Hospitalisations – Other Selected Causes

Stomach Cancer

No statistically significant differences are shown in hospitalisation rates for stomach cancer between the level 2 Pacific ethnic groups in CM, in either gender (Figure 8.3.1 below). All Pacific females and males have significantly higher hospitalisation rates for stomach cancer (33 and 54 per 100,000 respectively) than non-Pacific/non-Māori females and males (9 and 15 per 100,000 respectively).

Figure 8.3.1: Age-standardised hospitalisation rate (per 100,000) in CM for stomach cancer, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised



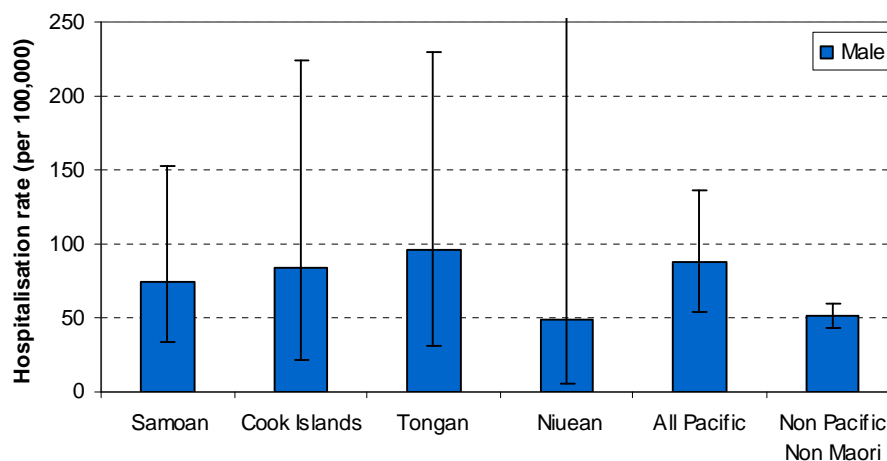
Source: NZHIS.

Note: Combined 2003-2005 data.

Prostate Cancer

No statistically significant differences are shown in male hospitalisation rates for prostate cancer between any of the ethnic groups in CM (Figure 8.3.2 below).

Figure 8.3.2: Age-standardised hospitalisation rate (per 100,000) in CM for prostate cancer, 15+ year olds, by ethnicity, (2003-2005), prioritised



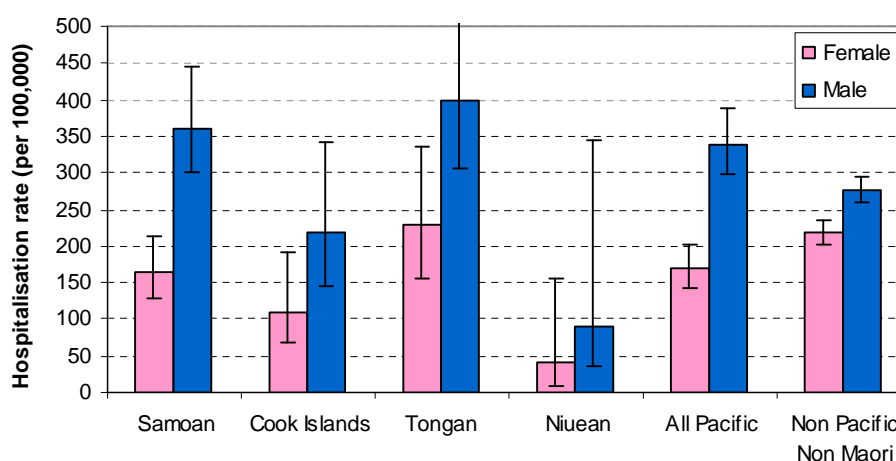
Source: NZHIS.

Note: Combined 2003-2005 data.

Road Traffic Injury

In CM, Tongan females have significantly higher hospitalisation rates for road traffic injury (229 per 100,000) than Niuean females (42 per 100,000). All Pacific females have significantly lower rates (167 per 100,000) than non-Pacific/non-Māori females (218 per 100,000). All Pacific males have significantly higher rates (338 per 100,000) than non-Pacific/non-Māori males (277 per 100,000). See Figure 8.3.3 below.

Figure 8.3.3: Age-standardised hospitalisation rate (per 100,000) in CM for road traffic injury, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised



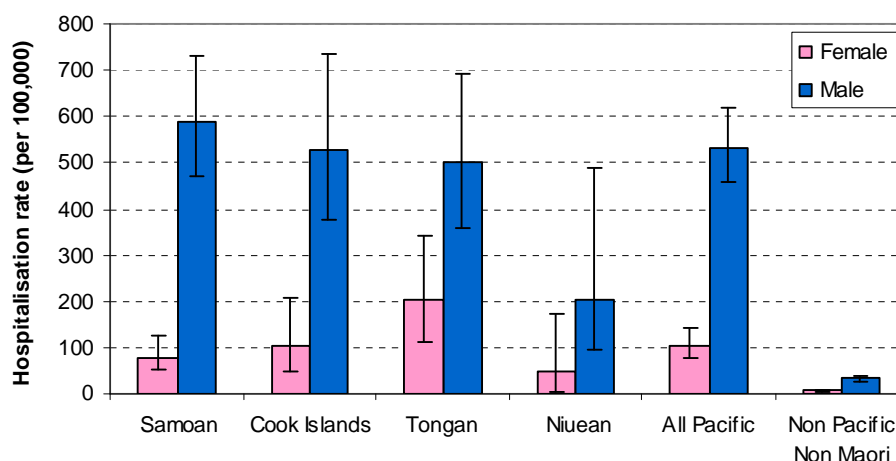
Source: NZHIS.

Note: Combined 2003-2005 data.

Gout

A statistically significant gender difference is shown amongst most ethnic groups in CM (females tend to have lower rates of hospitalisation for gout than males). No statistically significant differences in rates are shown between the level 2 Pacific ethnic groups in CM, in either gender (*Figure 8.3.4* below). All Pacific females and males have significantly higher hospitalisation rates for gout (106 and 533 per 100,000 respectively) than non-Pacific/non-Māori females and males (7 and 33 per 100,000 respectively).

Figure 8.3.4: Age-standardised hospitalisation rate (per 100,000) in CM for gout, 15+ year olds, by gender and ethnicity, (2003-2005), prioritised



Source: NZHIS.

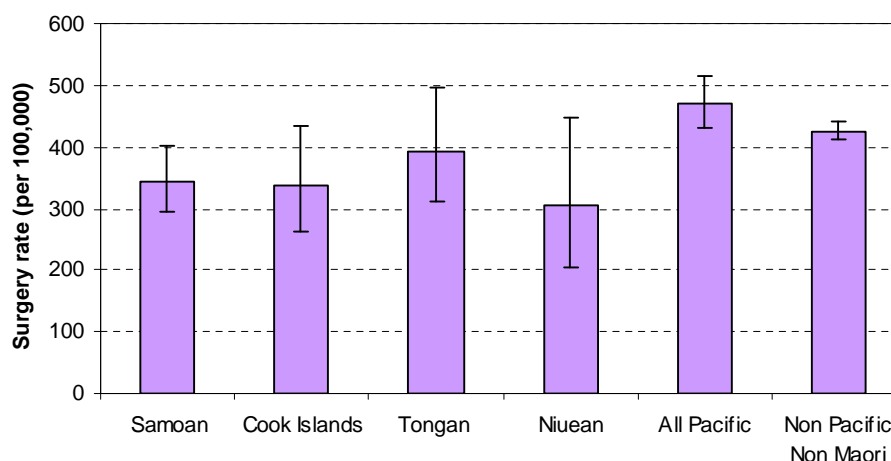
Note: Combined 2003-2005 data.

8.4 Adult Surgical Indicators

Angiography

No statistically significant differences are shown in intervention rates for angiography between any of the level 2 Pacific ethnic groups, or between All Pacific and non-Pacific/non-Māori in CM (*Figure 8.4.1* below).

Figure 8.4.1: Age-standardised surgical intervention rate (per 100,000) in CM for angiography, 15+ year olds, by ethnicity, (2003-2005), prioritised



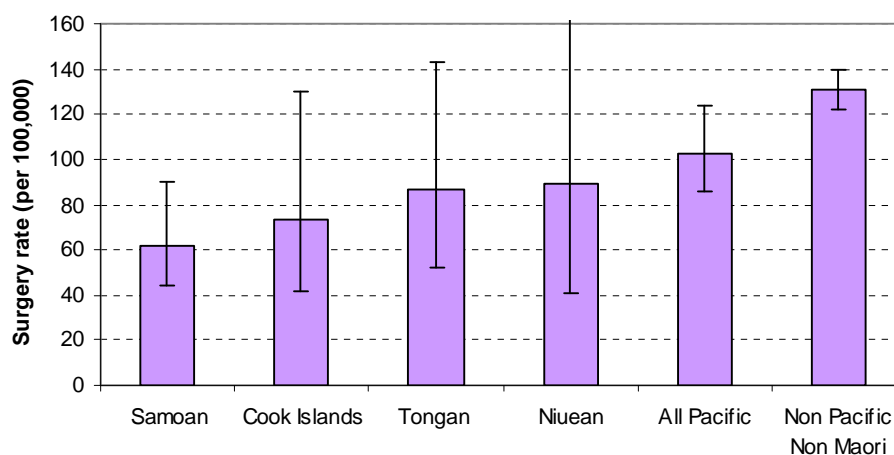
Source: NZHIS.

Note: Combined 2003-2005 data.

Angioplasty

No statistically significant differences are shown in intervention rates for angioplasty between any of the level 2 Pacific ethnic groups, or between All Pacific and non-Pacific/non-Māori in CM (Figure 8.4.2 below).

Figure 8.4.2: Age-standardised surgical intervention rate (per 100,000) in CM for angioplasty, 15+ year olds, by ethnicity, (2003-2005), prioritised



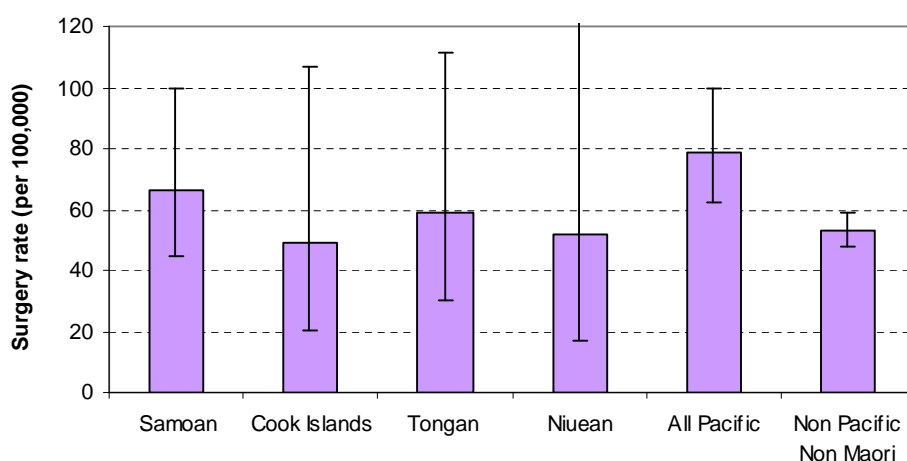
Source: NZHIS.

Note: Combined 2003-2005 data.

Coronary Artery Bypass Grafts

No statistically significant differences are shown in intervention rates for coronary artery bypass grafting between any of the level 2 Pacific ethnic groups in CM (Figure 8.4.3 below). All Pacific have significantly higher rates (79 per 100,000) than non-Pacific/non-Māori (53 per 100,000).

Figure 8.4.3: Age-standardised surgical intervention rate (per 100,000) in CM for coronary artery bypass grafts, 15+ year olds, by ethnicity, (2003-2005), prioritised



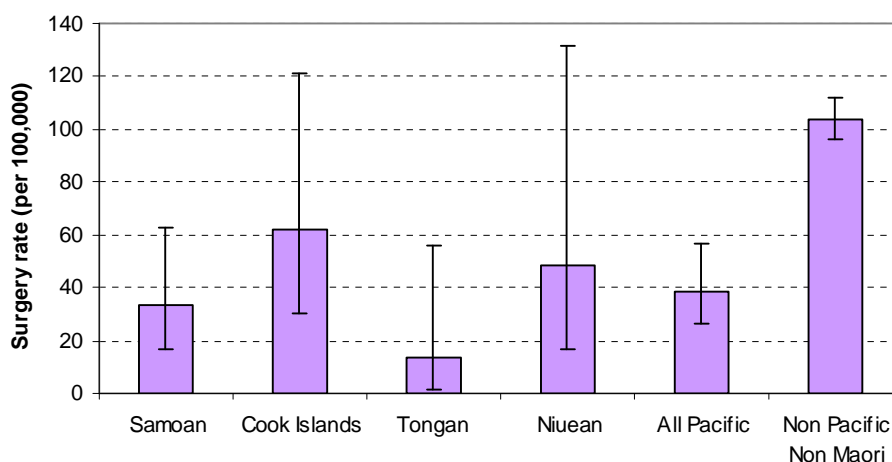
Source: NZHIS.

Note: Combined 2003-2005 data.

Total Hip Joint Replacement

No statistically significant differences are shown in intervention rates for total hip joint replacement between any of the level 2 Pacific ethnic groups in CM (*Figure 8.4.4* below). All Pacific have significantly lower rates (39 per 100,000) than non-Pacific/non-Māori (104 per 100,000).

Figure 8.4.4: Age-standardised surgical intervention rate (per 100,000) in CM for total hip joint replacement, 15+ year olds, by ethnicity, (2003-2005), prioritised



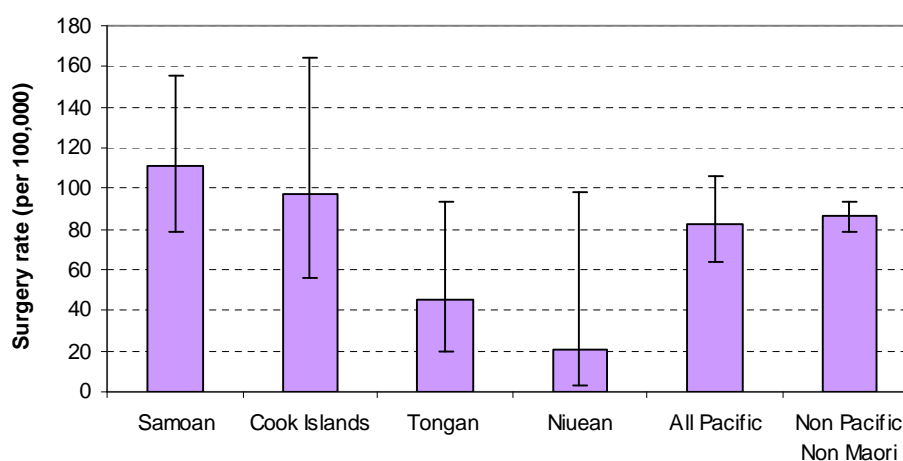
Source: NZHIS.

Note: Combined 2003-2005 data.

Total Knee Joint Replacement

No statistically significant differences are shown in intervention rates for total knee joint replacement between any of the level 2 Pacific ethnic groups, or between All Pacific and non-Pacific/non-Māori in CM (*Figure 8.4.5* below).

Figure 8.4.5: Age-standardised surgical intervention rate (per 100,000) in CM for total knee joint replacement, 15+ year olds, by ethnicity, (2003-2005), prioritised



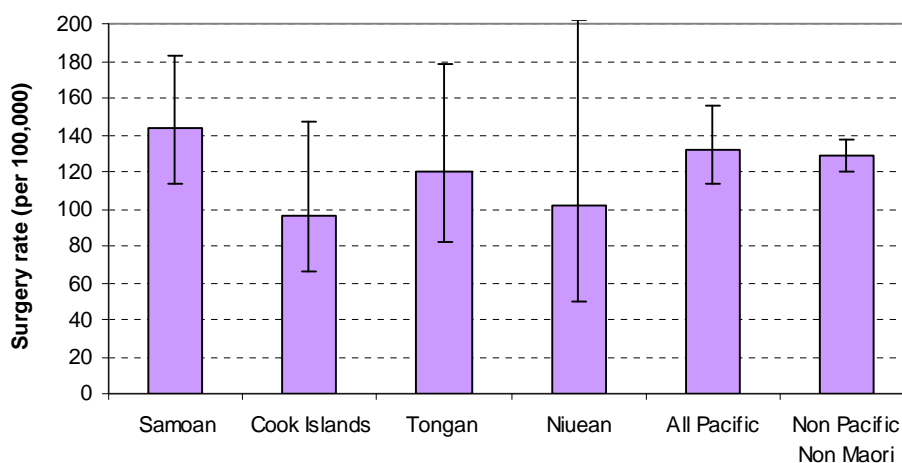
Source: NZHIS.

Note: Combined 2003-2005 data.

Cholecystectomy

No statistically significant differences are shown in intervention rates for cholecystectomy between any of the level 2 Pacific ethnic groups, or between All Pacific and non-Pacific/non-Māori in CM (Figure 8.4.6 below).

Figure 8.4.6: Age-standardised surgical intervention rate (per 100,000) in CM for cholecystectomy, 15+ year olds, by ethnicity, (2003-2005), prioritised



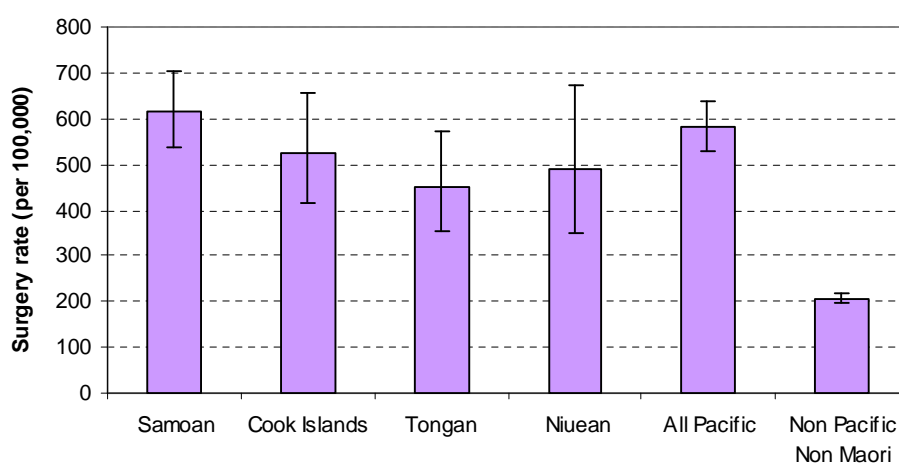
Source: NZHIS.

Note: Combined 2003-2005 data.

Cataract Extraction

No statistically significant differences are shown in intervention rates for cataract extraction between any of the level 2 Pacific ethnic groups in CM (Figure 8.4.7 below). All Pacific have significantly higher rates (581 per 100,000) than non-Pacific/non-Māori (206 per 100,000).

Figure 8.4.7: Age-standardised surgical intervention rate (per 100,000) in CM for cataract extraction, 15+ year olds, by ethnicity, (2003-2005), prioritised



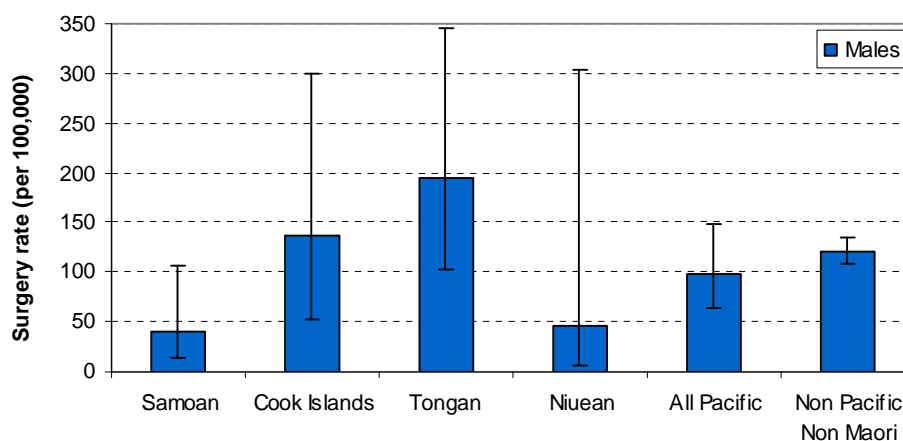
Source: NZHIS.

Note: Combined 2003-2005 data.

Prostatectomy

No statistically significant differences are shown in male intervention rates for prostatectomy between any of the level 2 Pacific ethnic groups, or between All Pacific and non-Pacific/non-Māori in CM (Figure 8.4.8 below).

Figure 8.4.8: Age-standardised surgical intervention rate (per 100,000) in CM for prostatectomy, 15+ year olds, by ethnicity, (2003-2005), prioritised



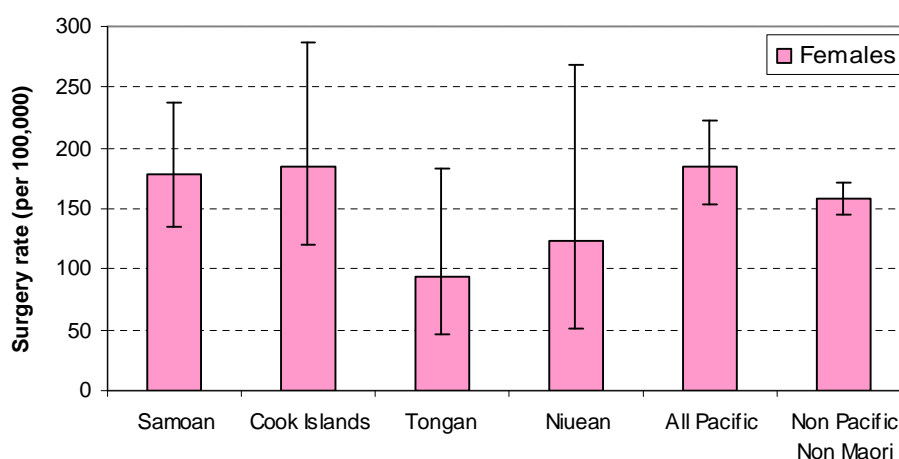
Source: NZHIS.

Note: Combined 2003-2005 data.

Hysterectomy

No statistically significant differences are shown in female intervention rates for hysterectomy between any of the level 2 Pacific ethnic groups, or between All Pacific and non-Pacific/non-Māori in CM (Figure 8.4.9 below).

Figure 8.4.9: Age-standardised surgical intervention rate (per 100,000) in CM for hysterectomy, 15+ year olds, by ethnicity, (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

8.5 Chronic Care Management (CCM) - Diabetes

This section presents data extracted and calculated from the CMDHB CCM database. All patients are CMDHB residents who enrolled in their CCM diabetes programme. It does not reflect accurately the status of diabetes in the community as there could be a number of factors/biases at play in terms of selection of patients into the programme. Therefore meaningful conclusions are difficult to draw. Clinic data are those from patients' first CCM visit.

Indicators considered include:

- Number of people on CCM programme in CM;
- HbA1c (measure of diabetes control);
- Cholesterol (Total) and % on a statin;
- Albumin/creatinine ratio.

Table 8.5.1: Number of people on CCM diabetes programme in CM, by gender and ethnicity (2006), total response

Gender	Ethnicity					
	Samoan	Cook Islands	Tongan	Niuean	All Pacific	Non-Pacific/ Non-Maori
Females	915	308	329	117	1758	956
Males	778	229	270	100	1463	1070

Source: CMDHB CCM database.

Average HbA1c at First Visit

HbA1c is a marker of diabetes/blood glucose control/management. The HbA1c test measures the person's average blood glucose over the past four to six weeks. A general range for HbA1c levels is:

- Less than or equal to 7% is a very healthy HbA1c level;
- Between 7% and 8% is a fair HbA1c level and needs work to improve;
- Between 8% and 10% indicates blood glucose levels that are much too high;
- Above 10% indicates blood glucose levels that are extremely high.

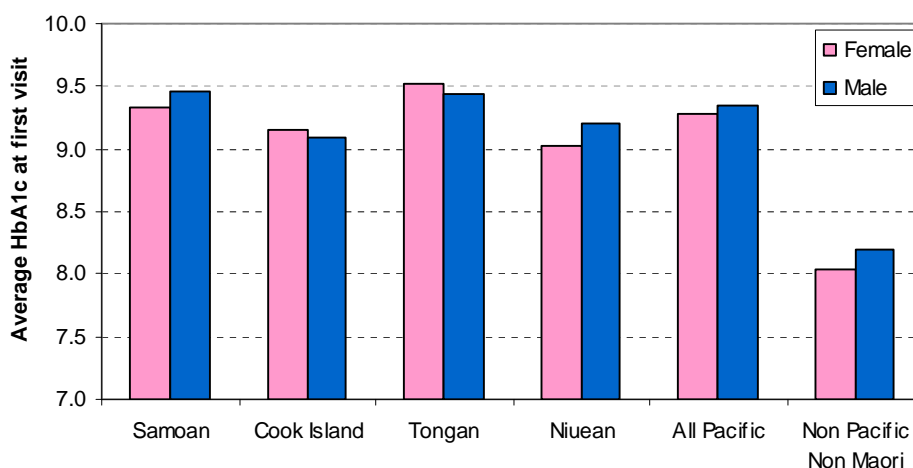
A major study, the UKPDS Study* published in 2000, managed to quantify many of the benefits of reducing a high HbA1c level by just 1% (e.g. 9% to 8%).⁴¹ these include a:

- 16% decrease in risk of heart failure;
- 14% decrease in risk of fatal or nonfatal myocardial infarction;
- 12% decrease in risk of fatal or nonfatal stroke;
- 21% decrease in risk of diabetes-related death;
- 14% decrease in risk of death from all causes;
- 43% decrease in risk of amputation;
- 37% decrease in risk of small blood vessel disease (eg, retinal blood vessel disease causing vision loss).

Adult Samoan and Tongan females on the CM diabetes CCM programme have higher average HbA1c results on their first visit (9.32 and 9.52 respectively) than Cook Island and Niuean females (9.15 and 9.02 respectively). Adult Samoan and Tongan males on the CM diabetes CCM programme also have higher average HbA1c results on their first visit (9.47 and 9.44 respectively) than Cook Island and Niuean males (9.09 and 9.21 respectively). All Pacific females and males on the CM diabetes CCM programme have higher average HbA1c

results on their first visit (9.28 and 9.35 respectively) than non-Pacific/non-Māori females and males (8.03 and 8.20 respectively). See *Figure 8.5.1* below. Note – no confidence intervals.

Figure 8.5.1: Average HbA1c result at first visit for CCM diabetes patients in CM, 16+ years of age, by gender and ethnicity, total response

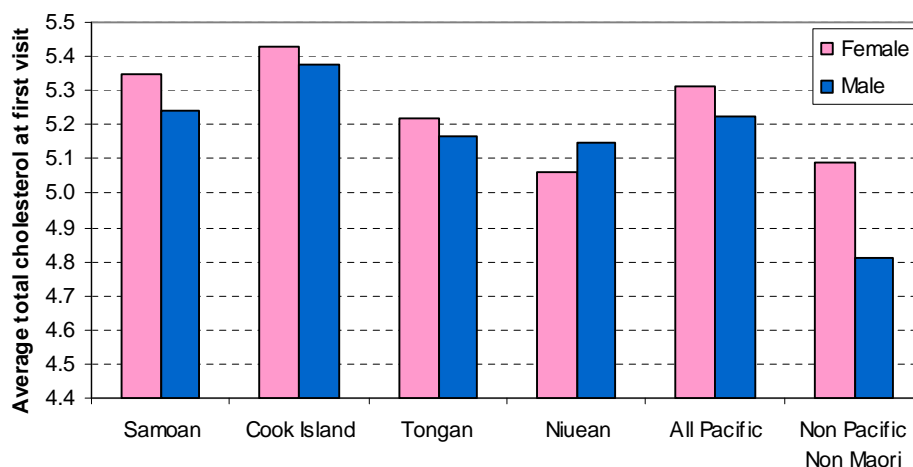


Source: CMDHB CCM database.

Average Total Cholesterol at First Visit

Samoan and Cook Island females and males tend to have higher average cholesterol levels at first visit to the CM diabetes CCM programme than Tongan and Niuean females and males (*Figure 8.5.2* below). All Pacific females and males tend to have higher average cholesterol levels at first visit to the CCM diabetes programme than non-Pacific/non-Māori. Note – no confidence intervals.

Figure 8.5.2: Average total cholesterol at first visit for CCM diabetes patients in CM, 16+ years of age, by gender and ethnicity, total response

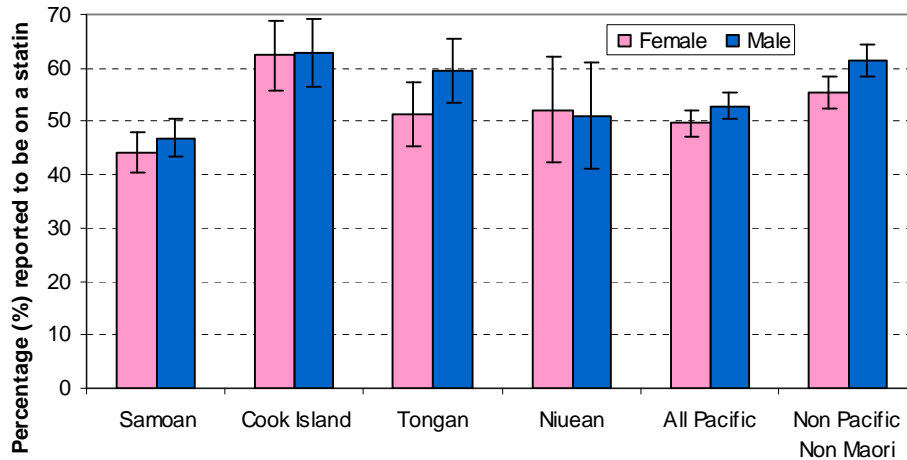


Source: CMDHB CCM database.

Percentage On A Statin

Samoan females and males have a significantly lower percentage of patients on the CM diabetes CCM programme recorded as being on a statin than Cook Island females and males (*Figure 8.5.3* below). All Pacific females and males have a significantly lower percentage of patients on the CM diabetes CCM programme recorded as being on a statin than non-Pacific/non-Māori.

Figure 8.5.3: Percentage of diabetes CCM patients in CM recorded as being on a statin, 16+ years of age, by gender and ethnicity, total response

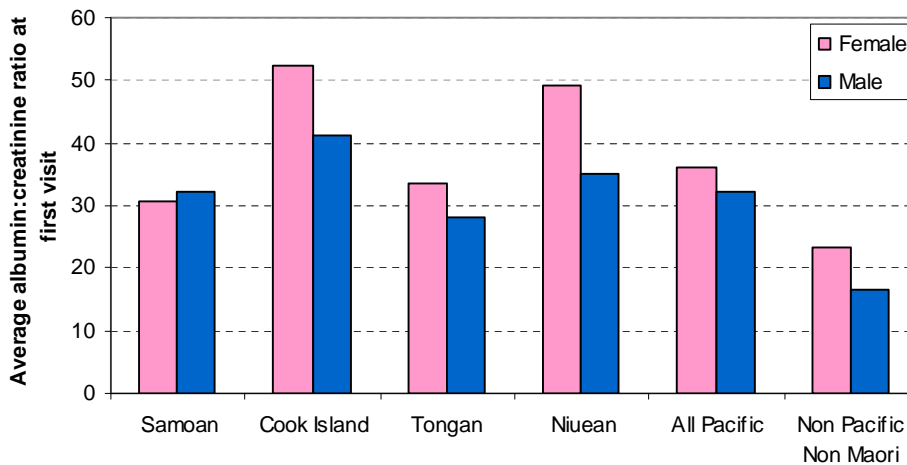


Source: CMDHB CCM database.

Average Albumin:Creatinine Ratio at First Visit

Overt nephropathy is considered to be an albumin:creatinine ratio ≥ 30 mg/mmol. Cook Islanders and Niueans (females in particular) have higher average albumin:creatinine ratio at first visit to the CM diabetes CCM programme than Samoans and Tongans (Figure 8.5.4 below). Note – no confidence intervals.

Figure 8.5.4: Average albumin:creatinine ratio at first visit for CCM diabetes patients in CM, 16+ years of age, by gender and ethnicity, total response



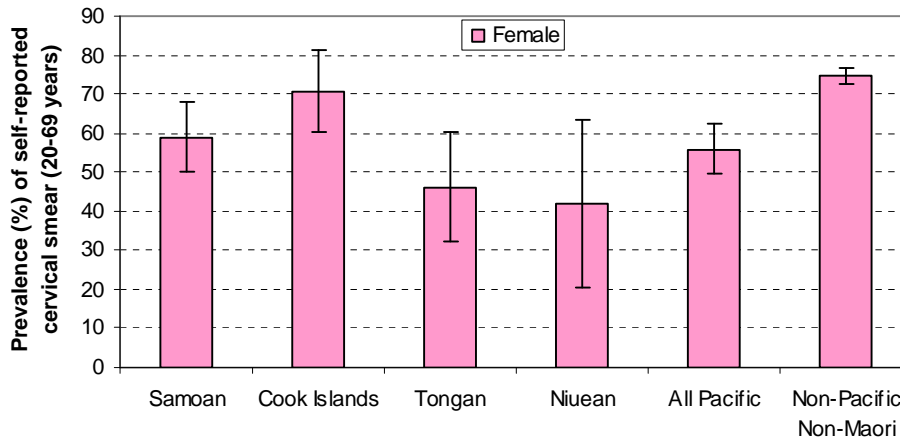
Source: CMDHB CCM database.

8.6 Cervical Screening

Self-Reported Cervical Smear in Previous 3 Years

While *Figure 8.6.1* below shows varying prevalence of self-reported cervical smears (20-69 years of age), with Cook Island females reporting the highest rates, it should be noted that all confidence intervals overlap. 'All Pacific' females (20-69 years of age) have a significant lower prevalence of self-reported cervical smear in previous 3 years (56%) than non-Pacific/non-Māori females (75%).

Figure 8.6.1: Age-standardised prevalence (% of female adult population 20-69 years of age) of self-reported cervical smear in previous 3 years in All NZ, by ethnicity, (NZHS 2002/2003), total response



Source: NZHS 2002/2003.

Note: Includes only women with no previous hysterectomy.

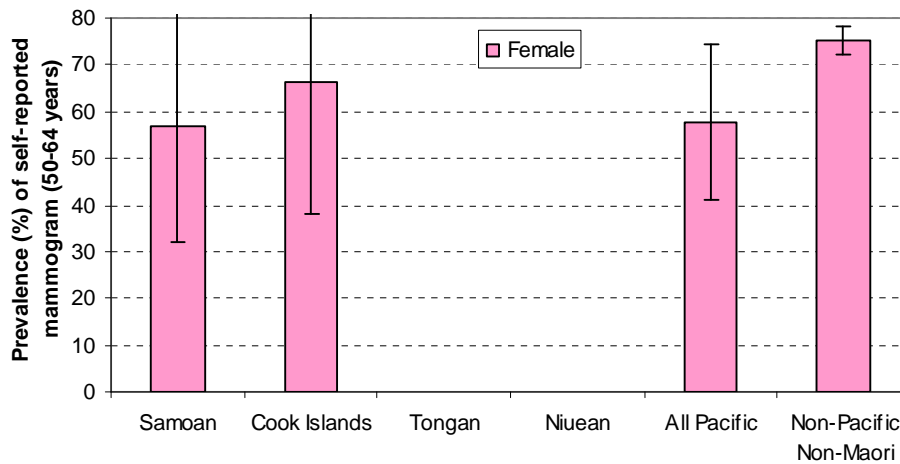
8.7 Breast Screening

SELF-REPORTED MAMMOGRAM IN PREVIOUS 3 YEARS

50-64 Years

No significant differences are shown in prevalence of self-reported mammogram in previous 3 years (women 50-64 years of age) between the ethnic groups displayed. Note that the data is limited (low numbers and wide confidence intervals). See *Figure 8.7.1* below.

Figure 8.7.1: Age-standardised prevalence (% of female adult population 50-64 years of age) of self-reported mammogram in previous 3 years in All NZ, by ethnicity, (NZHS 2002/2003), total response

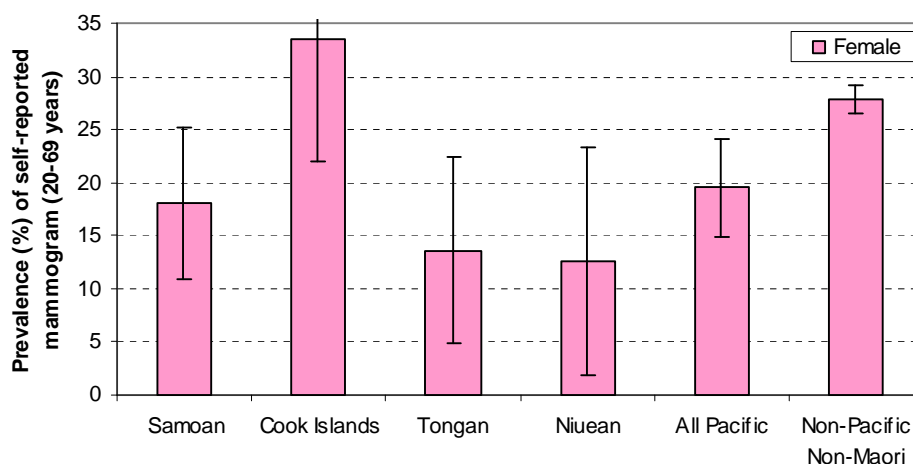


Source: NZHS 2002/2003.

20-69 Years

While *Figure 8.7.2* below shows widely varying prevalence of self-reported mammograms (20-69 years of age), with Cook Island females reporting higher rates, it should be noted that all confidence intervals overlap. 'All Pacific' females (20-69 years of age) have a significantly lower prevalence of self-reported mammogram in previous 3 years (19.5%) than non-Pacific/non-Māori females (27.9%).

Figure 8.7.2: Age-standardised prevalence (% of female adult population 20-69 years of age) of self-reported mammogram in previous 3 years in All NZ, by ethnicity, (NZHS 2002/2003), total response

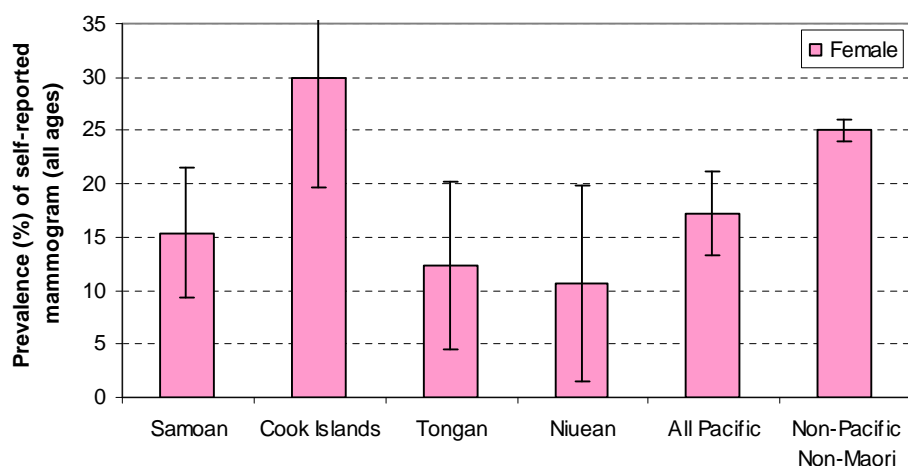


Source: NZHS 2002/2003.

All Ages

Although *Figure 8.7.3* below shows widely varying prevalence of self-reported mammograms (15+ years of age), with Cook Island females reporting higher rates, it should be noted that all confidence intervals overlap. 'All Pacific' females (15+ years of age) have a significant lower prevalence of self-reported mammogram in previous 3 years (17%) than non-Pacific/non-Māori females (25%).

Figure 8.7.3: Age-standardised prevalence (% of female adult population 15+ years of age) of self-reported mammogram in previous 3 years in All NZ, by ethnicity, (NZHS 2002/2003), total response



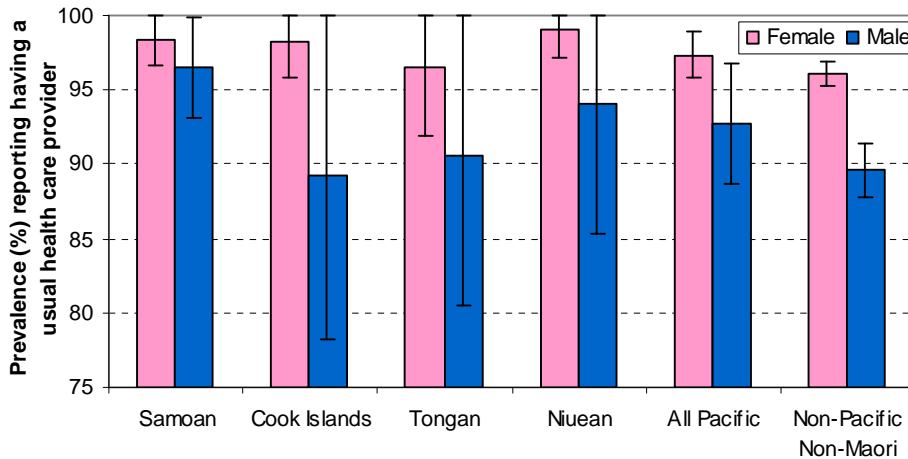
Source: NZHS 2002/2003.

8.8 Health Care Providers

Reported Having a Usual Health Care Provider

No significant differences are shown in the prevalence of reporting having a usual health care provider between any of the ethnic groups, in either gender (*Figure 8.8.1* below).

Figure 8.8.1: Age-standardised prevalence (% of adult population 15+ years of age) reporting having a usual health care provider in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

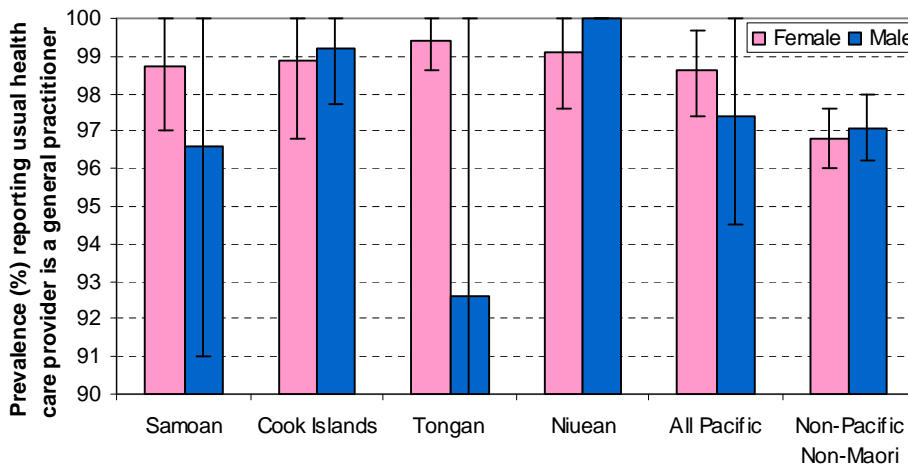


Source: NZHS 2002/2003.

Usual Health Care Provider Being a General Practitioner

No significant differences in the prevalence of usual health care provider being a general practitioner between any of the ethnic groups, in either gender (*Figure 8.8.2* below).

Figure 8.8.2: Age-standardised prevalence (% of adult population 15+ years of age) reporting usual health care provider being a general practitioner in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response



Source: NZHS 2002/2003.

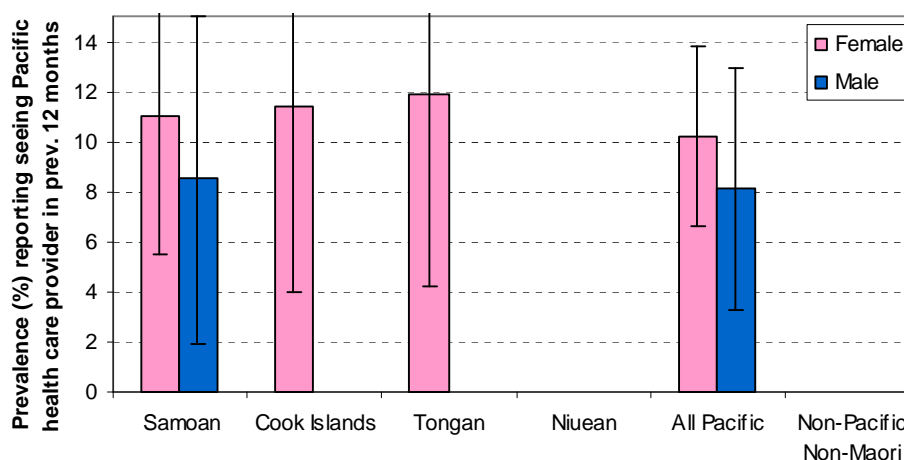
Usual health Care Provider being a Chemist, A&E Public Hospital, A&E Private Clinic, Nurse, Alternative Provider, Traditional Pacific Healer

Due to low numbers and extremely wide confidence intervals the prevalence of reporting usual health care provider being a chemist/pharmacist, accident and emergency at a public hospital, accident and emergency at a private clinic, local nurse/district nurse, and alternative health care provider, and reporting seeing a traditional Pacific healer, and the number of Pacific provider or general practitioner visits per year could not be adequately compared between the level 2 Pacific ethnic groups, or between All Pacific and non-Pacific/non-Māori.

Seeing a Pacific Health Care Provider

No significant differences are shown in the prevalence of reporting seeing a Pacific health care provider in the previous 12 months between any of the level 2 Pacific ethnic groups. Note data was extremely limited (*Figure 8.8.3* below).

Figure 8.8.3: Age-standardised prevalence (% of adult population 15+ years of age) reporting seeing a Pacific health care provider in previous 12 months in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

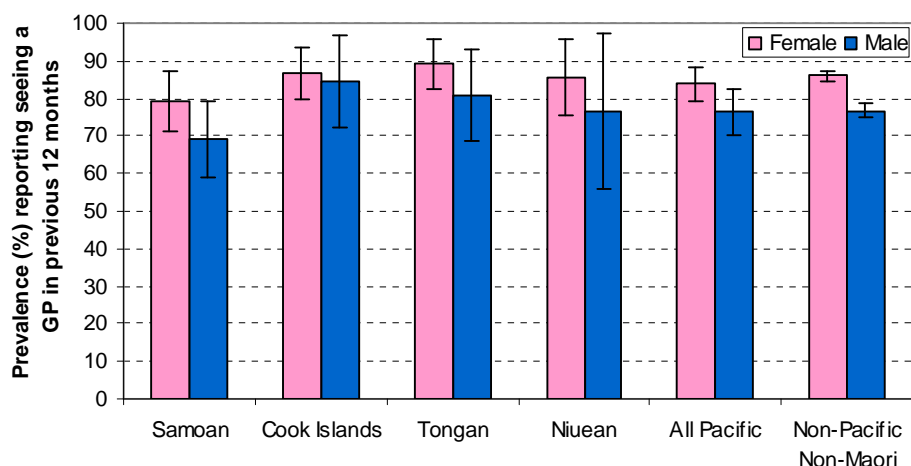


Source: NZHS 2002/2003.

Seeing a General Practitioner

No significant differences are shown in the prevalence of reporting seeing a general practitioner in the previous 12 months between any of the ethnic groups, in either gender (*Figure 8.8.4* below).

Figure 8.8.4: Age-standardised prevalence (% of adult population 15+ years of age) reporting seeing a general practitioner in previous 12 months in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response

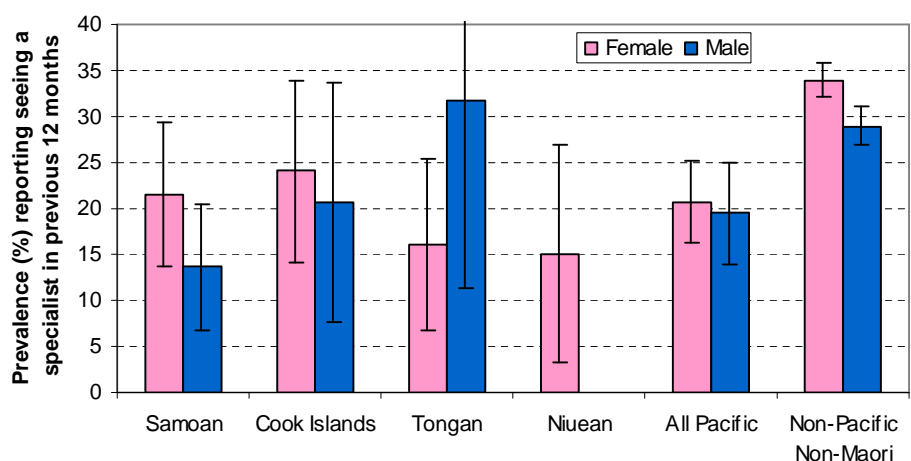


Source: NZHS 2002/2003.

Seeing a Medical Specialist

No significant differences are shown in the prevalence of reporting seeing a medical specialist in the previous 12 months between any of the level 2 Pacific ethnic groups, in either gender (Figure 8.8.5 below). All Pacific adult females and males have a significantly lower prevalence of reporting seeing a medical specialist in the previous 12 months (20.7 and 19.6% respectively) than non-Pacific/non-Māori females and males (34.0 and 29.0% respectively).

Figure 8.8.5: Age-standardised prevalence (% of adult population 15+ years of age) reporting seeing a medical specialist in previous 12 months in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response



Source: NZHS 2002/2003.

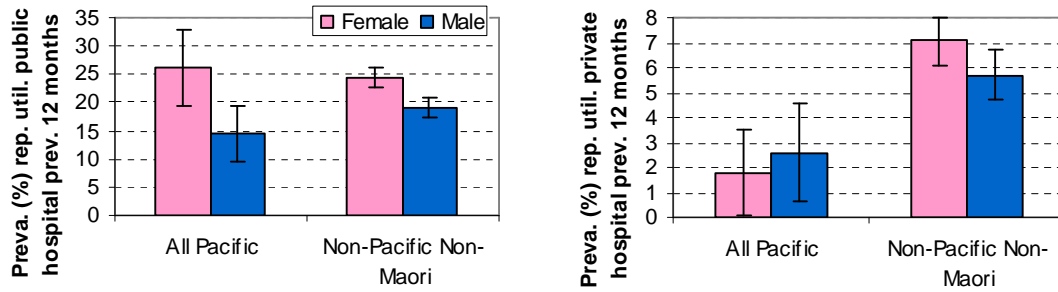
Utilising a Public Hospital or Private Hospital

Due to low numbers and extremely wide confidence intervals the prevalence of reporting using a public hospital or private hospital in the previous 12 months could not be adequately compared between the level 2 Pacific ethnic groups. Therefore, only All Pacific and non-Pacific/non-Māori data has been graphed.

No differences are shown in the prevalence of reporting using a public hospital in the previous 12 months between All Pacific and non-Pacific/non-Māori, in either gender (Figure 8.8.6 below). However, All Pacific adult females and males have a significantly lower prevalence of

reporting using a private hospital in the previous 12 months (1.8 and 2.6% respectively) than non-Pacific/non-Māori females and males (7.1 and 5.7% respectively).

Figure 8.8.6: Age-standardised prevalence (% of adult population 15+ years of age) reporting utilising a public hospital or private hospital in previous 12 months in All NZ, by gender and ethnicity, (NZHS 2002/2003), total response



Source: NZHS 2002/2003.

8.9 Summary – Adult Health Care Utilisation

No significant differences were shown in either gender between any of the level 2 Pacific ethnic groups in adult:

- Hospitalisation rates for diabetes, pneumonia, stomach cancer, or gout (in CM);
- Surgical intervention rates for angiography, angioplasty, CABG, total hip joint replacement, total knee joint replacement, cholecystectomy, or cataract extraction (in CM);
- Prevalence of reporting having a usual health care provider, usual health care provider being a general practitioner, seeing a Pacific health care provider in the previous 12 months, seeing a general practitioner in the previous 12 months, seeing a medical specialist in the previous 12 months (in NZHS).

No significant differences were shown in males between any of the level 2 Pacific ethnic groups in CM in adult:

- PAH rates for angina and chest pain, cellulitis, asthma, or kidney/urinary infection;
- Hospitalisation rates for prostate cancer or road traffic injury;
- Surgical intervention rates for prostatectomy.

No significant differences were shown in females between any of the level 2 Pacific ethnic groups in CM in adult:

- Surgical intervention rates for hysterectomy and assisted delivery;
- Self-reported cervical smears (20-69 years of age), self-reported mammogram (50-64 years of age), self-reported mammograms (20-69 years of age), self-reported mammograms (15+ years of age) – all over previous 3 years. Note that Cook Islanders consistently reported the highest rates but all confidence intervals overlapped.

The top 5 causes of adult potentially avoidable hospitalisation (PAH) for All Pacific people are also in the top 5 for each of the level 2 Pacific ethnic groups (e.g. angina and chest pain, COD, pneumonia, diabetes and cellulitis), although in varying orders.

Samoans and Tongans

In CM, adult Samoan and Tongan females have:

- Significantly higher PAH rates for stroke than Niuean females;
- Higher average HbA1c results on their first visit to the CM diabetes CCM programme than Cook Island and Niuean females.

In CM, adult Samoan and Tongan males have:

- Significantly higher hospitalisation rates for all causes than Cook Island and Niuean males;
- Significantly higher PAH rates for COD than Cook Island males
- Higher average HbA1c results on their first visit to the CM diabetes CCM programme than Cook Island and Niuean males.

Samoans alone

In CM, adult Samoan females have:

- Significantly Higher PAH rates for angina and chest pain than Tongan and Niuean females;
- Significantly Higher PAH rates for myocardial infarction, kidney/urinary infection and congestive heart failure than Niuean females;
- Significantly Higher PAH rates for asthma than Cook Island females;
- Lower percentage in the CM diabetes CCM programme reported to be on a statin than Cook Island females.

In CM, adult Samoan males have:

- Significantly higher PAH rates for congestive heart failure than Niuean males;
- Significantly higher PAH rates for stroke than Cook Island males;
- Lower percentage in the CM diabetes CCM programme reported to be on a statin than Cook Island males.

Tongans alone

In CM, adult Tongan females have significantly:

- Higher hospitalisation rates for road traffic injury than Niuean females;
- Higher intervention rates for caesarean sections than females from the other level 2 Pacific ethnic groups.
- Lower PAH rates for angina and chest pain than Samoan females.

In CM, adult Tongan males have significantly:

- Higher PAH rates for CORD than males in the other level 2 Pacific ethnic groups;
- Higher PAH rates for myocardial infarction than Cook Island males.

Cook Islanders and Niueans

In CM, adult Cook Island and Niuean females have:

- Higher average albumin:creatinine ratio at first visit to the CM diabetes CCM programme than Samoan and Tongan females.

In CM, adult Cook Island and Niuean males have significantly:

- Lower hospitalisation rates for all causes than Samoan and Tongan males.

Cook Islanders alone

In CM, adult Cook Island females have:

- Significantly lower PAH rates for asthma than Samoan females;

- Significantly higher PAH rates for congestive heart failure than Niuean females;
- The highest average total cholesterol at first visit to the CM diabetes CCM programme compared to the other level 2 Pacific ethnic groups.

In CM, adult Cook Island males have:

- Significantly lower PAH rates for CORD than Samoan and Tongan males;
- Significantly lower PAH rates for stroke than Samoan males;
- Significantly lower PAH rates for myocardial infarction than Tongan males;
- The highest average total cholesterol at first visit to the CM diabetes CCM programme compared to the other level 2 Pacific ethnic groups.

Niueans alone

In CM, adult Niuean females have significantly:

- Lower hospitalisation rates for all causes, and PAH rates for CORD and cellulitis than females in the other level 2 Pacific ethnic groups;
- Lower PAH rates for stroke than Samoan and Tongan females;
- Lower PAH rates for congestive heart failure than Samoan and Cook Island females;
- Lower PAH rates for angina and chest pain, myocardial infarction and kidney/urinary infection than Samoan females;
- Lower hospitalisation rates for road traffic injury than Tongan females.

In CM, adult Niuean males have significantly:

- Lower PAH rates for congestive heart failure than Samoan males.

All Pacific and non-Pacific/non-Māori

No statistically significant differences were found between All Pacific and Non-Pacific/non-Māori in adult:

- Surgical intervention rates for angiography, angioplasty, total knee joint replacement, cholecystectomy, in both genders combined (in CM);
- Surgical intervention rates for prostatectomy or hysterectomy (in CM);
- Prevalence of reporting having a usual health care provider, usual health care provider being a general practitioner, seeing a general practitioner in the previous 12 months, using a public hospital in the previous 12 months, in either gender (in NZHS).

Adult All Pacific males and females both (individually) have significantly:

- Higher hospitalisation rates for all causes than non-Pacific/non-Māori females and males (in CM);
- Lower prevalence of reporting seeing a medical specialist in the previous 12 months and using a private hospital in the previous 12 months than non-Pacific/non-Māori females and males (in NZHS).

In CM, adult All Pacific 'males and females combined' have significantly:

- Higher intervention rates for coronary artery bypass grafting and cataract extraction than non-Pacific/non-Māori 'males and females combined';
- Lower intervention rates for total hip joint replacement than non-Pacific/non-Māori 'males and females combined'.

In CM, adult All Pacific females have significantly:

- Higher PAH rates for angina and chest pain, COD, pneumonia, diabetes, cellulitis, congestive heart failure, asthma, stroke, and kidney/urinary infection than non-Pacific/non-Māori females;
- Higher hospitalisation rates for stomach cancer and gout than non-Pacific/non-Māori females;
- Lower hospitalisation rates for road traffic injury than non-Pacific/non-Māori females;
- Lower prevalence of self-reported cervical smear (20-69 years of age) in previous 3 years and self-reported mammogram (20-69 years of age and 15+ years of age) in previous 3 years, than non-Pacific/non-Māori females.

In CM, adult All Pacific males have significantly:

- Higher PAH rates for angina and chest pain, COD, pneumonia, diabetes, cellulitis, myocardial infarction, congestive heart failure, asthma, stroke, and kidney/urinary infection than non-Pacific/non-Māori males;
- Higher hospitalisation rates for stomach cancer, road traffic injury and gout than non-Pacific/non-Māori males.

Gender Differences

In CM, amongst most (or all) ethnic groups, adult females have significantly:

- Higher PAH rates for asthma than males;
- Lower PAH rates for angina and chest pain, COD and myocardial infarction than males;
- Lower hospitalisation rates for gout than males.

9 Child Health

This section presents data on:

- Infant all cause mortality, by gender and ethnicity (in CM and All NZ);
- Child (0-14 years) all cause mortality, by gender and ethnicity (in All NZ);
- Child (0-14 years) Potentially Avoidable Mortality (PAM) for the top ten causes, by gender and ethnicity (in All NZ);
- Percentage of births that are Low Birth Weight (in CM and Rest of NZ);
- Early Childhood (0-4 years) Potentially Avoidable Hospitalisations (PAH) for all causes and the top ten causes, and other selected causes of hospitalisation, by gender and ethnicity (in CM);
- Child (5-14 years) Potentially Avoidable Hospitalisations (PAH) for all causes and the top ten causes, and other selected causes of hospitalisation, by gender and ethnicity (in CM);
- Immunisation and WellChild coverage – percentages and raw numbers (in CM).

9.1 Infant Mortality – All Cause

Caution should be exercised when considering the information presented in this section. When considering infant death or any other commonly used crude (non-adjusted) rate, it must be stressed that, where either the number of deaths or the size of the population is very small, rates are subject to variation due to chance alone.⁴² In the USA there have been warnings against releasing infant mortality data below the state level for the reason stated above.⁴²

PHI suggests a number of ways of dealing with small numbers (<20 events), including combining data, displaying confidence intervals, reporting both numbers and rates, and acknowledging the likely imprecision due to such low numbers.²⁸ All of these have been included in the display of the information below.

Table 9.1.1: Infant mortality rate (per 1,000) in CM for all causes, by gender and ethnicity (2003-2005), prioritised

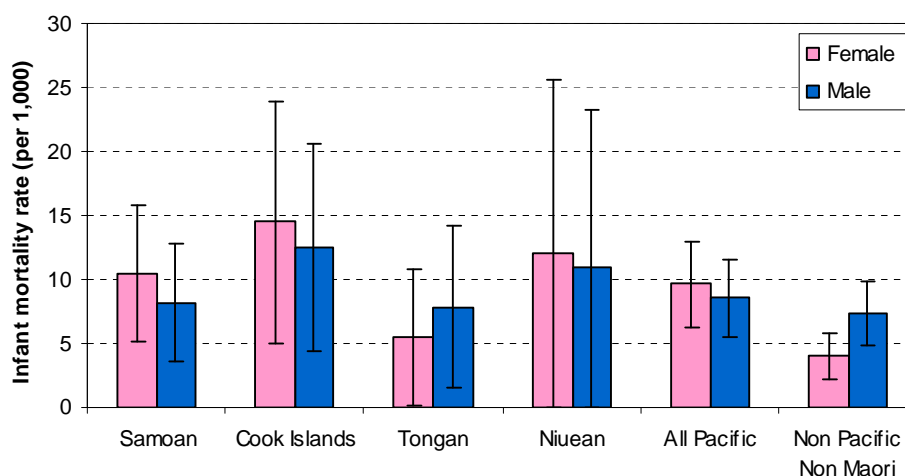
Ethnicity	Gender			
	Female		Male	
	Number	Rate (per 1,000)	Number	Rate (per 1,000)
Samoaan	15	10.5	12	8.2
Cook Islands Maori	9	14.5	9	12.5
Tongan	4	5.4	6	7.9
Niuean	3	12.1	3	11.0
All Pacific	32	9.7	30	8.5
Non Pacific Non Maori	18	4.0	35	7.3

Source: NZHIS.

Note: An Infant is defined as <1 year of age. Rates are rounded to 1 decimal place. Combined 2003-2005 data is used.

No significant differences are shown in all-cause infant mortality between the level 2 Pacific ethnic groups in CM, in either gender (Figure 9.1.1 below). All Pacific females have a significantly higher all-cause infant mortality rate (9.7 per 1,000) than non-Pacific/non-Māori females (4.0 per 1,000).

Figure 9.1.1: Infant mortality rate (per 1,000) in CM for all causes, by gender and ethnicity (2003-2005), prioritised



Source: NZHIS. Note: The rates for the four specific Pacific ethnic groups shown here are based on a small number of events as displayed in Table 9.1.1. Combined 2003-2005 data.

Table 9.1.2: Infant mortality rate (per 1,000) in All NZ for all causes, by gender and ethnicity (2003-2005), prioritised

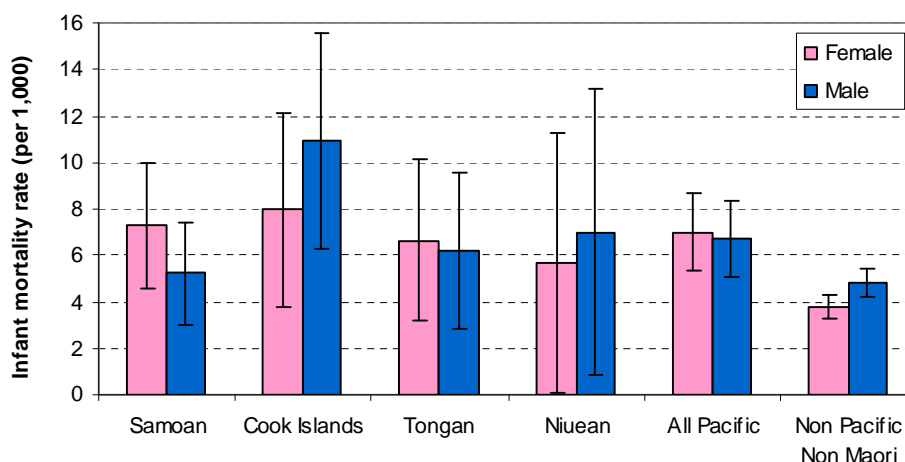
Ethnicity	Gender			
	Female		Male	
	Number	Rate (per 1,000)	Number	Rate (per 1,000)
Samoan	28	7.3	22	5.2
Cook Islands Maori	14	8.0	21	10.9
Tongan	14	6.6	13	6.2
Niuean	4	5.7	5	7.0
All Pacific	64	7.0	65	6.7
Non Pacific Non Maori	197	3.8	263	4.8

Source: NZHIS.

Note: Rates are rounded to 1 decimal place. Combined 2003-2005 data.

No significant differences are shown in all-cause infant mortality between the level 2 Pacific ethnic groups in All NZ, in either gender (Figure 9.1.2 below). All Pacific females have a significantly higher all-cause infant mortality rate (7.0 per 1,000) than non-Pacific/non-Māori females (3.8 per 1,000).

Figure 9.1.2: Infant mortality rate (per 1,000) in All NZ for all causes, by gender and ethnicity (2003-2005), prioritised

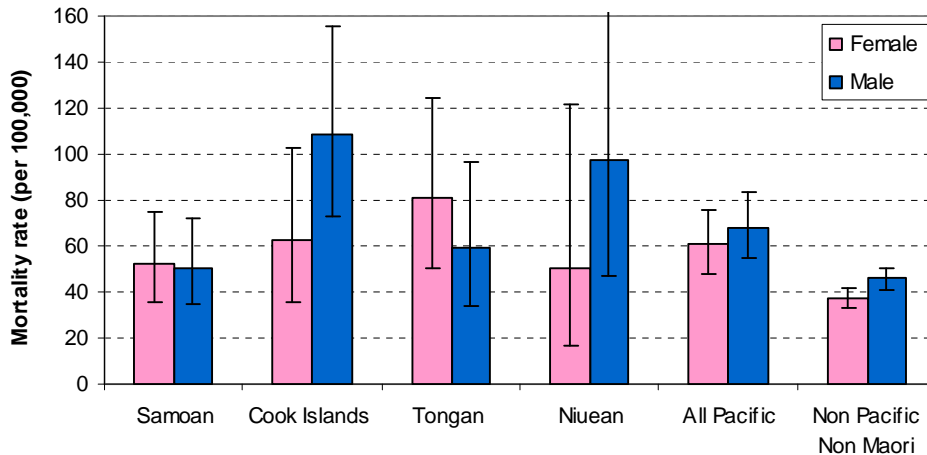


Source: NZHIS. Note: Combined 2003-2005 data.

9.2 Child Mortality (0-14 years) – All Cause

The number of deaths in CM is insufficient for adequate analysis in graphical form as confidence intervals are extremely wide. In All NZ, Cook island males have significantly higher all-cause mortality rates (109 per 100,000) than Samoan males (51 per 100,000). All Pacific females and males have significantly higher rates of all-cause mortality (61 and 68 per 100,000 respectively) than non-Pacific/non-Māori females and males (38 and 46 per 100,000 respectively). See *Figure 9.2.1* below.

Figure 9.2.1: Age-standardised mortality rate (per 100,000) in All NZ for all causes, 0-14 year olds, by gender and ethnicity (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

9.3 Child (0-14 years) Potentially Avoidable Mortality (PAM) – Top Ten Causes

The table below shows the age-standardised rate for the top ten potentially avoidable causes of mortality in children in All NZ (as numbers were too low for CM). Causes of death are presented in descending order from the highest to lowest mortality rate for All Pacific people. The ranking and rate for each of these conditions is then given for each level 2 Pacific ethnic group to show any differences.

The absolute number of events and confidence intervals are low for both CM and All NZ for all these causes. The top cause (low birthweight babies) has been graphed (see *Figure 9.3.1*) for All NZ. Further graphical analysis of the other causes has not been performed given the low numbers (congenital anomalies was graphed but the confidence intervals were extremely wide showing no significant differences between any of the ethnic groups, in either gender).

Table 9.3.1: Age-standardised potentially avoidable mortality rate (per 100,000) in All NZ for top ten causes in Pacific people, 0-14 year olds, males and females combined (2001-2003), prioritised

Cause of Death	All Pacific		Samoaan		Cook Islands		Tongan		Niuean	
	Rank	Mortality rate	Rank	Mortality rate	Rank	Mortality rate	Rank	Mortality rate	Rank	Mortality rate
Low birthweight babies	1	12	1	10	1	22	1	13	3	5
Congenital anomalies	2	7	4	3	2	12	6	5	6	5
Other peri-natal conditions	3	6	2	6	5	4	-	-	1	20
Road traffic injury	4	5	5	3	3	4	3	8	2	6
Other infections	5	4	7	3	7	4	5	5	5	5
Neural tube defects	6	4	6	3	9	2	2	8	4	5
Sudden infant death syndrome	7	3	3	3	6	4	7	4	-	-
Birth trauma and asphyxia	8	2	12	1	-	-	4	5	-	-
Drowning	9	1	13	1	4	4	-	-	-	-
Leukaemia	10	1	-	-	-	-	9	2	-	-

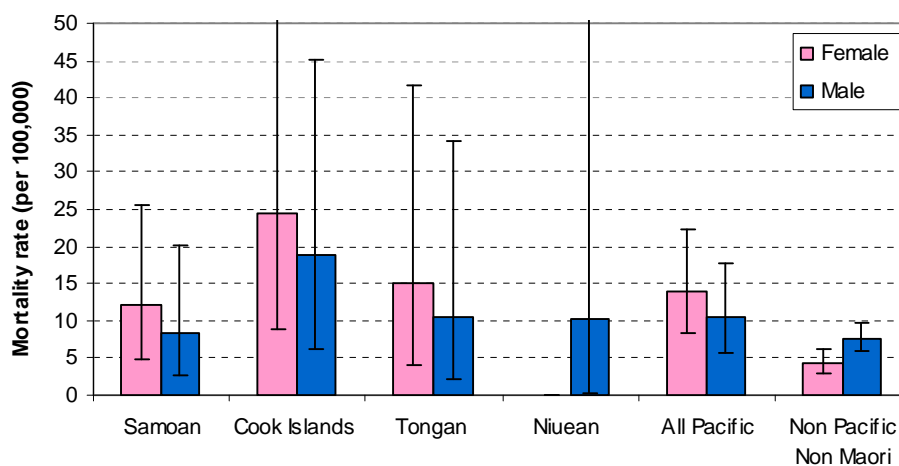
Source: NZHIS.

Note: These mortality rates have large confidence intervals and are rounded to the nearest whole number. Combined 2001-2003 data.

All NZ - Low birthweight babies

No significant differences are shown in child (0-14 years) mortality rates between the level 2 Pacific ethnic groups for low birthweight in All NZ, in either gender. All Pacific females have significantly higher rates (14.0 per 100,000) than non-Pacific/non- Māori females (4.4 per 100,000). See Figure 9.3.1 below.

Figure 9.3.1: Age-standardised potentially avoidable mortality rate (per 100,000) in All NZ for Low birthweight babies, 0-14 year olds, by gender and ethnicity (2001-2003 data), prioritised



Source: NZHIS.

9.4 Low Birth Weight (%)

Low birth weight (LBW) is defined as a birth weight of <2500g and is caused by premature birth (<37 weeks gestation) or because babies are born too small for their gestational age (birth weight <10th percentile for their gestational age). The main determinants of small for gestational age are poor maternal nutrition, smoking and hypertension, while the main determinants for preterm birth are genital tract infection, multiple birth, pregnancy induced hypertension and obstetric problems. Therefore, preventative measures differ between the two aetiologies and include smoking cessation, prenatal care (primary prevention), antenatal care (secondary prevention) and specialist obstetric and neonatal care (tertiary prevention). LBW was the most common cause of mortality in children (*Table 9.3.1* above). Only public hospital births are included in this section (which will be the vast bulk of LBW babies).

In CM, Niueans have the highest percentage of births that were LBW (7.0%) followed by Cook Islanders (6.2%), Samoans (4.2%) and Tongans (3.8%).

Table 9.4.1: Percentage of births LBW (<2500g), by ethnicity and area, (2003-2005), prioritised

Ethnicity	Counties Manukau			Rest of NZ		
	<2500g	Total	% LBW	<2500g	Total	% LBW
Samoan	142	3,353	4.2	178	4,619	3.9
Cook Islands	83	1,340	6.2	101	1,356	7.4
Tongan	59	1,570	3.8	67	2,113	3.2
Niuean	28	399	7.0	21	584	3.6
All Pacific	352	7,132	4.9	463	10,263	4.5
Non Pacific Non Maori	736	10,991	6.7	6,340	104,749	6.1

Source: NZHIS.

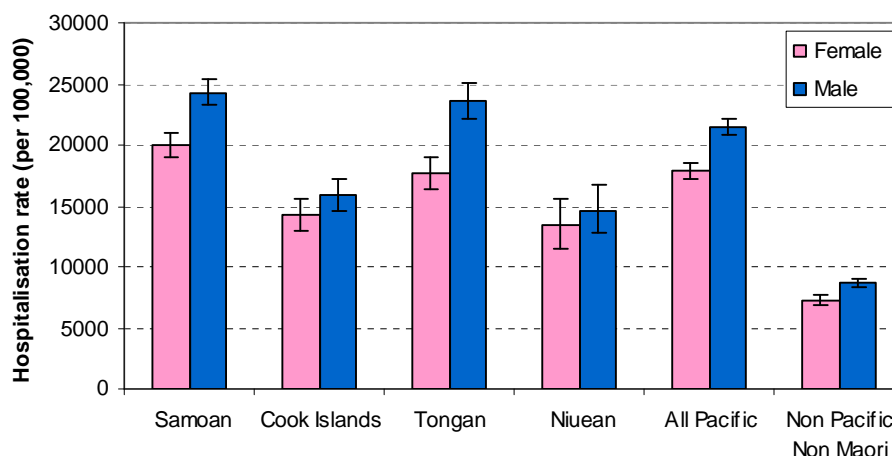
Note: Only includes babies either born in hospital or admitted on day of birth. Combined 2003-2005 data.

9.5 Early Childhood (0-4 years) Potentially Avoidable Hospitalisations (PAH) – All Cause

Counties Manukau - All Cause

Several statistically significant differences are shown in early childhood potentially avoidable hospitalisation (PAH) rates for all causes in CM (*Figure 9.5.1* below). Samoan and Tongan females have significantly higher PAH rates for all causes (19,944 and 17,696 per 100,000 respectively) than Cook Island and Niuean females (14,242 and 13,391 per 100,000 respectively). Samoan and Tongan males have significantly higher PAH rates for all causes (24,328 and 23,544 per 100,000 respectively) than Cook Island and Niuean males (15,901 and 14,656 per 100,000 respectively). All Pacific females and males have significantly higher PAH rates for all causes (17,827 and 21,504 per 100,000 respectively) than non-Pacific/non-Māori females and males (7,272 and 8,676 per 100,000 respectively).

Figure 9.5.1: Age-specific potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for All Causes, 0-4 year olds, by gender and ethnicity, (2003-2005), prioritised



Source: NZHIS. Note: Combined 2003-2005 data.

9.6 Early Childhood (0-4 years) Potentially Avoidable Hospitalisations (PAH) – Top Ten Causes

The age-specific rate for the top ten potentially avoidable causes of hospitalisation in early childhood in CM is shown in *Table 9.6.1* below. Causes of hospitalisation are presented in descending order from the highest to lowest hospitalisation rate for All Pacific people. The ranking and rate for each of these conditions is then given for each level 2 Pacific ethnic group to show any differences. The top 3 causes for All Pacific people are also in the top 3 for each of the level 2 Pacific ethnic groups (e.g. acute bronchiolitis, pneumonia, and asthma) although in varying orders. Rates for the top 10 causes of PAH in early childhood in CM have also been graphed below. *Table 17.1.1* on page 142 in the appendices outlines the ICD10 codes used for each cause.

Counties-Manukau

Table 9.6.1: Age-specific potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for top ten causes in Pacific people, 0-4 year olds, males and females combined (2003-2005), prioritised

Cause of PAH	All Pacific		Samoan		Cook Islands		Tongan		Niuean	
	Rank	Hosp. rate	Rank	Hosp. rate	Rank	Hosp. rate	Rank	Hosp. rate	Rank	Hosp. rate
Respiratory infections: Acute bronchiolitis	1	4560	1	5090	1	3460	1	4930	1	4010
Respiratory infections: Pneumonia	2	3080	2	3940	2	1890	2	3060	3	1660
Asthma	3	2300	3	2740	3	1690	3	2180	2	1840
Gastroenteritis	4	1900	4	2100	5	1350	5	2030	5	1160
Respiratory infections: Other ^a	5	1620	8	1970	8	1140	6	1610	8	720
Dental conditions	6	1520	7	1340	7	1140	4	2060	4	1300
Cellulitis	7	1250	6	1350	6	1200	7	1250	7	760
ENT infections	8	1200	5	1270	4	1400	8	910	6	1050
Kidney/urinary infection	9	780	9	900	10	520	10	770	9	690
Epilepsy	10	700	10	650	9	730	9	830	10	250

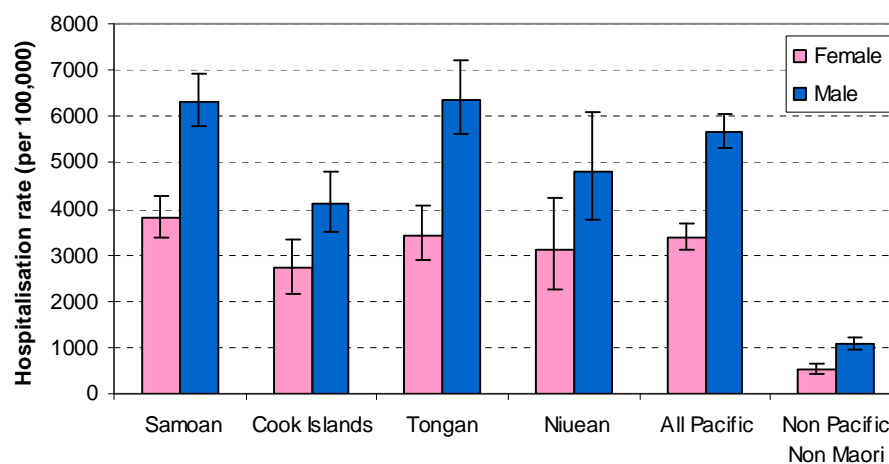
Source: NZHIS. Note: These hospitalisation rates have large confidence intervals and are rounded to the nearest 10. Combined 2003-2005 data.

^a 'Respiratory Infections: Other' includes Influenza (due to identified influenza virus and virus not identified), Acute nasopharyngitis (common cold), Acute upper respiratory infections (of multiple and unspecified sites), and Acute bronchitis.

Acute Bronchiolitis

A statistically significant gender difference is shown amongst most ethnic groups in CM (males tend to have higher rates of early childhood PAH for acute bronchiolitis than females). Samoan females have significantly higher rates of early childhood PAH for acute bronchiolitis (3,819 per 100,000) than Cook Island females (2,708 per 100,000). Samoan and Tongan males have significantly higher rates of early childhood PAH for acute bronchiolitis (6,322 and 6,374 per 100,000 respectively) than Cook Island males (4,113 per 100,000 respectively). All Pacific females and males have significantly higher early childhood PAH rates for acute bronchiolitis (3,381 and 5,673 per 100,000 respectively) than non-Pacific/non-Māori females and males (537 and 1,080 per 100,000 respectively). See *Figure 9.6.1* below.

Figure 9.6.1: Age-specific potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for acute bronchiolitis, 0-4 year olds, by gender and ethnicity, (2003-2005), prioritised



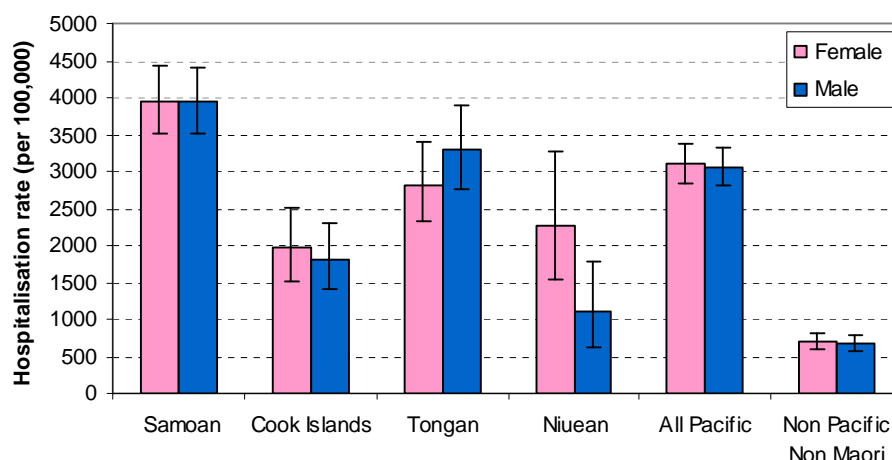
Source: NZHIS.

Note: Combined 2003-2005 data.

Pneumonia

In CM, Samoan females have significantly higher rates of early childhood PAH for pneumonia (3,952 per 100,000) than females from the other level 2 Pacific ethnic groups (1,978 – 2,821 per 100,000). Samoan and Tongan males have significantly higher rates of early childhood PAH for pneumonia (3,937 and 3,286 per 100,000 respectively) than Cook Island and Niuean males (1,808 and 1,101 per 100,000 respectively). All Pacific females and males have significantly higher early childhood PAH rates for pneumonia (3,109 and 3,059 per 100,000 respectively) than non-Pacific/non-Māori females and males (691 and 669 per 100,000 respectively). See *Figure 9.6.2* below.

Figure 9.6.2: Age-specific potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for pneumonia, 0-4 year olds, by gender and ethnicity, (2003-2005), prioritised

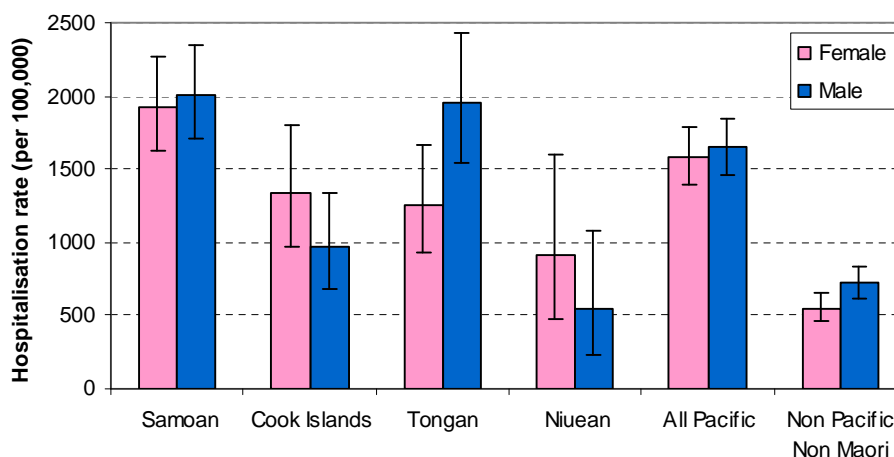


Source: NZHIS. Note: Combined 2003-2005 data.

Respiratory Infections: Other

In CM, Samoan females have significantly higher rates of early childhood PAH for 'respiratory infections: other' (1,923 per 100,000) than Niuean females (913 per 100,000). Samoan and Tongan males have significantly higher rates of early childhood PAH for 'respiratory infections: other' (2,013 and 1,952 per 100,000 respectively) than Cook Island and Niuean males (969 and 550 per 100,000 respectively). All Pacific females and males have significantly higher early childhood PAH rates for 'respiratory infections: other' (1,582 and 1,646 per 100,000 respectively) than non-Pacific/non-Māori females and males (550 and 723 per 100,000 respectively). See Figure 9.6.3 below.

Figure 9.6.3: Age-specific potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for respiratory infections: other^a, 0-4 year olds, by gender and ethnicity, (2003-2005), prioritised



Source: NZHIS.

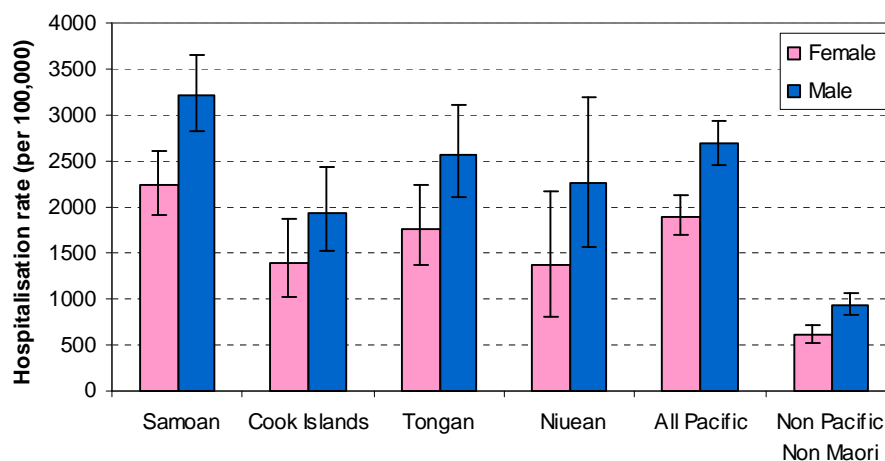
Note: Combined 2003-2005 data.

^a 'Respiratory Infections: Other' includes Influenza (due to identified influenza virus and virus not identified), Acute nasopharyngitis (common cold), Acute upper respiratory infections (of multiple and unspecified sites), and Acute bronchitis.

Asthma

In CM, Samoan females have significantly higher rates of early childhood PAH for asthma (2,241 per 100,000) than Cook Island females (1,400 per 100,000). Samoan males also have significantly higher rates of early childhood PAH for asthma (3,219 per 100,000) than Cook Island males (1,939 per 100,000). All Pacific females and males have significantly higher early childhood PAH rates for asthma (1,902 and 2,689 per 100,000 respectively) than non-Pacific/non-Māori females and males (616 and 935 per 100,000 respectively). See Figure 9.6.4 below. Previous research has noted that asthma is more common in boys than girls during early childhood.⁴⁰

Figure 9.6.4: Age-specific potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for asthma, 0-4 year olds, by gender and ethnicity, (2003-2005), prioritised

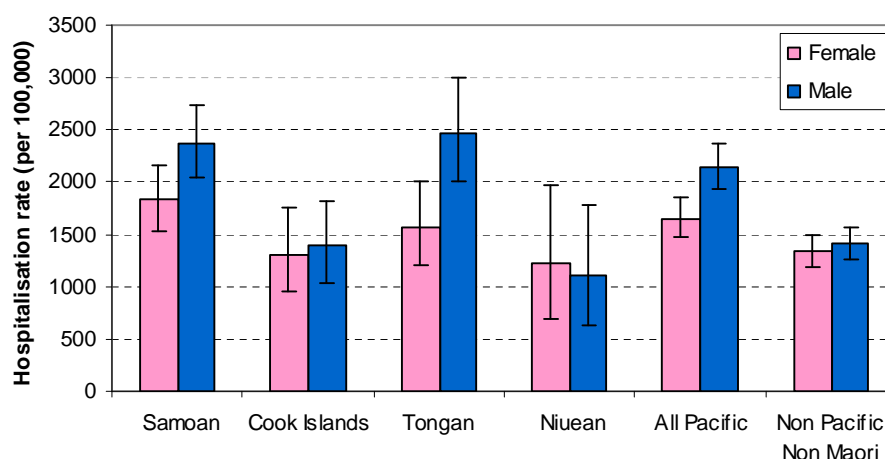


Source: NZHIS. Note: Combined 2003-2005 data.

Gastroenteritis

In CM, Samoan and Tongan males have significantly higher rates of early childhood PAH for gastroenteritis (2,373 and 2,471 per 100,000 respectively) than Cook Island and Niuean males (1,388 and 1,101 per 100,000 respectively). No significant differences are shown for females from any of the level 2 Pacific ethnic groups. All Pacific males have significantly higher rates of early childhood PAH for gastroenteritis (2,136 per 100,000) than non-Pacific/non-Māori males (1,417 per 100,000). See Figure 9.6.5 below.

Figure 9.6.5: Age-specific potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for gastroenteritis, 0-4 year olds, by gender and ethnicity, (2003-2005), prioritised

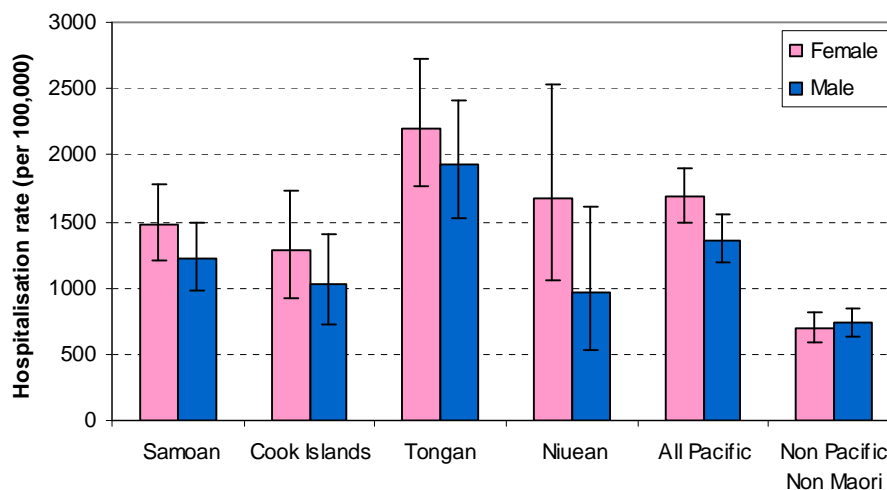


Source: NZHIS. Note: Combined 2003-2005 data.

Dental Conditions

In CM, Tongan females have significantly higher rates of early childhood PAH for dental conditions (2,205 per 100,000) than Cook Island females (1,278 per 100,000). Tongan males also have significantly higher rates of early childhood PAH for dental conditions (1,927 per 100,000) than Samoan and Cook Island males (1,218 and 1,022 per 100,000 respectively). All Pacific females and males have significantly higher early childhood PAH rates for dental conditions (1,684 and 1,361 per 100,000 respectively) than non-Pacific/non-Māori females and males (696 and 731 per 100,000 respectively). See *Figure 9.6.6* below.

Figure 9.6.6: Age-specific potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for dental conditions, 0-4 year olds, by gender and ethnicity, (2003-2005), prioritised

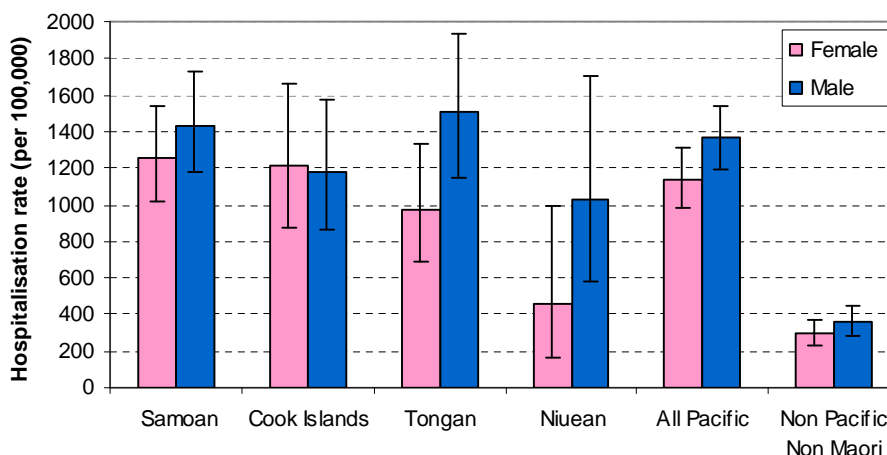


Source: NZHIS. Note: Combined 2003-2005 data.

Cellulitis

In CM, Samoan females have significantly higher rates of early childhood PAH for cellulitis (1,260 per 100,000) than Niuean females (457 per 100,000). No significant differences are shown for males from any of the level 2 Pacific ethnic groups. All Pacific females and males have significantly higher early childhood PAH rates for cellulitis (1,135 and 1,361 per 100,000 respectively) than non-Pacific/non-Māori females and males (295 and 362 per 100,000 respectively). See *Figure 9.6.7* below

Figure 9.6.7: Age-specific potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for cellulitis, 0-4 year olds, by gender and ethnicity, (2003-2005), prioritised



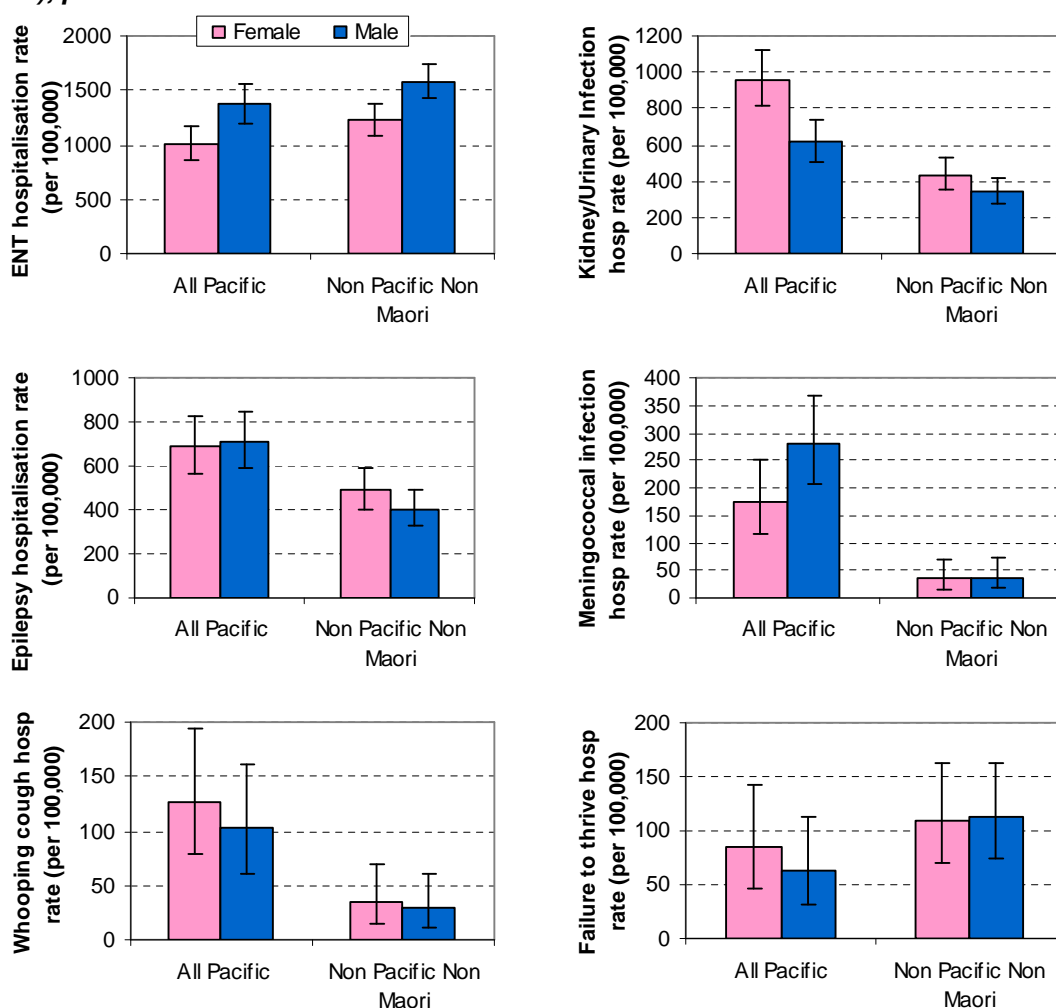
Source: NZHIS. Note: Combined 2003-2005 data.

ENT Infections, Kidney/Urinary Infection, Epilepsy, Meningococcal Infection, Whooping Cough, and Failure to Thrive

Following graphical analysis, no statistically significant differences in PAH rates in early childhood (within genders) for these causes were shown between the level 2 Pacific ethnic groups in CM. Therefore, below only displays All Pacific and non-Pacific/non-Māori rates. While meningococcal infection, whooping cough and failure to thrive were not in the top ten causes they were included in this analysis.

All Pacific females and males have significantly higher early childhood PAH rates for kidney/urinary infection (960 and 615 per 100,000 respectively) than non-Pacific/non-Māori females and males (431 and 341 per 100,000 respectively). All Pacific males have significantly higher early childhood PAH rates for epilepsy (712 per 100,000) than non-Pacific/non-Māori males (403 per 100,000). All Pacific females and males have significantly higher early childhood PAH rates for meningococcal infection (175 and 279 per 100,000 respectively) than non-Pacific/non-Māori females and males (35 and 37 per 100,000 respectively). All Pacific females and males have significantly higher early childhood PAH rates for whooping cough (127 and 103 per 100,000 respectively) than non-Pacific/non-Māori females and males (35 and 29 per 100,000 respectively). See Figure 9.6.8 below.

Figure 9.6.8: Age-specific potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for ENT infections, kidney/urinary infection, epilepsy, meningococcal infection, whooping cough, and failure to thrive, 0-4 year olds, by gender and ethnicity, (2003-2005), prioritised



Source: NZHIS.
Note: Combined 2003-2005 data.

9.7 Early Childhood (0-4 years) Hospitalisations – Other Selected Causes

Bronchiectasis, Congenital anomalies, Road Traffic Injury, Neural Tube Defects, Birth Trauma and Asphyxia

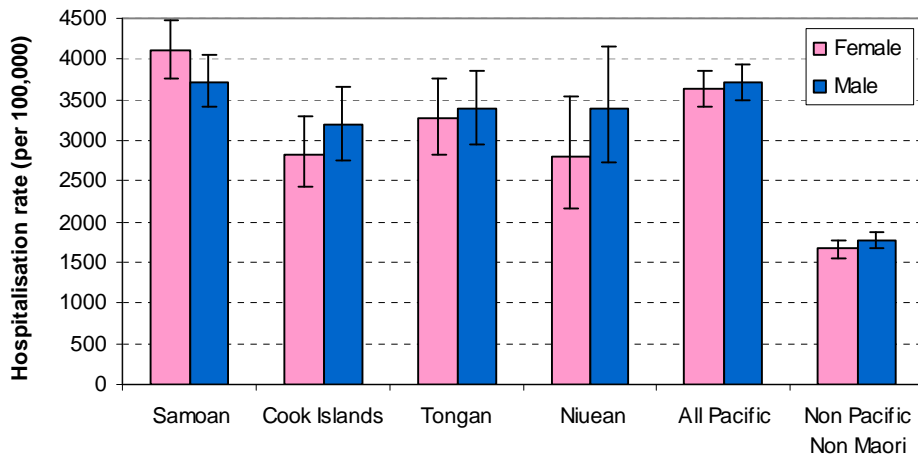
Following graphical analysis, no statistically significant differences in hospitalisation rates for these causes were shown between the level 2 Pacific ethnic groups in CM, or between All Pacific and non-Pacific/non-Māori for road traffic injury or neural tube defects (in both genders combined). All Pacific females and males have significantly higher early childhood hospitalisation rates for bronchiectasis (72 and 171 per 100,000 respectively) than non-Pacific/non-Māori females and males (4 and 8 per 100,000 respectively). All Pacific females have significantly lower early childhood hospitalisation rates for congenital anomalies (1,038 per 100,000) than non-Pacific/non-Māori females (1,382 per 100,000). All Pacific females and males combined have significantly lower early childhood hospitalisation rates for 'birth trauma and asphyxia' (304 per 100,000) than non-Pacific/non-Māori females and males combined (819 per 100,000).

9.8 Child (5-14 years) Potentially Avoidable Hospitalisations (PAH) – All Cause

Counties Manukau - All Cause

In CM, Samoan females (5-14years) have significantly higher PAH rates for all causes (4,106 per 100,000) than the other level 2 Pacific ethnic groups (2,800 – 3,264 per 100,000). All Pacific females and males (5-14years) have significantly higher PAH rates for all causes (3,639 and 3,709 per 100,000 respectively) than non-Pacific/non-Māori females and males (1,667 and 1,767 per 100,000 respectively). See *Figure 9.8.1* below.

Figure 9.8.1: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for all causes, 5-14 year olds, by gender and ethnicity, (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

9.9 Child (5-14 years) Potentially Avoidable Hospitalisations (PAH) – Top Ten Causes

The age-standardised rate for the top ten potentially avoidable causes of hospitalisation in 5-14 year olds in CM is shown in *Table 9.9.1* below. Causes of hospitalisation are presented in descending order from the highest to lowest hospitalisation rate for All Pacific people. The ranking and rate for each of these conditions is then given for each level 2 Pacific ethnic group to show any differences. The top 4 causes for All Pacific people are also in the top 4 for each of the level 2 Pacific ethnic groups (e.g. ENT infections, cellulitis, dental conditions and asthma) although in varying orders.

Rates for the top 10 causes of PAH in 5-14 year olds in CM have also been graphed below.

Counties-Manukau

Table 9.9.1: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for top ten causes in Pacific people, 5-14 year olds, males and females combined (2003-2005), prioritised

Cause of PAH	All Pacific		Samoan		Cook Islands		Tongan		Niuean	
	Rank	Hosp. rate	Rank	Hosp. rate	Rank	Hosp. rate	Rank	Hosp. rate	Rank	Hosp. rate
ENT infections	1	750	1	650	1	780	2	630	1	820
Cellulitis	2	570	2	580	2	690	3	450	4	330
Dental conditions	3	560	4	490	3	440	1	680	2	500
Asthma	4	420	3	500	4	210	4	400	3	390
Respiratory infections: Pneumonia	5	260	5	330	9	70	5	320	7	120
Gastroenteritis	6	220	6	280	7	100	7	140	5	200
Rheumatic fever/heart disease	7	150	9	150	5	170	8	130	10	80
Epilepsy	8	140	7	180	8	100	10	80	6	160
Respiratory infections: Other ^a	9	130	10	150	11	60	6	160	12	60
Kidney/urinary infection	10	120	8	170	10	70	9	120	14	40

Source: NZHIS.

Note: These hospitalisation rates have large confidence intervals and are rounded to the nearest 10. Combined 2003-2005 data.

^a 'Respiratory infections: Other' includes Influenza (due to identified influenza virus and virus not identified), Acute nasopharyngitis (common cold), Acute upper respiratory infections (of multiple and unspecified sites), and Acute bronchitis.

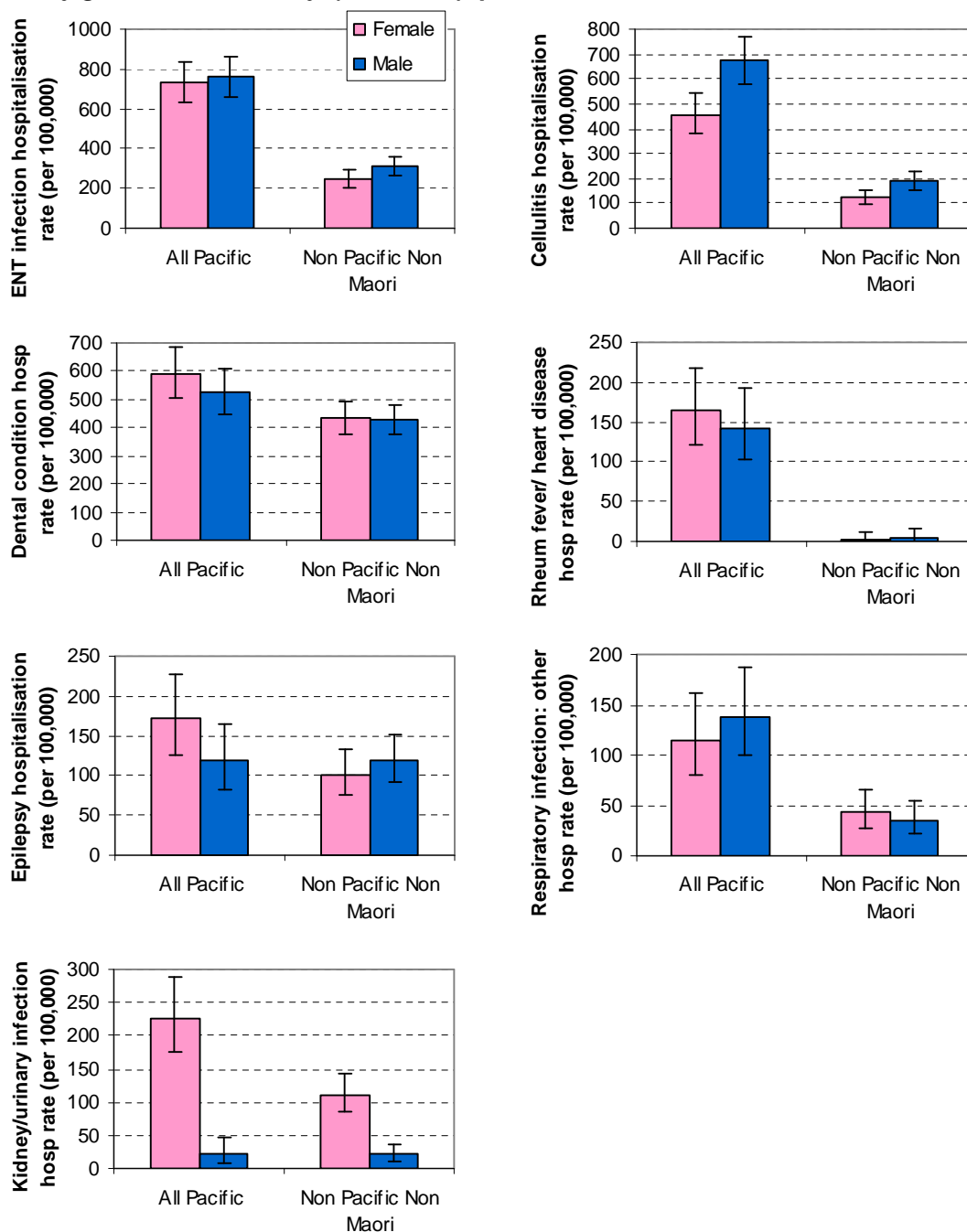
ENT Infections, Cellulitis, Dental Conditions, Rheumatic fever/heart disease, Epilepsy, Respiratory infections: Other, Kidney/Urinary Infection

Following graphical analysis, no statistically significant differences in PAH rates in 5-14 year olds (within genders) for these causes were shown between the level 2 Pacific ethnic groups in CM. Confidence intervals were extremely wide in many cases. Therefore, *Figure 9.9.1* below only displays All Pacific and non-Pacific/non-Māori rates.

In CM, All Pacific females and males (5-14 years) have significantly higher PAH rates for ENT infection (733 and 758 per 100,000 respectively) than non-Pacific/non-Māori females and males (247 and 312 per 100,000 respectively). All Pacific females and males (5-14 years) have significantly higher PAH rates for cellulitis (457 and 672 per 100,000 respectively) than non-Pacific/non-Māori females and males (122 and 188 per 100,000 respectively). All Pacific females (5-14 years) have significantly higher PAH rates for dental conditions (590 per 100,000) than non-Pacific/non-Māori females (433 per 100,000). All Pacific females and males (5-14 years) have significantly higher PAH rates for rheumatic fever/heart disease (164 and 142 per 100,000 respectively) than non-Pacific/non-Māori females and males (2 and 5

per 100,000 respectively). All Pacific females and males (5-14 years) have significantly higher PAH rates for respiratory infection: other (115 and 139 per 100,000 respectively) than non-Pacific/non-Māori females and males (43 and 35 per 100,000 respectively). All Pacific females (5-14 years) have significantly higher PAH rates for kidney/urinary infection (227 per 100,000) than non-Pacific/non-Māori females (111 per 100,000). See Figure 9.9.1 below.

Figure 9.9.1: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for ENT infections, cellulitis, dental conditions, rheumatic fever/heart disease, epilepsy, respiratory infections: other^a and kidney/urinary infection, 5-14 year olds, by gender and ethnicity, (2003-2005), prioritised



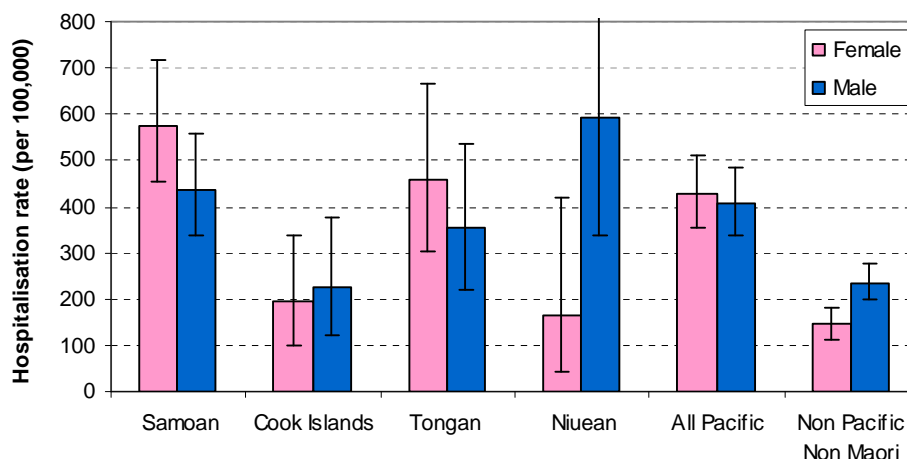
Source: NZHIS.

^a 'Respiratory infections: Other' includes Influenza (due to identified influenza virus and virus not identified), Acute nasopharyngitis (common cold), Acute upper respiratory infections (of multiple and unspecified sites), and Acute bronchitis.

Asthma

In CM, Samoan females (5-14 years) have significantly higher PAH rates for asthma (574 per 100,000) than Cook Island and Niuean females (194 and 165 per 100,000 respectively). All Pacific females and males (5-14 years) have significantly higher PAH rates for asthma (429 and 407 per 100,000 respectively) than non-Pacific/non-Māori females and males (145 and 236 per 100,000 respectively). See *Figure 9.9.2* below.

Figure 9.9.2: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for asthma, 5-14 year olds, by gender and ethnicity, (2003-2005), prioritised

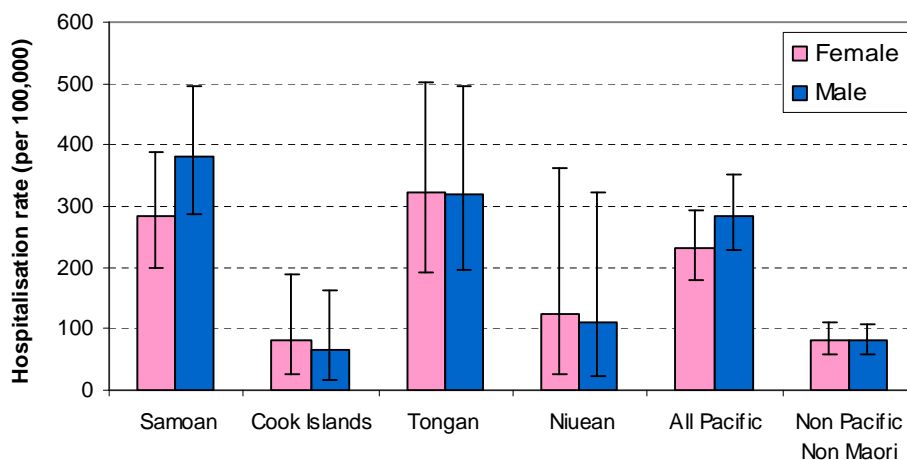


Source: NZHIS. Note: Combined 2003-2005 data.

Pneumonia

In CM, Samoan and Tongan females (5-14 years) have significantly higher PAH rates for pneumonia (283 and 321 per 100,000 respectively) than Cook Island females (81 per 100,000). Samoan and Tongan males (5-14 years) also have significantly higher PAH rates for pneumonia (382 and 321 per 100,000 respectively) than Cook Island males (64 per 100,000). All Pacific females and males (5-14 years) have significantly higher PAH rates for pneumonia (230 and 285 per 100,000 respectively) than non-Pacific/non-Māori females and males (83 and 82 per 100,000 respectively). See *Figure 9.9.3* below.

Figure 9.9.3: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for pneumonia, 5-14 year olds, by gender and ethnicity, (2003-2005), prioritised

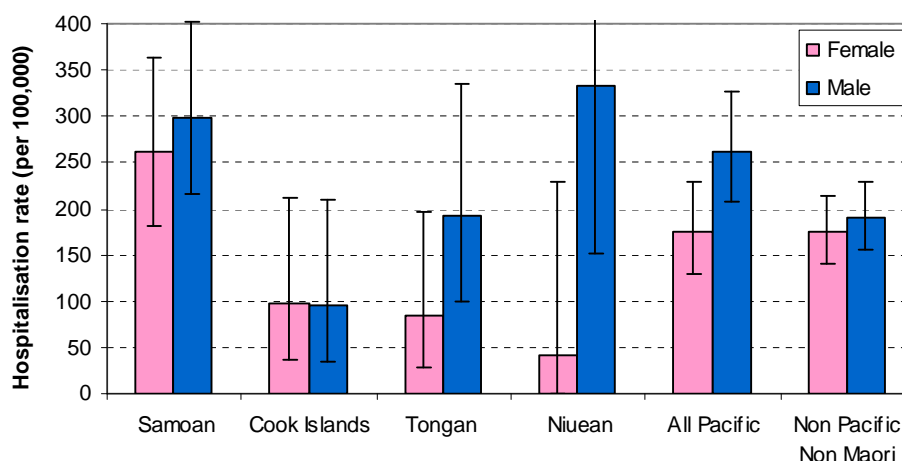


Source: NZHIS. Note: Combined 2003-2005 data.

Gastroenteritis

In CM, Samoan males (5-14 years) have significantly higher PAH rates for gastroenteritis (299 per 100,000) than Cook Island males (96 per 100,000). See *Figure 9.9.4* below.

Figure 9.9.4: Age-standardised potentially avoidable hospitalisation (PAH) rate (per 100,000) in CM for gastroenteritis, 5-14 year olds, by gender and ethnicity, (2003-2005), prioritised



Source: NZHIS.

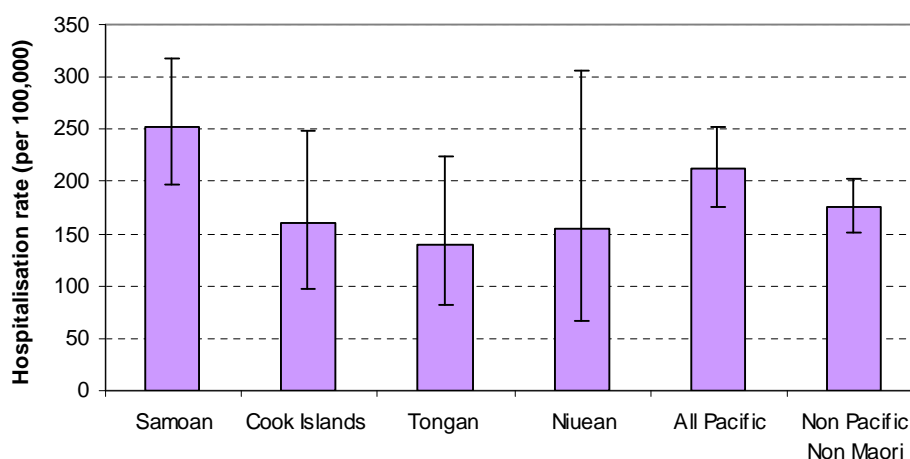
Note: Combined 2003-2005 data.

9.10 Child (5-14 years) Hospitalisations – Other Selected Causes

Road Traffic Injury

No significant differences are shown in child (5-14 years) hospitalisation rates for road traffic injury between any of the ethnic groups in CM, in both genders combined (*Figure 9.10.1* below).

Figure 9.10.1: Age-standardised hospitalisation rate (per 100,000) in CM for Road Traffic Injury, 5-14 year olds, by ethnicity, (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

9.11 Immunisation Coverage

Table 9.11.1 and Figure 9.11.1 below show a snapshot in time (at 01.01.2005) of the percentage of children having immunisations completed in CM. Four birth cohorts have been aggregated (Cohorts 03-06). The group reported against are more specifically defined as CMDHB children enrolled on Kidslink-NIR with a DOB between 01.07.02 and 30.06.03. This does not include those who have a status of “gone no address”, “opt off” (the Kidslink programme) or “deceased”. Note that given the data collection date of 01.01.2005 the children in this cohort range from 18-30 months of age.

Table 9.11.1: Percentage and number of children immunised at one specific point in time (01.01.2005) in CM, birth cohorts 03-06 combined, by ethnicity

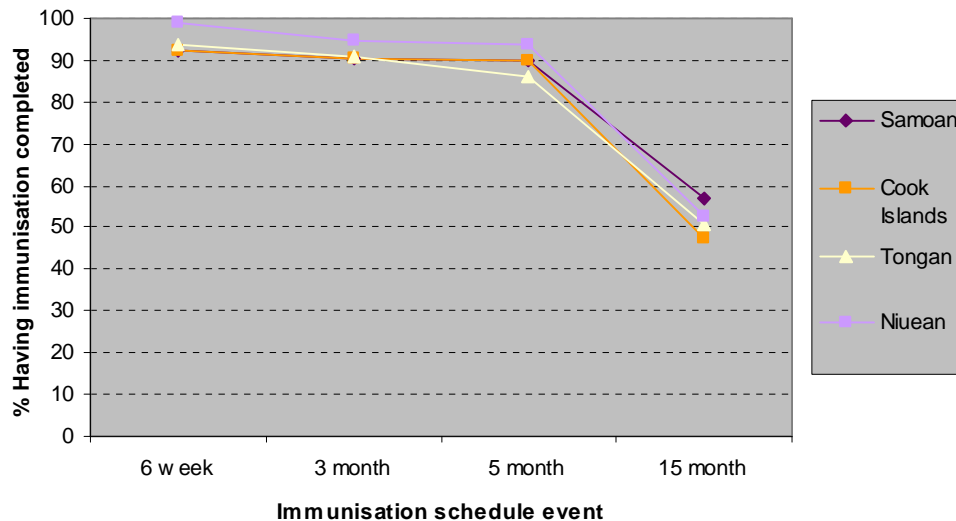
Ethnicity	Immunisation Schedule Event											
	6 week			3 month			5 month			15 month		
	%	Done	Target	%	Done	Target	%	Done	Target	%	Done	Target
Samoaan	92.5	566	612	90.5	554	612	90.0	551	612	57.0	349	612
Cook Islands	92.1	187	203	90.6	184	203	90.1	183	203	47.3	96	203
Tongan	93.6	276	295	90.8	268	295	86.1	254	295	50.8	150	295
Niuean	99.0	96	97	94.8	92	97	93.8	91	97	52.6	51	97

Source: Kidslink Immunisation Statistics (CMDHB).

Note: Data is for the birth cohorts identified as Cohort 03-06 e.g. DOB between 01.07.02 and 30.06.03 (18-30 months of age at 01.01.2005).

A higher percentage of Pacific children have their early (6 week, 3 month and 5 month) immunisations completed (the majority over 90%) than the 15 month immunisations (47-57% completed). In general, each level 2 Pacific ethnic group has a similar immunisation coverage level and pattern in CM (Figure 9.11.1 below). A slightly higher percentage of Niueans appear to be reached at the first three stages. However, Table 9.11.1 above shows that the numbers of Niueans targeted is much lower than for the other groups (e.g. 100 children are easier to find and immunise than 200-600+).

Figure 9.11.1: Percentage of children having immunisations completed at one specific point in time (01.01.2005) in CM, birth cohorts 03-06 combined, by ethnicity



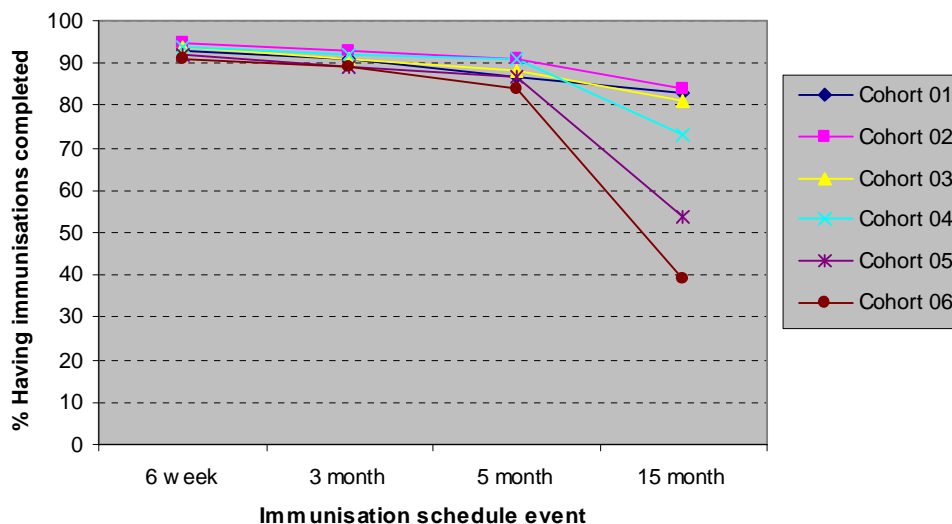
Source: Kidslink Immunisation Statistics (CMDHB).

Note: Data is summated for 4 birth cohorts. Cohort 03 (DOB: 01.07.02-30.09.02). Cohort 04 (DOB: 01.10.02-31.12.02). Cohort 05 (DOB: 01.01.03-31.02.03). Cohort 06 (DOB: 01.04.03-30.06.03). Given the data collection date of 01.01.2005 the children in this combined grouping range from 18-30 months of age.

At a specific point in time (01.01.2005) the oldest cohorts (e.g. Cohort 01 with the DOBs the furthest back in time) have higher immunisation rates than those that are born closer to this date (e.g. Cohort 06). This signals that a significant proportion of children are being immunised late e.g. as the birth cohorts age the percentage immunised increases (Figure

9.11.2 below). This is most noticeable at the 15 month stage where Cohort 01 (older) has 83% completed while Cohort 06 (younger) has 39% completed. Note that all of the graphed cohorts are between 18-36 months of age at the data collection date (01.01.2005). A similar pattern is also seen in 'All Pacific' children (Figure 9.11.3 below).

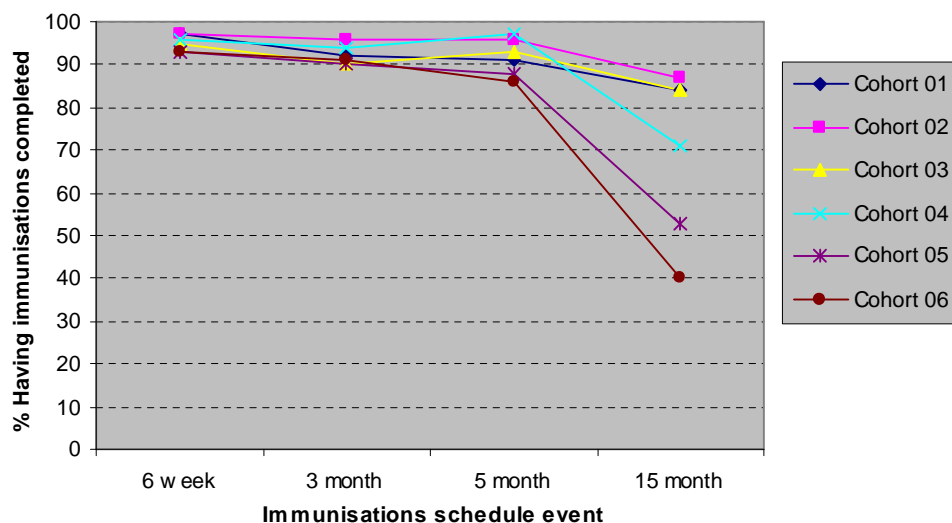
Figure 9.11.2: Percentage of children having immunisations completed at one specific point in time (01.01.2005) in CM, all ethnic groups combined, by birth cohort



Source: Kidslink Immunisation Statistics (CMDHB).

Note: All cohorts are between 18-36 months of age at the data collection date (01.01.2005).

Figure 9.11.3: Percentage of Pacific children having immunisations completed at one specific point in time (01.01.2005) in CM, by birth cohort



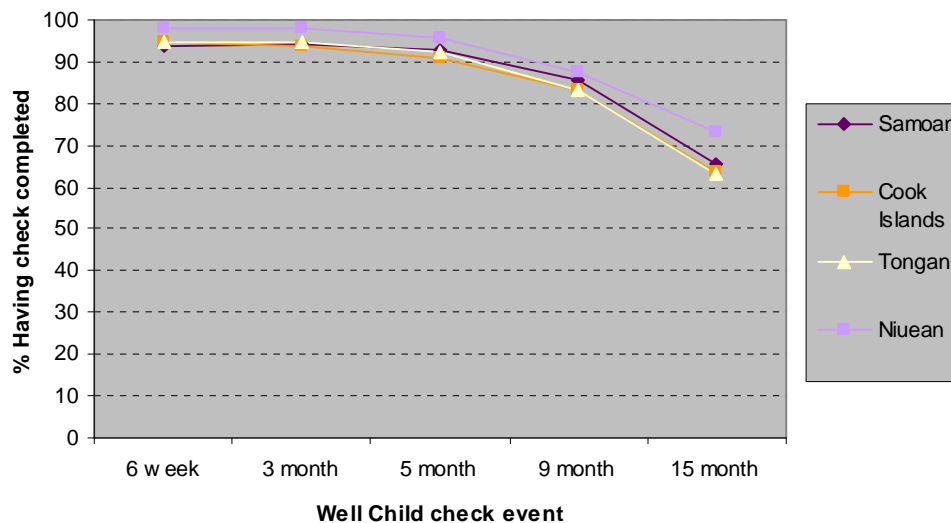
Source: Kidslink Immunisation Statistics (CMDHB).

Note: All cohorts are between 18-36 months of age at the data collection date (01.01.2005).

9.12 WellChild Coverage

Figure 9.12.1 below shows a snapshot in time (at 01.01.2005) of the percentage of children having Well Child checks completed in CM. Four birth cohorts have been aggregated (Cohorts 03-06). The group reported against are more specifically defined as CMDHB children enrolled on Kidslink-NIR with a DOB between 01.07.02 and 30.06.03. This does not include those who have a status of “gone no address”, “opt off” (the Kidslink programme) or “deceased”. Note that given the data collection date of 01.01.2005 the children in this combined grouping range from 18-30 months of age. A higher percentage of Pacific children have the earlier Well Child checks completed (over 90%) than the 9 month (between 80-90%) and 15 month checks (between 60-80%). In general, each level 2 Pacific ethnic group has a similar Well Child check coverage level and pattern. Note that while the percentage of Niueans checked appears to be higher, this may be due to a relatively low number of Niueans being targeted (as the population is smaller). For example, at the 15 month stage only 97 Niueans were targeted for Well Child checks (and therefore it is easier to achieve a higher percent checked for this group) compared to 200-600+ in the other level 2 Pacific ethnic groups. See Figure 9.12.1 below.

Figure 9.12.1: Percentage of children having Well Child checks completed at one specific point in time (01/01/2005) in CM, birth cohorts 03-06 combined, by ethnicity



Source: Kidslink Immunisation Statistics (CMDHB).

Note: Data is summated for 4 birth cohorts. Cohort 03 (DOB: 01.07.02-30.09.02). Cohort 04 (DOB: 01.10.02-31.12.02). Cohort 05 (DOB: 01.01.03-31.02.03). Cohort 06 (DOB: 01.04.03-30.06.03). Given the data collection date of 01.01.2005 the children in this combined grouping range from 18-30 months of age.

9.13 Summary – Child Health

No significant differences were shown in either gender between any of the level 2 Pacific ethnic groups in:

- All-cause infant mortality (in CM or All NZ);
- Child (0-14 years) mortality rates for low birthweight (in All NZ);
- Early childhood (0-4 years) PAH rates for ENT infections, kidney/urinary infection, epilepsy, meningococcal infection, whooping cough, and failure to thrive (in CM);
- Early childhood (0-4 years) hospitalisation rates for bronchiectasis, congenital anomalies, road traffic injury, neural tube defects, birth trauma and asphyxia (in CM);
- Child (5-14 years) PAH rates for ENT infections, cellulitis, dental conditions, rheumatic fever/heart disease, epilepsy, respiratory infections: other, kidney/urinary infection (in CM);
- Child (5-14 years) hospitalisation rates (both genders combined) for road traffic injury (in CM).

No significant differences were shown in females between any of the level 2 Pacific ethnic groups in:

- Early childhood (0-4 years) PAH rates for gastroenteritis (in CM).

No significant differences were shown in males between any of the level 2 Pacific ethnic groups in:

- Early childhood (0-4 years) PAH rates for cellulitis (in CM).

In All NZ, low birthweight is the leading cause of child (0-14 years) PAM for All Pacific, Samoans, Cook Islanders, and Tongans (and is the 3rd leading cause for Niueans). However, the absolute number of events and confidence intervals are low for both CM and All NZ for all the top ten causes.

The top 3 causes for early childhood (0-4 years) PAH in All Pacific people are also in the top 3 for each of the level 2 Pacific ethnic groups (e.g. acute bronchiolitis, pneumonia, and asthma) although in varying orders.

The top 4 causes for child (5-14 years) PAH in All Pacific people are also in the top 4 for each of the level 2 Pacific ethnic groups (e.g. ENT infections, cellulitis, dental conditions and asthma) although in varying orders.

In general, each level 2 Pacific ethnic group has a similar immunisation and Well Child check coverage level, and pattern over time, in CM.

Samoans and Tongans

In CM, Samoan and Tongan females have:

- Lower percentages of births being low birthweight than Cook Island and Niuean females;
- Significantly higher early childhood (0-4 years) PAH rates for all causes than Cook Island and Niuean females;
- Significantly higher child (5-14 years) PAH rates for pneumonia than Cook Island females.

In CM, Samoan and Tongan males have significantly:

- Higher early childhood (0-4 years) PAH rates for all causes, pneumonia, gastroenteritis and 'respiratory infections: other' than Cook Island and Niuean males;
- Higher early childhood (0-4 years) PAH rates for acute bronchiolitis than Cook Island males;
- Higher child (5-14 years) PAH rates for pneumonia than Cook Island males.

Samoans alone

In CM, Samoan females have significantly:

- Higher early childhood (0-4 years) PAH rates for acute bronchiolitis and asthma than Cook Island females;
- Higher early childhood (0-4 years) PAH rates for pneumonia than females from the other level 2 Pacific ethnic groups;
- Higher early childhood (0-4 years) PAH rates for 'respiratory infections: other' and cellulitis than Niuean females;
- Higher child (5-14 years) PAH rates for all causes than females in the other level 2 Pacific ethnic groups;
- Higher child (5-14 years) PAH rates for asthma than Cook Island and Niuean females.

Samoan males have significantly:

- Lower all-cause child (0-14 years) mortality rates than Cook Island males (in All NZ);
- Higher early childhood (0-4 years) PAH rates for asthma than Cook Island males (in CM);
- Lower early childhood (0-4 years) PAH rates for dental conditions than Tongan males (in CM);
- Higher child (5-14 years) PAH rates for gastroenteritis than Cook Island males (in CM).

Tongans alone

In CM, Tongan females have significantly:

- Higher early childhood (0-4 years) PAH rates for dental conditions than Cook Island females;

In CM, Tongan males have significantly:

- Higher early childhood (0-4 years) PAH rates for dental conditions than Samoan and Cook Island males.

Cook Islanders and Niueans

In CM, Cook Island and Niuean females have:

- Higher percentages of births being low birthweight than Samoans and Tongans;

- Significantly lower early childhood (0-4 years) PAH rates for all causes than Samoan and Tongan females;
- Lower child (5-14 years) PAH rates for asthma than Samoan females.

In CM, Cook Island and Niuean males have significantly:

- Lower early childhood (0-4 years) PAH rates for all causes, pneumonia, gastroenteritis and 'respiratory infections: other' than Samoan and Tongan males.

Cook Islanders alone

In CM, Cook Islander females have significantly:

- Lower early childhood (0-4 years) PAH rates for acute bronchiolitis and asthma than Samoan females;
- Lower early childhood (0-4 years) PAH rates for dental conditions than Tongan females;
- Lower child (5-14 years) PAH rates for pneumonia than Samoan and Tongan females.

Cook Island males have significantly:

- Higher all-cause child (0-14 years) mortality rates than Samoan males (in All NZ);
- Lower early childhood (0-4 years) PAH rates for acute bronchiolitis than Samoan and Tongan males;
- Lower early childhood (0-4 years) PAH rates for asthma than Samoan males (in CM);
- Lower early childhood (0-4 years) PAH rates for dental conditions than Tongan males (in CM);
- Lower child (5-14 years) PAH rates for pneumonia than Samoan and Tongan males;
- Lower child (5-14 years) PAH rates for gastroenteritis than Samoan males.

Niueans alone

In CM, Niuean females have:

- The highest percentage of births being low birthweight;
- Significantly lower early childhood (0-4 years) PAH rates for 'respiratory infections: other' and cellulitis than Samoan females.

All Pacific and non-Pacific/non-Māori

All Pacific females and males both (individually) have significantly:

- Higher all-cause child (0-14 years) mortality rates than non-Pacific/non-Māori females and males (in All NZ);
- Higher early childhood (0-4 years) PAH rates for 'all causes', acute bronchiolitis, pneumonia, asthma, 'respiratory infections: other', dental conditions, cellulitis, kidney/urinary infection, meningococcal infection and whooping cough than non-Pacific/non-Māori females and males (in CM);

- Higher early childhood (0-4 years) hospitalisation rates for bronchiectasis than non-Pacific/non-Māori females and males (in CM);
- Higher child (5-14 years) PAH rates for 'all causes', ENT infection, cellulitis, rheumatic fever/heart disease, respiratory infection: other, asthma, pneumonia than non-Pacific/non-Māori females and males (in CM).

All Pacific females and males (combined) have significantly:

- Lower early childhood (0-4 years) hospitalisation rates for 'birth trauma and asphyxia' than non-Pacific/non-Māori females and males combined (in CM).

All Pacific females have significantly:

- Higher all-cause infant mortality rate than non-Pacific/non-Māori females (in CM and in All NZ);
- Higher child (0-14 years) mortality rates for low birthweight than non-Pacific/non-Māori females (in All NZ);
- Lower early childhood (0-4 years) hospitalisation rates for congenital anomalies than non-Pacific/non-Māori females (in CM);
- Higher child (5-14 years) PAH rates for dental conditions and kidney/urinary infection than non-Pacific/non-Māori females (in CM).

All Pacific males have significantly:

- Higher early childhood (0-4 years) PAH rates for gastroenteritis and epilepsy than non-Pacific/non-Māori males (in CM).

Gender Differences

In CM, amongst most (or all) ethnic groups, females have significantly:

- Lower early childhood (0-4 years) PAH rates for acute bronchiolitis than males.

10 Women's/Maternal Health

This section presents 2003-2005 data, by area (CM and Rest of NZ) and ethnicity on:

- Number of deliveries and average maternal age at delivery;
- Number of first deliveries and average maternal age at first delivery;
- Total fertility rate (15-44 years);
- Number and age-specific rate (per 1,000) of teenage deliveries (15-19 years);
- Number of assisted deliveries, caesareans, deliveries complicated by pre-eclampsia, and deliveries complicated by diabetes in pregnancy, and each as a percentage of all deliveries (15-44 years);
- Number of women and age-standardised hospitalisation rate (per 100,000) for hysterectomy, pelvic inflammatory disease and ectopic pregnancy (15-44 years).

10.1 Deliveries

Number of Deliveries and Average Age at Delivery

Table 10.1.1: Number of deliveries and average age of mother at delivery in CM and Rest of NZ, by ethnicity, (2003-2005), prioritised

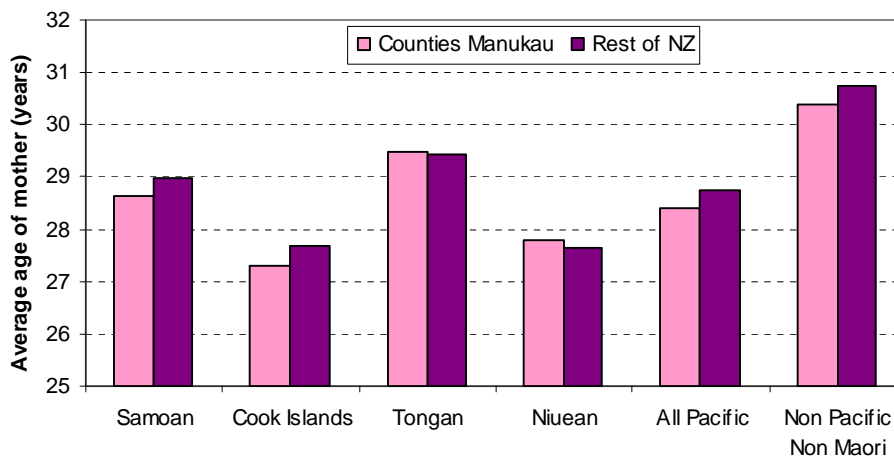
Ethnicity	Counties Manukau		Rest of NZ	
	Deliveries	Ave age	Deliveries	Ave age
Samoan	3246	28.6	4371	29.0
Cook Islands	1272	27.3	1350	27.7
Tongan	1505	29.5	1961	29.4
Niuean	407	27.8	558	27.7
All Pacific	6909	28.4	9742	28.7
Non Pacific Non Maori	10538	30.4	104016	30.8

Source: NZHIS.

Note: Rounded to 3 significant figures. Combined 2003-2005 data.

Samoans and Tongans have higher average ages of delivery (28.6 and 29.5 years respectively) than Cook Islanders and Niueans (27.3 and 27.8 years respectively) in CM. However, they are also having more babies e.g. higher Total Fertility Rate (TFR). All Pacific (28.4 years) also have lower ages of delivery than non-Pacific/non-Māori (30.4 years) in CM (values displayed here) and the Rest of NZ. See *Figure 10.1.1* below.

Figure 10.1.1: Average age of mother at delivery in CM and Rest of NZ, by ethnicity, (2003-2005), prioritised



Source: NZHIS. Note: Combined 2003-2005 data.

Number of First Deliveries and Average Age at First Delivery

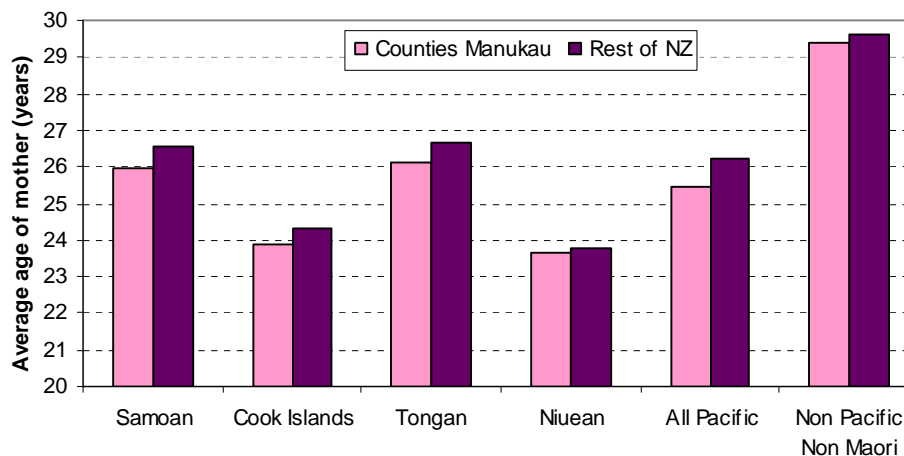
Table 10.1.2: Number of first deliveries and average age of mother at first delivery in CM and Rest of NZ, by ethnicity, (2003-2005), prioritised

Ethnicity	Counties Manukau		Rest of NZ	
	Deliveres	Ave age	Deliveres	Ave age
Samoan	1214	25.9	1794	26.6
Cook Islands	452	23.9	516	24.3
Tongan	409	26.1	665	26.7
Niuean	136	23.7	197	23.8
All Pacific	2520	25.5	3954	26.2
Non Pacific Non Maori	5819	29.4	55013	29.6

Source: NZHIS. Note: Rounded to 3 significant figures. Combined 2003-2005 data.

Samoans and Tongans have higher average ages of first delivery (25.9 and 26.1 years respectively) than Cook Islanders and Niueans (23.9 and 23.7 years respectively) in CM. All Pacific (25.5 years) also have lower ages of first delivery than non-Pacific/non-Māori (29.4 years) in CM (values displayed here) and the Rest of NZ. See Figure 10.1.2 below.

Figure 10.1.2: Average age of mother at first delivery in CM and Rest of NZ, by ethnicity, (2003-2005), prioritised



Source: NZHIS. Note: Combined 2003-2005 data.

Total Fertility Rate

The fertility rate is defined as the number of live births (per 1000 women) aged 15-44 in a given year. The total fertility rate (TFR) is the average number of children that would be born to a woman during her reproductive lifetime (15-44 years) if she were to conform to the fertility rate of a given year. The TFR is higher for women in CM than for the Rest of NZ, across all ethnic groups (Table 10.1.3 and Figure 10.1.3).

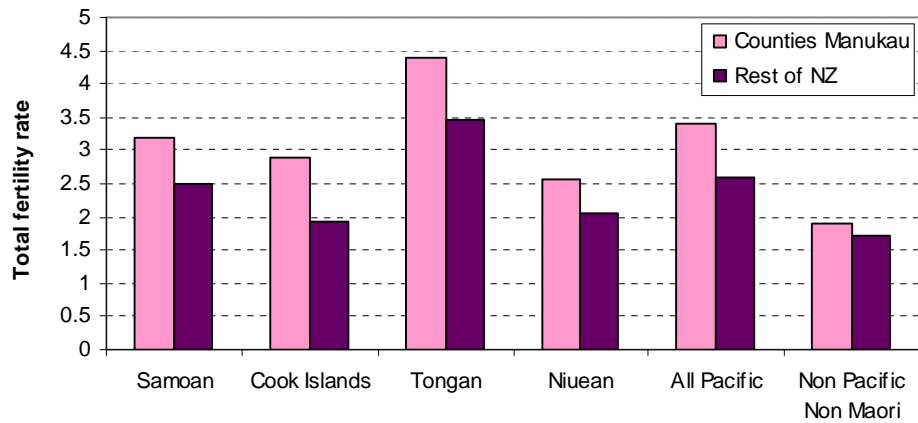
Table 10.1.3: Total fertility rate for women in CM and Rest of NZ, 15-44 years, by ethnicity, (2003-2005), prioritised

Ethnicity	Counties Manukau	Rest of NZ
Samoan	3.19	2.5
Cook Islands	2.89	1.93
Tongan	4.4	3.47
Niuean	2.55	2.04
All Pacific	3.41	2.6
Non Pacific Non Maori	1.9	1.73

Source: NZHIS. Note: Combined 2003-2005 data.

Tongans have a considerably higher TFR (4.4) than the other level 2 Pacific groups (2.6 - 3.2) in CM. Samoans and Tongans have higher TFRs (3.2 and 4.4 respectively) than Cook Islanders and Niueans (2.9 and 2.6 respectively) in CM. All Pacific (3.4) also have higher TFRs than non-Pacific/non-Māori (1.9) in CM (values displayed here) and the Rest of NZ (see table). See Figure 10.1.3 below.

Figure 10.1.3: Total fertility rate for women in CM and Rest of NZ, 15-44 years, by ethnicity, (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

10.2 Teenage Deliveries

Table 10.2.1: Number and age-specific rate (per 1,000) of teenage deliveries (women aged 15-19 years) in CM and Rest of NZ, by ethnicity, (2003-2005), prioritised

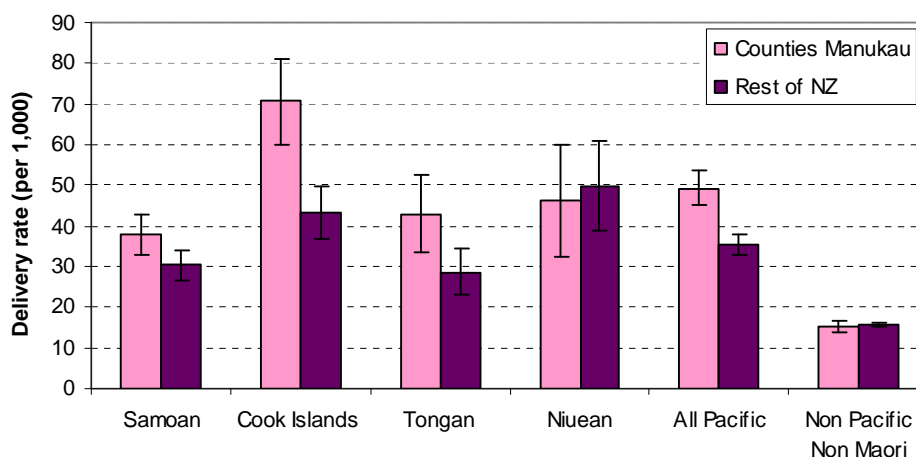
Ethnicity	Counties Manukau		Rest of NZ	
	Deliveres	Rate (per 1,000)	Deliveres	Rate (per 1,000)
Samoan	216	37.9	283	30.3
Cook Islands	175	70.7	180	43.4
Tongan	78	42.9	94	28.7
Niuean	44	46.3	77	49.7
All Pacific	562	49.3	733	35.3
Non Pacific Non Maori	407	15.4	4562	15.8

Source: NZHIS.

Note: Combined 2003-2005 data.

Significantly higher rates of teenage delivery are shown amongst All Pacific and Cook Islanders in CM than the same groups in the Rest of NZ (*Figure 10.2.1* below). No significant differences are shown between Samoans, Tongans, Niueans or non-Pacific/non-Māori living in CM compared to the same groups in the Rest of NZ. Cook Islanders have significantly higher teenage delivery rates (70.7 per 1,000) than the other level 2 Pacific ethnic groups (37.9 – 46.3 per 1,000) in CM. All Pacific have significantly higher teenage delivery rates (49.3 per 1,000) than non-Pacific/non-Māori (15.4 per 1,000) in CM (values displayed here) and in the Rest of NZ (see table).

Figure 10.2.1: Age-specific Teenage delivery rate (per 1,000 women aged 15-19 years) in CM and Rest of NZ, by ethnicity, (2003-2005), prioritised



Source: NZHIS. Note: Combined 2003-2005 data.

10.3 Assisted Deliveries

Table 10.3.1: Number of assisted deliveries, and assisted deliveries as a percentage of all deliveries in CM and Rest of NZ, 15-44 years, by ethnicity, (2003-2005), prioritised

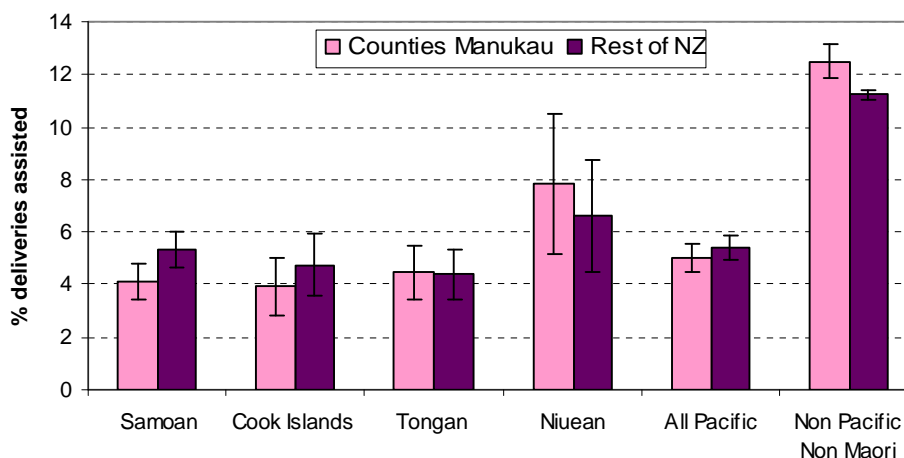
Assisted Deliveries	Area	Samoan	Cook Islands	Tongan	Niuean	All Pacific	Non Pacific Non Maori
Number	Counties Manukau	134	50	67	32	347	1315
	Rest of NZ	234	64	86	36	522	11681
Percentage of all deliveries	Counties Manukau	4.1	3.9	4.5	7.9	5.0	12.5
	Rest of NZ	5.4	4.7	4.4	6.5	5.4	11.2

Source: NZHIS.

Note: Combined 2003-2005 data.

Niueans have a significantly higher percentage of assisted deliveries (7.9%) than Samoans and Cook Islanders (4.1 and 3.9% respectively) in CM. All Pacific have a significantly lower percentage of assisted deliveries (5.0%) than non-Pacific/non-Māori (12.5%) in CM (values displayed here) and in the Rest of NZ (see table). See Figure 10.3.1 below.

Figure 10.3.1: Assisted deliveries as a percentage of all deliveries in CM and Rest of NZ, 15-44 years, by ethnicity, (2003-2005), prioritised



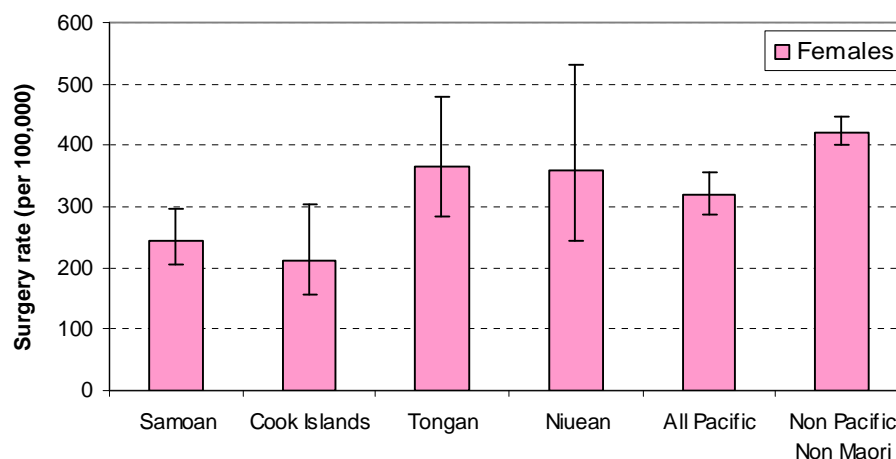
Source: NZHIS.

Note: Combined 2003-2005 data.

Intervention rate for Assisted Delivery

No statistically significant differences are shown in female intervention rates for assisted delivery between any of the level 2 Pacific ethnic groups in CM. All Pacific have significantly lower rates (318 per 100,000) than non-Pacific/non-Māori (422 per 100,000). Note this data is not controlled for the number of babies being born in each group. 'Assisted delivery' includes forceps and ventouse deliveries. See Figure 10.3.2 below.

Figure 10.3.2: Age-standardised surgical intervention rate (per 100,000) in CM for Assisted Delivery, 15+ year olds, by ethnicity, (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

10.4 Caesarean Sections

Table 10.4.1: Number of caesareans, and caesareans as a percentage of all deliveries in CM and Rest of NZ, 15-44 years, by ethnicity, (2003-2005), prioritised

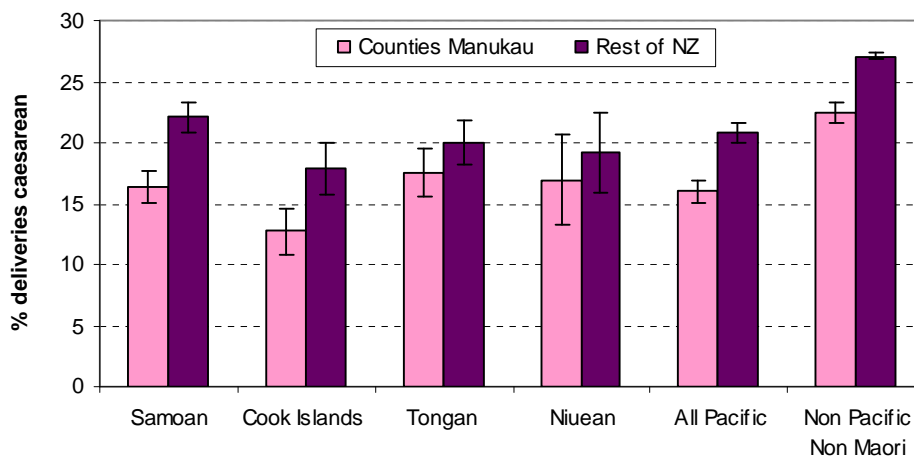
Caesareans	Area	Samoan	Cook Islands	Tongan	Niuean	All Pacific	Non Pacific Non Maori
Number	Counties Manukau	534	162	264	69	1106	2366
	Rest of NZ	965	241	393	107	2030	28210
Percentage of all deliveries	Counties Manukau	16.5	12.7	17.5	17.0	16.0	22.5
	Rest of NZ	22.1	17.9	20.0	19.2	20.8	27.1

Source: NZHIS.

Note: Combined 2003-2005 data.

Cook Islanders have a significantly lower percentage of caesareans (12.7%) than Samoans and Tongan (16.5 and 20.0% respectively) in CM. All Pacific have a significantly lower percentage of caesareans (16.0%) than non-Pacific/non-Māori (22.5%) in CM (values displayed here) and in the Rest of NZ (see table). The percentage of deliveries that are caesareans for Samoans, Cook Islanders, All Pacific, and non-Pacific/non-Māori is significantly lower in CM than in the Rest of NZ. See *Figure 10.4.1* below.

Figure 10.4.1: Caesareans as a percentage of all deliveries in CM and Rest of NZ, 15-44 years, by ethnicity, (2003-2005), prioritised

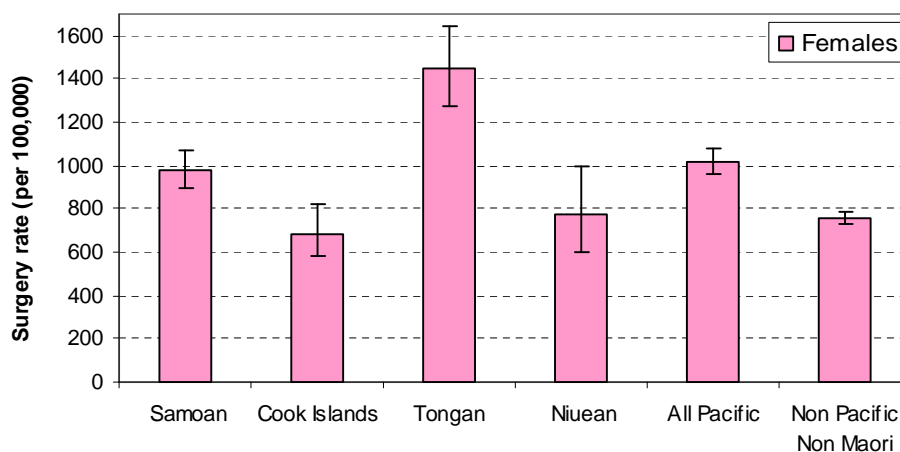


Source: NZHIS.
Note: Combined 2003-2005 data.

Intervention Rate for Caesarean Sections

In CM, Tongans have significantly higher female intervention rates for caesarean sections (1446 per 100,000) than the other level 2 Pacific ethnic groups (685 - 977 per 100,000). All Pacific have significantly higher rates (1015 per 100,000) than non-Pacific/non-Māori (759 per 100,000). Note this data is not controlled for the number of babies being born in each group. See Figure 10.4.2 below.

Figure 10.4.2: Age-standardised surgical intervention rate (per 100,000) in CM for Caesarean Sections, 15+ year olds, by ethnicity, (2003-2005), prioritised



Source: NZHIS.
Note: Combined 2003-2005 data.

10.5 Pre-eclampsia

Table 10.5.1: Number of deliveries complicated by pre-eclampsia, and deliveries complicated by pre-eclampsia as a percentage of all deliveries in CM and Rest of NZ, 15-44 years, by ethnicity, (2003-2005), prioritised

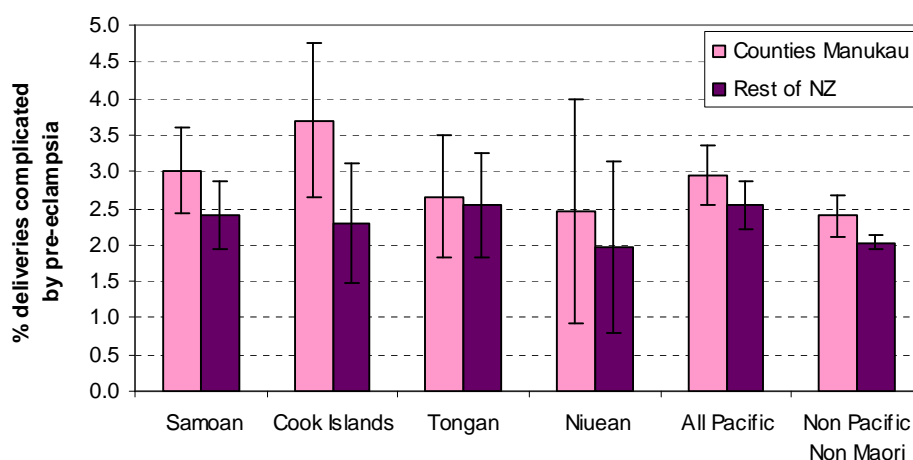
Pre-eclampsia	Area	Samoan	Cook Islands	Tongan	Niuean	All Pacific	Non Pacific Non Maori
Number	Counties Manukau	98	47	40	10	204	252
	Rest of NZ	105	31	50	11	248	2117
Percentage of all deliveries	Counties Manukau	3.0	3.7	2.7	2.5	3.0	2.4
	Rest of NZ	2.4	2.3	2.5	2.0	2.5	2.0

Source: NZHIS.

Note: Combined 2003-2005 data.

No significant differences are shown, in the percentage of all deliveries that were complicated by pre-eclampsia, between any of the ethnic groups in CM. See *Figure 10.5.1* below.

Figure 10.5.1: Percentage of all deliveries that were complicated by pre-eclampsia in CM and Rest of NZ, 15-44 years, by ethnicity, (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

10.6 Diabetes in Pregnancy

Table 10.6.1: Number of deliveries complicated by diabetes in pregnancy, and deliveries complicated by diabetes in pregnancy as a percentage of all deliveries in CM and Rest of NZ, 15-44 years, by ethnicity, (2003-2005), prioritised

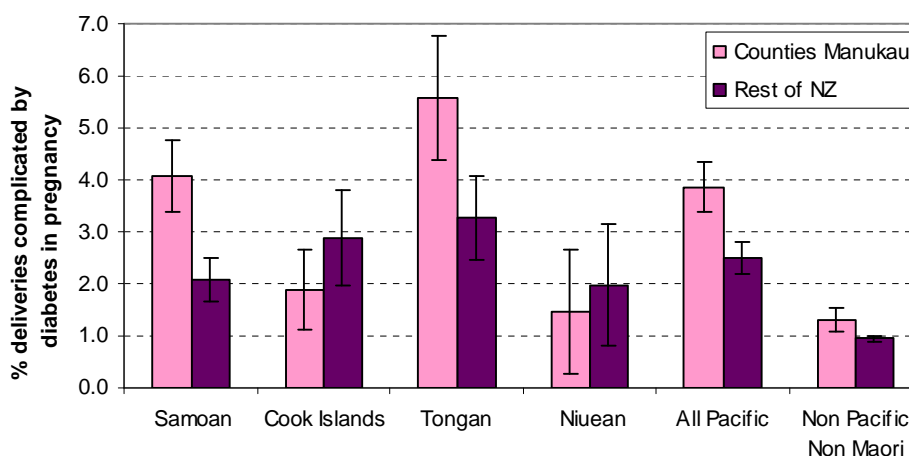
Diabetes in Pregnancy	Area	Samoan	Cook Islands	Tongan	Niuean	All Pacific	Non Pacific Non Maori
Number	Counties Manukau	132	24	84	6	267	138
	Rest of NZ	91	39	64	11	243	994
	Percentage of all deliveries						
Percentage of all deliveries	Counties Manukau	4.1	1.9	5.6	1.5	3.9	1.3
	Rest of NZ	2.1	2.9	3.3	2.0	2.5	1.0

Source: NZHIS.

Note: Combined 2003-2005 data.

Samoans and Tongans have a significantly higher percentage of diabetes in pregnancy (4.1 and 5.6% respectively) than Cook Islanders and Niueans (1.9 and 1.5% respectively) in CM. All Pacific have a significantly higher percentage of diabetes in pregnancy (3.9%) than non-Pacific/non-Māori (1.3%) in CM (values displayed here) and in the Rest of NZ (see table). The percentage of deliveries that are complicated by diabetes in pregnancy for Samoans, Tongans, All Pacific, and non-Pacific/non-Māori is significantly higher in CM than in the Rest of NZ. See *Figure 10.6.1* below.

Figure 10.6.1: Percentage of all deliveries that were complicated by diabetes in pregnancy in CM and Rest of NZ, 15-44 years, by ethnicity, (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

10.7 Hysterectomy

Table 10.7.1: Number of women and age-standardised hospitalisation rate (per 100,000) in CM and Rest of NZ having a hysterectomy, 15-44 years, by ethnicity, (2003-2005), prioritised

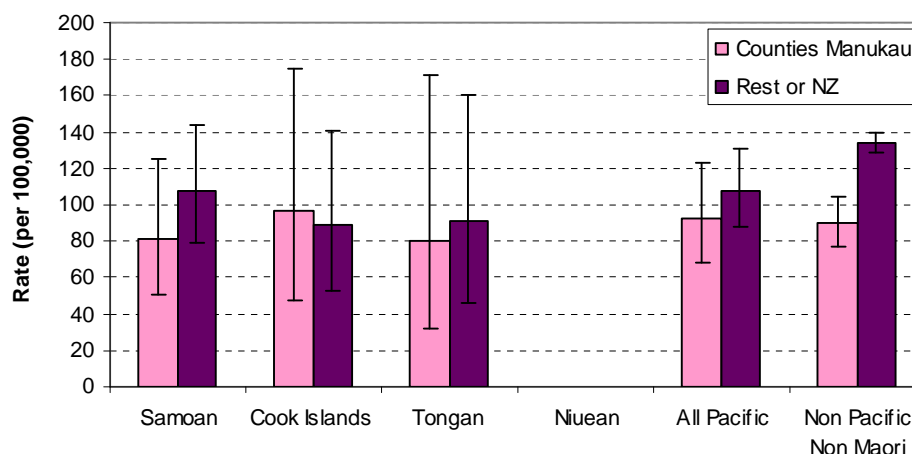
Hysterectomies	Area	Samoan	Cook Islands	Tongan	Niuean	All Pacific	Non Pacific Non Maori
Number	Counties Manukau	21	11	7	4	48	168
	Rest of NZ	47	18	12	1	105	2659
Rate (per 100,000)	Counties Manukau	82	96	80	-	93	90
	Rest of NZ	108	89	91	-	108	134

Source: NZHIS.

Note: Combined 2003-2005 data.

No significant differences are shown in the hospitalisation rate for hysterectomy between any of the ethnic groups in CM or in the Rest of NZ (Niueans not able to be compared). Due to low numbers confidence intervals are extremely wide. Niueans could not be compared because only 4 hysterectomies were reported in this group in CM and 1 in Rest of NZ, and therefore a rate calculated from such data faces reliability issues. PHI's analytical standards suggest that for numerators less than 5 the raw numbers only (rather than rates) should be presented to avoid such reliability issues.²⁸ See Figure 10.7.1 below.

Figure 10.7.1: Age-standardised hospitalisation rate (per 100,000) in CM and Rest of NZ for hysterectomy, 15-44 years, by ethnicity, (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

10.8 Pelvic Inflammatory Disease

Table 10.8.1: Number of women and age-standardised hospitalisation rate (per 100,000) in CM and Rest of NZ with pelvic inflammatory disease, 15-44 years, by ethnicity, (2003-2005), prioritised

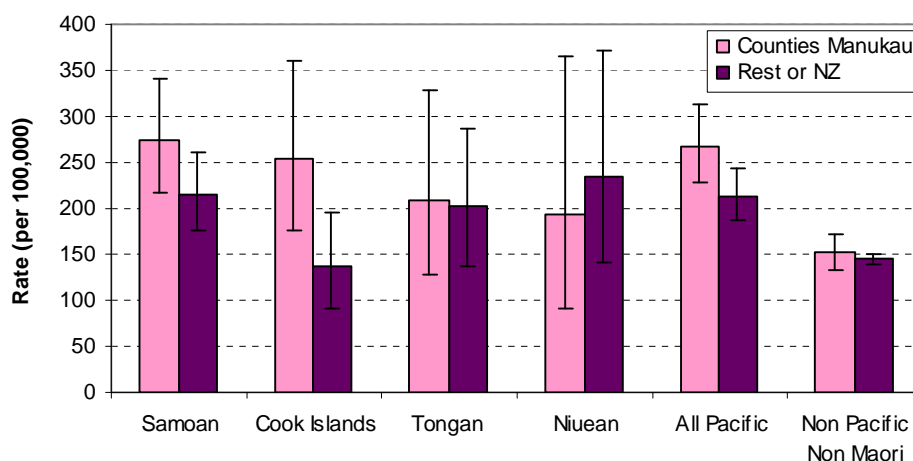
Pelvic Inflammatory Disease	Area	Samoan	Cook Islands	Tongan	Niuean	All Pacific	Non Pacific Non Maori
Number	Counties Manukau	81	34	21	10	161	263
	Rest of NZ	109	30	33	19	236	2714
Rate (per 100,000)	Counties Manukau	273	255	209	193	267	151
	Rest of NZ	215	137	202	236	214	145

Source: NZHIS.

Note: Combined 2003-2005 data.

No significant differences are shown in the hospitalisation rate for pelvic inflammatory disease between any of the level 2 Pacific ethnic groups in CM or in the Rest of NZ. Due to low numbers confidence intervals are extremely wide. All Pacific have a significantly higher hospitalisation rate for pelvic inflammatory disease (267 per 100,000) than non-Pacific/non-Māori (151 per 100,000) in CM (values displayed here) and in the Rest of NZ (see table). See Figure 10.8.1 below.

Figure 10.8.1: Age-standardised hospitalisation rate (per 100,000 women) in CM and Rest of NZ for pelvic inflammatory disease, 15-44 years, by ethnicity, (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

10.9 Ectopic Pregnancy

Table 10.9.1: Number of women and age-standardised hospitalisation rate (per 100,000) in CM and Rest of NZ with ectopic pregnancy, 15-44 years, by ethnicity, (2003-2005), prioritised

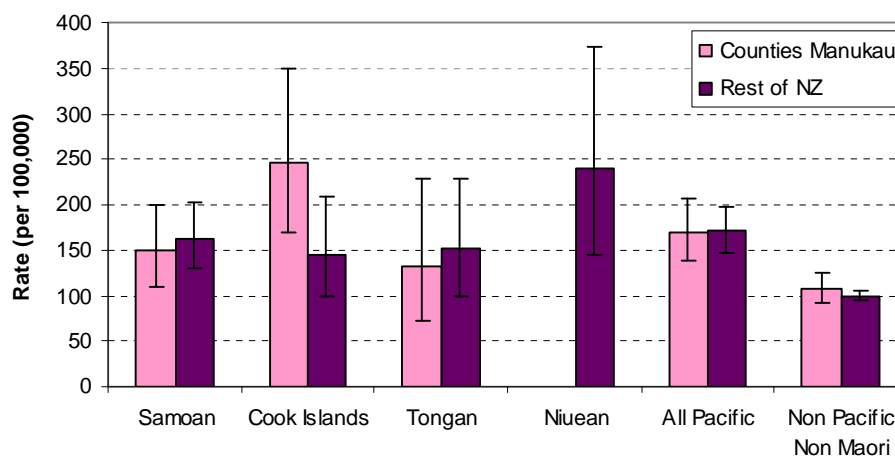
Ectopic Pregnancy	Area	Samoan	Cook Islands	Tongan	Niuean	All Pacific	Non Pacific Non Maori
Number	Counties Manukau	47	34	14	2	107	186
	Rest of NZ	85	31	26	20	193	1847
Rate (per 100,000)	Counties Manukau	149	246	132	-	170	108
	Rest of NZ	162	146	153	239	171	100

Source: NZHIS.

Note: Combined 2003-2005 data.

No significant differences are shown in the hospitalisation rate for ectopic pregnancy between any of the level 2 Pacific ethnic groups in CM (Niueans not able to be compared) or in the Rest of NZ. Niueans in CM could not be compared because only 2 ectopic pregnancies were reported in this group and therefore a rate calculated from such data faces reliability issues. When graphed this showed a potentially spurious lower rate in Niueans in CM. PHI's analytical standards suggest that for numerators less than 5 the raw numbers only (rather than rates) should be presented to avoid such reliability issues.²⁸ All Pacific have a significantly higher hospitalisation rate of ectopic pregnancy (170 per 100,000) than non-Pacific/non-Māori (108 per 100,000) in CM (values displayed here) and in the Rest of NZ (see table). Ectopic pregnancy rates are a marker for infections of the genital tract and scarring of the fallopian tubes. See *Figure 10.9.1* below.

Figure 10.9.1: Age-standardised hospitalisation rate (per 100,000 women) in CM and Rest of NZ for ectopic pregnancy, 15-44 years, by ethnicity, (2003-2005), prioritised



Source: NZHIS.

Note: Combined 2003-2005 data.

10.10 Summary - Women's/Maternal Health

No significant differences were shown between any of the level 2 Pacific ethnic groups in CM for:

- Percentage of all deliveries that were complicated by pre-eclampsia;
- Hospitalisation rates for hysterectomy, pelvic inflammatory disease and ectopic pregnancy (confidence intervals were extremely wide for some of these indicators).

Samoans and Tongans

In CM, Samoans and Tongans have a higher:

- Average age of delivery and 'age of first delivery' than Cook Islanders and Niueans;
- TFR than Cook Islanders and Niueans;
- Percentage of caesareans than Cook Islanders;
- Percentage of diabetes in pregnancy than Cook Islanders and Niueans.

Tongans alone

In CM, Tongans also have a considerably higher TFR than the other level 2 Pacific groups.

Cook Islanders and Niueans

In CM, Cook Islanders and Niueans have a lower:

- Average age of delivery and 'age of first delivery' than Samoans and Tongans;
- TFR than Samoans and Tongans;
- Percentage of diabetes in pregnancy than Samoans and Tongans.

Cook Islanders alone

In CM, Cook Islanders also have significantly:

- Higher teenage delivery rates than the other level 2 Pacific ethnic groups;
- Lower percentage of caesareans than Samoans and Tongans.

Niueans alone

In CM, Niueans also have a significantly higher percentage of assisted deliveries than Samoans and Cook Islanders.

All Pacific and non-Pacific/non-Māori

In both CM (values displayed below) and the Rest of NZ, 'All Pacific' have a:

- Lower average age of delivery and 'age of first delivery' than non-Pacific/non-Māori;
- Significantly higher teenage delivery rates than non-Pacific/non-Māori;

- Significantly lower percentage of deliveries being assisted deliveries and caesareans than non-Pacific/non-Māori;
- Significantly higher percentage of diabetes in pregnancy than non-Pacific/non-Māori;
- Significantly higher hospitalisation rate for pelvic inflammatory disease and ectopic pregnancy than non-Pacific/non-Māori;

In CM, adult All Pacific females have significantly:

- Lower intervention rates for assisted delivery than non-Pacific/non-Māori females;
- Higher intervention rates for caesarean sections than non-Pacific/non-Māori females.

Area Differences

In CM there are:

- Higher TFRs than for the Rest of NZ, across all ethnic groups;
- Significantly higher rates of teenage delivery amongst All Pacific and Cook Islanders than in the same groups in the Rest of NZ;
- Lower percentages of deliveries that are caesareans for Samoans, Cook Islanders, All Pacific, and non-Pacific/non-Māori than in the same groups in the Rest of NZ;
- Higher percentages of deliveries that are complicated by diabetes in pregnancy for Samoans, Tongans, All Pacific, and non-Pacific/non-Māori than in the same groups in the Rest of NZ.

11 Key Findings for the Pacific Ethnic Groups

11.1 Samoans

The areas of concern for Samoans, where they fare relatively poorly compared to one or more of the other Pacific ethnic groups (Tongans, Cook Islanders and Niueans), include:

- Income - Relatively high % with no income;
- Overcrowding - Relatively high % living in homes 'needing at least 1 more bedroom';
- Home Heating - Relatively low % using home heating;
- Telecommunications - Relatively low % with access to a telephone;
- Gambling - Relatively high male prevalence (amongst males aged 30-65 years) of reporting going into debt or borrowing money due to gambling;
- Life-expectancy - Relatively low female life expectancy at birth;
- Mortality - Relatively high adult female mortality rate for all-causes;
- Hospitalisation
 - Relatively high adult female - angina and chest pain, myocardial infarction, stroke, kidney/urinary infection and congestive heart failure, and asthma;
 - Relatively high adult male - all-causes, congestive heart failure, stroke and CORD;
- Child hospitalisation rates
 - Relatively high early childhood (0-4 years) female - all-causes, acute bronchiolitis, asthma, pneumonia, 'respiratory infections: other' and cellulitis;
 - Relatively high child (5-14 years) female - all-causes, asthma, pneumonia;
 - Relatively high early childhood (0-4 years) male - all-causes, acute bronchiolitis, asthma, pneumonia, 'respiratory infections: other' and gastroenteritis;
 - Relatively high child (5-14 years) male - pneumonia and gastroenteritis;
- Delivery - Having babies relatively late;
- Caesareans - Relatively high % births complicated by caesareans;
- Diabetes in Pregnancy - Relatively high % pregnancies complicated by diabetes in pregnancy.

11.2 Tongans

The areas of concern for Tongans, where they fare relatively poorly compared to one or more of the other Pacific ethnic groups (Samoans, Cook Islanders and Niueans), include:

- Deprivation Decile - Relatively high % living in 2 most deprived deciles and low % living in 4 most affluent deciles;
- Income
 - Relatively high % with no income and earning less than \$20,000 per year;
 - Relatively low % earning over \$40,000 per year;
- Employment - Relatively high % not in the labour force;
- Overcrowding - Relatively high % living in homes 'needing at least 1 more bedroom';
- Home heating - Relatively low % using home heating;
- Telecommunications - Relatively low % with access to a telephone;
- Hospitalisation rates
 - Relatively high adult female - stroke, road traffic injury, caesarean sections;
 - Relatively high adult male - all-causes, CORD and myocardial infarction;
- Child hospitalisation rates
 - Relatively high early childhood (0-4 years) female - all-causes, dental conditions;
 - Relatively high child (5-14 years) female - pneumonia;
 - Relatively high early childhood (0-4 years) male - all-causes, pneumonia, 'respiratory infections: other', acute bronchiolitis, gastroenteritis and dental conditions;

- Relatively high child (5-14 years) male - pneumonia;
- Deliveries - Having babies relatively late (and having the most babies);
- Caesareans - Relatively high % births complicated by caesareans;
- Diabetes in Pregnancy - Relatively high % pregnancies complicated by diabetes in pregnancy.

11.3 Cook Islanders

The areas of concern for Cook Islanders, where they fare relatively poorly compared to one or more of the other Pacific ethnic groups (Niueans, Samoans and Tongans), include:

- Employment - Relatively high % unemployed;
- Education - Relatively high % with no qualification;
- Homeownership - Relatively low % owning own home;
- Language - Relatively low % able to speak Cook Island Māori;
- Smoking - Relatively high prevalence of adult females currently smoking (and starting smoking early);
- Alcohol
 - Adult females consume relatively high amounts of alcohol on an occasion and have a higher prevalence of drinking enough to feel drunk once per week;
 - Relatively high adult 12 month prevalence of any alcohol disorder;
- Blood pressure - Relatively high adult male prevalence of hypertension;
- Life expectancy - Female relatively low;
- Mortality - Adult female relatively high;
- Hospitalisation
 - For congestive heart failure relatively high in females;
- Birth weight - Relatively high % births being LBW;
- Child Mortality - (0-14 years) relatively high for all-causes;
- Teenage Delivery - Relatively high.

11.4 Niueans

The areas of concern for Niueans, where they fare relatively poorly compared to one or more of the other Pacific ethnic groups (Cook Islanders, Samoans and Tongans), include:

- Home Ownership - Relatively low % owning own home;
- Vehicle access - Relatively low % with access to a motor vehicle;
- Education
 - Relatively high % with no qualification;
 - Relatively low % with any secondary school qualification;
- Language - Relatively low % able to speak Niuean or any Pacific language;
- Physical Activity - Relatively low for adult males;
- Diabetes - Relatively high prevalence (in the South Auckland Diabetes Project 1992-1995);
- Birth weight - Relatively high % births being LBW;
- Assisted Delivery - Relatively high % of births being complicated by assisted delivery.

12 Trends

12.1 'Samoans and Tongans'

Demography and Socioeconomic Circumstances

In CM, Samoans and Tongans have a:

- Lower percentage having been born in New Zealand, or having lived in NZ for 'more than 20 years', than Cook Islanders and Niueans;
- Higher percentage having lived in NZ for 'less than 10 years' or between '11 and 20 years' than Cook Islanders and Niueans;
- Higher percentage able to speak their corresponding language of Pacific ethnic origin, or 'any Pacific language', than Cook Islanders and Niueans;
- Higher percentage with no income than Cook Islanders and Niueans;
- Lower percentage with no qualification than Cook Islanders and Niueans;
- Higher percentage with 'any secondary school qualification', or 'an overseas secondary school qualification', than Cook Islanders and Niueans;
- Higher percentage owning or partly owning their usual residence than Cook Islanders and Niueans;
- Lower percentage living in homes which have 'at least 1 spare bedroom' or with 'no bedrooms required and none spare' than Cook Islanders and Niueans;
- Higher percentage living in homes 'needing at least 1 more bedroom' than Cook Islanders and Niueans;
- Lower percentage using home heating than Cook Islanders and Niueans;
- Higher percentage having access to a motor vehicle than Cook Islanders and Niueans;
- Lower percentage with access to a telephone and higher percentage having no access to telecommunication systems e.g. telephones, faxes or the internet than Cook Islanders and Niueans;
- Higher percentage of people looking after a member of own household who is ill or who has a disability than Cook Islanders and Niueans;
- Higher percentage of having 4 or more dependent children and a lower percentage of having 1 and 2 dependent children than Cook Islanders and Niueans.

Adult Health Care Utilisation

In CM, adult Samoan and Tongan females have significantly:

- Higher PAH rates for stroke than Niuean females.

In CM, adult Samoan and Tongan males have significantly:

- Higher hospitalisation rates for all causes than Cook Island and Niuean males;

- Higher PAH rates for CORD than Cook Island males.

Child Health

In CM, Samoan and Tongan females have:

- Lower percentages of births being low birthweight than Cook Island and Niuean females;
- Significantly higher early childhood (0-4 years) PAH rates for all causes than Cook Island and Niuean females;
- Significantly higher child (5-14 years) PAH rates for pneumonia than Cook Island females.

In CM, Samoan and Tongan males have significantly:

- Higher early childhood (0-4 years) PAH rates for all causes, pneumonia, gastroenteritis and 'respiratory infections: other' than Cook Island and Niuean males;
- Higher early childhood (0-4 years) PAH rates for acute bronchiolitis than Cook Island males;
- Higher child (5-14 years) PAH rates for pneumonia than Cook Island males.

Women's Health

In CM, Samoans and Tongans have a higher:

- Average age of delivery and 'age of first delivery' than Cook Islanders and Niueans;
- TFR than Cook Islanders and Niueans;
- Percentage of caesareans than Cook Islanders;
- Percentage of diabetes in pregnancy than Cook Islanders and Niueans.

12.2 'Cook Islanders and Niueans'

Demography and Socioeconomic Circumstances

In CM, Cook Islanders and Niueans have a:

- Higher percentage having been born in New Zealand, or having lived in NZ for 'more than 20 years' than Samoans and Tongans
- Lower percentage having lived in NZ for 'less than 10 years' or between '11 and 20 years' than Samoans and Tongans;
- Lower percentage able to speak their corresponding language of Pacific ethnic origin, or 'any Pacific language', than Samoans and Tongans;
- Higher percentage of people living in the four most affluent deciles than Tongans;
- Lower percentage with no income than Samoans and Tongans;
- Higher percentage with no qualification than Samoans and Tongans;

- Lower percentage with 'any secondary school qualification', or 'an overseas secondary school qualification' than Samoans and Tongans;
- Lower percentage owning or partly owning their usual residence than Samoans and Tongans;
- Higher percentage living in homes which have 'at least 1 spare bedroom' or with 'no bedrooms required and none spare' than Samoans and Tongans;
- Lower percentage living in homes 'needing at least 1 more bedroom' than Samoans and Tongans;
- Higher percentage using home heating than Samoans and Tongans;
- Lower percentage having access to a motor vehicle than Samoans and Tongans;
- Higher percentage with access to a telephone and lower percentage having no access to telecommunication systems e.g. telephones, faxes or the internet than Samoans and Tongans;
- Lower percentage of people looking after a member of own household who is ill or who has a disability than Samoans and Tongans;
- Lower percentage of having 4 or more dependent children and a higher percentage of having 1 and 2 dependent children than Samoans and Tongans.

Adult Health Care Utilisation

In CM, adult Cook Island and Niuean males have significantly:

- Lower hospitalisation rates for all causes than Samoan and Tongan males.

Child Health

In CM, Cook Island and Niuean females have:

- Higher percentages of births being low birthweight than Samoans and Tongans;
- Significantly lower early childhood (0-4 years) PAH rates for all causes than Samoan and Tongan females;
- Lower child (5-14 years) PAH rates for asthma than Samoan females.

In CM, Cook Island and Niuean males have significantly:

- Lower early childhood (0-4 years) PAH rates for all causes, pneumonia, gastroenteritis and 'respiratory infections: other' than Samoan and Tongan males.

Women's Health

In CM, Cook islanders and Niueans have a lower:

- Average age of delivery and 'age of first delivery' than Samoans and Tongans;
- TFR than Samoans and Tongans;
- Percentage of diabetes in pregnancy than Samoans and Tongans.

13 Discussion

While a discussion section is not the norm in a HNA the complexities of this report warrant further consideration of some of the issues raised. These include the emerging trends, key questions arising from these trends, specific areas of interest, the issue of framing inequalities, prioritising the magnitude of such inequalities, and the limitations of this report.

While no differences were found between individual Pacific ethnic groups in >110 health indicators the confidence intervals were often wide. Differences have however been shown in >50 indicators. Several trends have also emerged that raise key questions.

Trends

- Samoans and Tongans are similar for several indicators.
- The same can be said for Cook Islanders and Niueans.

Table 12.2.1: Comparison of Groups Across All Indicators

	# of indicators each group has fared worse than another Pacific group on	# of indicators each group has fared better than another Pacific group on	Difference between these values
Samoans	30	6	-24
Tongans	19	5	-14
Cook Islanders	10	23	13
Niueans	1	21	20

Note: These comparisons have no statistical significance. Biases result due to low numbers – especially for Niueans who, because of large confidence intervals, are least likely to be shown to be significantly different on most indicators.

Key Questions

A number of key questions arise from this HNA:

- Cook Islanders and Niueans appear similar on several indicators as do Samoans and Tongans. How much of this pattern is due to:
 - Deprivation differences;
 - Ethnic or cultural differences;
 - Acculturation/changes in culture (exposure to ‘New Zealand culture’ here or in the Islands, especially for Cook Islanders and Niueans);
 - Different durations of settlement (years in NZ);
 - The NZ health system being difficult to ‘navigate’ (including the appropriateness/relevance of the system);
 - A combination of the above?
- How can interventions best be tailored to address these findings?
- How can these findings optimally inform future research?
- Should these findings lead to prioritisation or redistribution of resources?
- How can improved data be gathered on high priority illnesses/risk factors such as diabetes and obesity?

Specific Areas of Interest

Below is a list of issues which have been raised by this HNA:

- Education
 - Findings of Samoans and Tongans in CM being more likely to have any secondary school qualification and a tertiary qualification, and less likely to have no qualifications (than Cook islanders and Niueans) is in contrast to what has been thought previously.
- Language

- What effect could fewer Cook Islanders and Niueans speaking Pacific languages have on their health? Does this reflect loss of culture with time being in NZ? The degree of spoken English amongst different groups, and the effects on health due to limitations in this, could be investigated?
- Acculturation
 - Could 'assimilation/acculturation' explain Cook Islanders and Niueans faring worse on certain indicators e.g. education, Pacific languages, home ownership, some smoking and alcohol-related outcomes?
- Adult Life Expectancy
 - Why do Samoan and Cook Island females live shorter lives (than Tongan and Niuean females)?
- Smoking
 - How can more clarity be gained around smoking rates and behaviours (such as pattern and place of smoking e.g. passive smoking around children for instance at home/in the car)?
 - Could high smoking rates in Cook Island females explain the higher percentage of births being low birth weight?
- Asthma
 - Could the usual and well known gender differences in asthma be more pronounced for hospitalizations amongst Pacific adults and children living in CM?
 - Adult Pacific females in Counties-Manukau have higher hospitalisation rates for asthma than adult males, while 0-4 year old Pacific females have lower hospitalisation rates than males of the same age.
- CORD
 - Why do Tongan men have such high rates of CORD e.g. their smoking rates appear higher but confidence intervals overlapped?
- Child Hospitalisation
 - Why are Samoan and Tongan rates higher than Cook Island and Niuean?
 - What are the potential causes of the high hospitalisation rates for childhood respiratory illnesses in Samoans and Tongans? Could this be due to the lower percentage of Samoan and Tongan adults stating they use home heating, differences in smoking behaviours (e.g. passive smoking), the NZ health system being more difficult to navigate for some, higher rates and/or severity of overcrowding (especially amongst Tongans), or a combination of these?
- Adult Hospitalisation
 - Why are Samoan and Tongan rates generally higher than Cook Island and Niuean?
 - How can interventions (such as Lotu Moui) be better used to reduce the higher CVD and respiratory hospitalisation rates in Samoan and Tongan adults e.g. more targeted smoking-cessation, weight management, and physical activity/nutrition interventions?
- Teenage deliveries
 - Why are rates so high in Cook Island females?
 - Do teenage deliveries reflect pregnancies e.g. better information is required on terminations? If they do, there may be opportunities to target more family planning, or look further upstream.
- Age of Mothers at First Delivery
 - Why are Cook Island and Niuean women having their first baby on average earlier than Samoan and Tongan women?
- Caesareans
 - Comparison between CM and the rest of NZ. There is a general trend for lower rates of caesarean sections in CM than the rest of NZ. This could represent either reduced intervention in CM or higher than recommended/appropriate levels of intervention in the rest of New Zealand?
 - Are Pacific women being offered the right level of intervention?
 - Could differences between Pacific ethnic groups be explained by the age differences of mothers when they give birth?
- Diabetes in pregnancy

- Why are Samoan and Tongan rates higher? Could this be explained by age differences of mothers when they give birth?
- Could preventive measures be considered e.g. increasing physical activity and lowering BMI?
- Upstream Focus
 - How can DHBs improve their influence on the upstream determinants of health?

Inequalities and Framing

The focus on individual Pacific ethnic groups and inequalities between them must not detract from the relative disadvantage of 'All Pacific' groups combined versus the non-Pacific/non-Māori population in New Zealand. In this HNA the largest difference between the individual Pacific ethnic groups has been found to be less than the difference between 'All Pacific' and non-Pacific/non-Māori for many outcome measures. However, several outcomes show greater differences within the Pacific ethnic groups than between 'All Pacific' and non-Pacific/non-Māori. The lack of ethnic differences in outcomes for some indicators should not be used to undermine the value of culturally-tailoring interventions.

An additional risk of this HNA is that victim blaming (and further stigmatisation) may potentially arise, to explain the different circumstances and realities (including health status) between Pacific ethnic groups. Such an attitude would not be aligned with the spirit in which this HNA has been commissioned and conducted. Framing inequalities in terms of the economic, structural, environmental, political, historical, and societal factors (including racism) influencing health is favoured rather than simply blaming the individual or group for 'poor' results. Viewing inequalities through this wider lens opens the viewer to many more population-based interventions with a potentially broader and more sustainable effect than simply those focused on individual behaviour change.

Prioritising Inequalities

A major challenge from this HNA is how to determine the relative priority of inequalities between 'All Pacific and Non-Pacific/non-Māori' versus inequalities between 'Samoans, Tongans, Cook Islanders and Niueans'. Some early work has been done in the latter stages of this HNA trying to quantify the relative differences identified (See ethnic-specific tables in the appendices from page 146 onwards). For example, for as many indicators as possible the greatest difference between the individual Pacific ethnic groups has been compared (in a ratio) to the difference between All Pacific and non-Pacific/non-Māori.

On 35 occasions the ratio was found to be greater than 1, signalling that the inequality is greater amongst the individual Pacific ethnic groups than between All Pacific and non-Pacific/non-Māori. On 47 occasions the ratio was found to be less than 1, signalling that the inequality is greater between All Pacific and non-Pacific/non-Māori than amongst the individual Pacific ethnic groups. On a single occasion the ratio was 1. Further more detailed analysis in this area is required.

Limitations

This HNA has a number of limitations:

- Given the short (6 month) time-frame, and the fact that data has proved more difficult to attain and more manipulation is required at level 2 ethnicity than at level 1, a number of areas were not included in the final report e.g. oral health, terminations, Hepatitis B data and emergency department attendance data was either not available or not received in time;
- Most data is only available and is therefore presented in the 'prioritised' ethnicity format which underestimates the size of the ethnic groups compared to the total number identifying with each group;
- Small numbers resulted in large confidence intervals for many outcome measures, which often made potential differences difficult or impossible to display;

- Small numbers also limited the ability to compare groups in smaller particularly adult age groupings e.g. the elderly;
- Multiple comparisons may lead to spuriously significant findings showing differences which are not 'truly' present.

14 Conclusions

- *There are many inequalities between All Pacific and non-Pacific/non-Māori and these inequalities are often large;*
- *Amongst Pacific ethnic groups there are more similarities than differences, and the differences tend to be smaller than those between All Pacific and non-Pacific/non-Māori;*
- *Where differences do exist amongst Pacific ethnic groups a pattern seems to be emerging. Samoans and Tongans share similarities on several indicators, as do Cook Islanders and Niueans;*
- *There are some specific areas where each Pacific ethnic group is faring less well than some of the others.*

15 Recommendations

For Further Work/Research

The Pacific team at CMDHB should consider the need for further work/research to clarify certain issues raised in this HNA:

- What factors could explain the trend of 'Cook Islanders and Niueans' appearing similar on several indicators, as do 'Samoans and Tongans'. How much of this is due to: deprivation differences; ethnic or cultural differences; acculturation/changes in culture including exposure to 'New Zealand culture' here or in the Islands (especially for Cook Islanders and Niueans); different durations of settlement (years in NZ); the NZ health system being difficult to 'navigate' for some (including the accessibility, appropriateness and relevance of the system); a combination of the above?;
- Smoking - More information is needed regarding smoking behaviours amongst Pacific ethnic groups. The high Cook Island female rates need to be addressed;
- Child Hospitalisation - Why are Samoan and Tongan rates higher than Cook Island and Niuean? Including investigating the potential causes of the high hospitalisation rates for childhood respiratory illnesses in Samoans and Tongans e.g. differences in home heating?;
- Adult Hospitalisation - Why are Samoan and Tongan rates generally higher than Cook Island and Niuean?;
- Teenage Deliveries - Why are rates so high in Cook Island females? Do teenage deliveries reflect pregnancies?;
- Education – Corroborating the findings that Samoans and Tongans in CM are more likely to be educated than Cook islanders and Niueans which is in contrast to what has been thought previously;
- Data on High Priority Issues – Better quality and more up to date information is required on important illnesses/risk factors such as diabetes and obesity.

Regarding Service Intervention Issues

Areas needing consideration include:

- Tailoring Services - To what extent and how can services be tailored to reflect the differences shown amongst Pacific ethnic groups;
- Caesareans - What is the significance of lower caesarean section rates for Pacific people in CM than Pacific people in the rest of NZ? Can this be explained by age differences? Could this represent reduced intervention in CM or higher than recommended/appropriate levels of intervention in the rest of New Zealand? More consideration of whether Pacific women in CM are being offered the right level of intervention is required.

For Dissemination

The results of this HNA have already been disseminated through:

- Presentations to the CMDHB Pacific Health Team during their planning day, the CMDHB Pacific Health Advisory Committee, Pacific Women's Health Research & Development Unit (MMH), leading New Zealand-based Pacific researchers (University of Auckland); and to visiting hospital heads of department from Samoa.

Results should be further disseminated through:

- Additional presentations as required including at Pacific health symposiums/conferences in New Zealand or the Pacific Islands if possible;
- The submission of literature articles to relevant journals;
- Direct distribution to relevant stakeholders, those who provided input or have shown interest in the project, and those who this data may be of use to;
- Making the document public, via acquiring an ISBN number and posting on relevant websites.

16 References

1. Counties-Manukau District Health Board. Tupu Ola Moui. Counties-Manukau District Health Board (CMDHB) Pacific Health and Disability Action Plan 2006-2010. 2006, Counties-Manukau District Health Board: Auckland.
2. Ministry of Health. The New Zealand Health Survey - 2002/2003. At [http://www.moh.govt.nz/moh.nsf/0/3D15E13BFE803073CC256EEB0073CFE6/\\$File/questionnaire.pdf](http://www.moh.govt.nz/moh.nsf/0/3D15E13BFE803073CC256EEB0073CFE6/$File/questionnaire.pdf). 2003, Ministry of Health: Wellington.
3. Ministry of Health. Healthy Eating – Healthy Action Oranga Kai – Oranga Pumau: A strategic framework 2003. 2003, Ministry of Health: Wellington.
4. Anae, M. From kava to coffee: the 'browning of Auckland'. At http://www.anewnz.org.nz/paper_comments.asp?paperid=83. 2006, ANEWNZ.
5. Krishnan, V. The challenge of change: Pacific Island communities in New Zealand, 1986-1993. 1994, Social Research and Development Institute: Wellington.
6. Anae, M, Anderson, H, Benseman, J, Coxon, E, et al. Pasifika Education Research Guidelines. 2001, Ministry of Education: Wellington.
7. Ministry of Health. Making a Pacific Difference: Strategic Initiatives for the Health of Pacific People in New Zealand. 1997, Ministry of Health: Wellington.
8. Ministry of Health. Tupu Ola Moui. Pacific Health Chart Book. 2004, Ministry of Health: Wellington.
9. Nokise, U. A history of the P.I.C.C. in New Zealand 1943-1969. Unpublished Masters of Theology Thesis. 1978, University of Otago.
10. Statistics New Zealand. Census 2001: Pacific Islands people. At <http://www.stats.govt.nz/census/pacific-people-table.htm>. 2002, Statistics New Zealand: Wellington.
11. Hon Taito Phillip Field. Opening of LotuMoui. in Pacific Health Symposium. 2004. Counties-Manukau. Auckland: The New Zealand Government.
12. Ministry of Health. Healthy Eating – Healthy Action Oranga Kai – Oranga Pumau A background 2003. 2003, Ministry of Health: Wellington.
13. Counties-Manukau District Health Board. Counties Manukau Population Health Indicators. 3rd edition. 2005, Counties Manukau District Health Board: Auckland.
14. Coster G. Health Needs Assessment for New Zealand. Background paper and literature review. 2000, Ministry of Health: Wellington.
15. Ministry of Health. The Health of Pacific Peoples. 2005, Ministry of Health: Wellington.
16. Ministry of Health. The New Zealand Health Strategy. 2002, Ministry of Health: Wellington.
17. Ministry of Health. Priorities for Maori and Pacific Health: Evidence from Epidemiology. 2001, Ministry of Health: Wellington.
18. Ministry of Health. The Pacific Health and Disability Action Plan. 2002, Ministry of Health: Wellington.

19. Ministry of Health. Diabetes in New Zealand. Models and Forecasts 1996–2011. 2002, Ministry of Health: Wellington.
20. Ministry of Pacific Island Affairs. Statement of Intent 2005-2008. 2005, Ministry of Pacific Island Affairs: Wellington.
21. Lavizzo-Mourey, R, Mackenzie, E. Cultural competence: essential measurements of quality for managed care organizations. *Ann Intern Med.* 1996;124(919–20).
22. Lawson, W. The art and science of the psychopharmacotherapy of African Americans. *Mt Sinai J Med.* 1996;63:301–5.
23. Moffic, H, Kinzie, D. The history and future of cross-cultural psychiatric services. *Community Ment Health J.* 1996;32(6):581–92.
24. Pacific Research and Development Services, SHORE Whariki. Pacific Drugs & Alcohol Consumption Survey 2003. Final Report: Volume 1. 2004, Ministry of Health: Wellington.
25. Foliaki, S, Kokaua, J, Schaaf, D, Tukuitonga, C. Twelve-month and lifetime prevalences of mental disorders and treatment contact among Pacific people in Te Rau Hinengaro: The New Zealand Mental Health Survey. *Aust NZ J Psych.* 2006;40:924-934.
26. New Zealand Health Information Service. The National Minimum Data set. At <http://www.nzhis.govt.nz/collections/collections-nmds.html>. 2007.
27. Counties Manukau District Health Board. Services we fund - Chronic Care Management (CCM). At <http://www.sah.co.nz/Funded-Services/CCM/default.htm>. 2007.
28. Ministry of Health. Public Health Intelligence Analytical Standards. 2006, Ministry of Health: Wellington.
29. Snedecor, G, Cochran, W. *Statistical Methods*, Eighth Edition. 1989: Iowa State University Press.
30. Payton, M, Greenstone, M, Schenker, N. Overlapping confidence intervals or standard error intervals: What do they mean in terms of statistical significance? *J Insect Sci.* 2003;3(34).
31. Bower, K. Some Misconceptions about Confidence Intervals. American Society for Quality, Six Sigma Forum. At <http://www.keithbower.com/Miscellaneous/Some%20Misconceptions%20about%20CIs.htm>. Accessed 23/08/2006. 2003.
32. Austin, P, Hux, J. A brief note on overlapping confidence intervals. *J Vasc Surg.* 2002;36(1):194-195.
33. Washington State Department of Health. Guidelines for Using Confidence Intervals for Public Health Assessment. 2006, Washington State Department of Health. At <http://www.doh.wa.gov/Data/Guidelines/ConfIntguide.htm>. Accessed 23/08/2006.
34. Payton, M, Miller, A, Raun, W. Testing statistical hypotheses using standard error bars and confidence intervals. *Comm Soil Sci Plant Anal.* 2000(31):547–552.
35. Hensher M, Fulop N. The influence of health needs assessment on health care decision making in London health authorities. *J Health Serv Res Policy.* 1999;4:90-5.

36. Statistics New Zealand. 2001 Census of Population and Dwellings - 2001 Post-enumeration Survey Results. 2001. At <http://www.stats.govt.nz/products-and-services/Articles/PES-census-pop-dwell-2001.htm>. Accessed on Aug 8, 2006.
37. Ministry of Health. A Portrait of Health: Key results of the 2002/03 New Zealand Health Survey. 2004, Ministry of Health: Wellington.
38. Simmons, D, Harry, T, Gatland, B. Prevalence of known diabetes in different ethnic groups in inner urban South Auckland. [Journal Article] New Zealand Medical Journal. NZMJ. 1999;112(1094):316-9.
39. Amos, A, McCarty, D, Zimmet, P. The rising global burden of diabetes and its complications: estimates and projections to the year 2010. Diabet Med. 1997;14(Suppl 5):S1-S85.
40. Bjornson, C, Mitchell, I. Gender differences in asthma in childhood and adolescence. J Gend Specif Med. 2000;3(8):57-61.
41. Stratton, IM, Adler, AI, Andrew, H. Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKDPS 35): prospective observational study. BMJ. 2000;321:405-11.
42. Pennsylvania Department of Health. Health Statistics - Technical Assistance Tools of the Trade. Confidence Intervals for a Crude Rate. At <http://www.health.state.pa.us/hpa/stats/techassist/cicruderate.htm>. Accessed 17 Aug 2006. 2001.

17 Appendices

The appendices, in addition to tables on ICD10 codes for potentially avoidable hospitalisation (*Table 17.1.1* on page 142) and CM census area units (*Table 17.2.1* on page 144), summarise the results of this HNA largely in tabular form. This includes a summary of:

- Indicators for which no differences were found from the data consulted here (*Table 17.3.1* below);
- ‘All Pacific’ findings compared to non-Pacific/non-Māori (*Table 17.4.1* on page 146);
- Samoan findings compared to the other Pacific ethnic groups (*Table 17.5.1* on page 149);
- Tongan findings compared to the other Pacific ethnic groups (*Table 17.6.1* on page 152);
- Cook Island findings compared to the other Pacific ethnic groups (*Table 17.7.1* on page 155);
- Niuean findings compared to the other Pacific ethnic groups (*Table 17.8.1* on page 158);
- Area Differences (*Table 17.9.1* on page 160);
- Gender differences (*Table 17.10.1* on page 161).

17.1 Potentially Avoidable Hospitalisation ICD10 Codes

Table 17.1.1: ICD10-AM listing for Potentially Avoidable Hospitalisations, Version 2

PAH	ICD10	Changes to version 2
03 Skin cancers	C00, C43, C44	
04 Oral cancers	C01-C06, C09, C10	
05 Colo-rectal cancer	C18-C21	
06 Lung cancer	C33-C34	
07 Breast cancer	C50	
09 Alcohol related conditions	F10, I426, K290, K70	Remove K292 ac haem gastritis as can have many other aetiologies
10 a Myocardial infarction	I21-I23;I241	Add I23 current complications of MI
10 b Other ischaemic heart disease	I240, I248,I249, I25	
11 Gastroenteritis	A01-A09	
12 Other infections	A23, A26, A28, A32, A38, A46, B50-B54, P23, P351, P352, P358, P359, P36, P371-P379	Add A46 Erysipelas, move J020 and J030 to ENT infection
13 a Immunisation preventable - Hib	A413, A492, B9631, B9639, G000	
13 c Immunisation preventable - Whooping cough	A37	
14 Hepatitis and liver cancer	B15-B19, C220, C221, C229, P353	C22 split to restrict to HCC
16 Cervical cancer	C53	
18 Diabetes	E10-E14, E162	
20 Epilepsy	G40-G41, O15, R560, R568	Add O15 Eclampsia - eminently preventable, too rare to have own category
21 ENT infections	H65-H67, H70, J01-J03	Exclude H68 as unclear what it represents, add J020 and J030
22 Rheumatic fever/heart disease	I00-I09	
23 Hypertensive disease	I10-I15, I674	
24 Angina and chest pain	I20, R072-R074	Exclude R071 chest pain on breathing
25 Congestive heart failure	I50, J81	
26 Stroke	I61, I63-I66	
27 a Respiratory infections - Acute bronchiolitis	J21	
27 b Respiratory infections - Pneumonia	J13-J16, J18	Move A481 Legionnaires to own category, exclude J17 Pn in other diseases

27 c Respiratory infections - Other	J00, J06, J10-J11, J20	
28 CORD	J40-J44, J47	
29 Asthma	J45-J46	
30 Dental conditions	K00-K06, K08	Add K08 Other disorders of teeth
34 Kidney/urinary infection	N10, N12, N136, N390	Exclude N151 renal abscess - not necessarily avoidable
35 Cellulitis	H000, H010, H050, J340, K122, L01-L04, L08, L980	Move A46 Erysipelas to other infection - it is more a Zoonosis
36 Failure to thrive	R62, R633, P923	Add P923 Underfeeding of newborn, remove R64 cachexia as can apply to adults too
38 Meningococcal infection	A39,M010,M030	

Note: Injury is excluded in PAH.

17.2 Suburbs/Census Area Unit Lists

Table 17.2.1: List of CM suburbs and census area unit breakdowns

Mangere		Papatoetoe		Howick Pakuranga	
524001	Ambury	521902	Middlemore	521501	Mellons Bay
524002	Mangere Bridge	522100	Papatoetoe West	521502	Cockle Bay
524111	Mangere Central	522201	Papatoetoe North	521601	Howick West
524112	Mascot	522202	Papatoetoe Central	521602	Howick Central
524121	Arahanga	522301	Dingwall	522601	Bucklands/Eastern Beaches
524122	Viscount	522302	Papatoetoe East	522602	Bucklands Beach South
524200	Mangere South	522400	Puhinui	522603	Bleakhouse
524401	Favona	523401	Grange	522711	Pigeon Mountain North
524402	Mangere Station	524301	Mangere East	522712	Murvale
524510	Harania North	524302	Aorere	522721	Pigeon Mountain South
524520	Harania West	524303	Kohuora	522722	Aberfeldy
524530	Harania East			522723	Elsmore Park
		Papakura		522730	Half Moon Bay
Manurewa		521201	Hingaia	522810	Pakuranga North
523816	Randwick Park	521203	Bremner	522820	Sunnyhills
523817	Hyperion	521301	Drury	522910	Pakuranga Central
524711	Burbank	523813	Ardmore	522920	Edgewater
524712	Homai West	523911	Takanini North	523000	Pakuranga East
524713	Rowandale	523912	Takanini South	523101	Botany Downs
524720	Homai East	523920	Takanini West	523102	Maungamaungaroa
524810	Weymouth	525410	Papakura Central	523105	Golfland
524820	Clendon	525420	Papakura North	523106	Millhouse
524902	Manurewa East	525510	Papakura South	523107	Burswood
525001	Manurewa Central	525520	Opaheke	523109	Dannemora
525002	Beaumont	525530	Rosehill	523110	Kilkenny
525101	Leabank	525540	Pahurehure	523201	Shelly Park
525102	Wattle Farm	525610	Papakura East		
		525620	Massey Park	Manukau	
		525630	North East Papakura	523712	Donegal Park
		525700	Red Hill	523722	Redoubt North
Otara				523814	Totara Heights
523108	East Tamaki	Clevedon		523820	Redoubt South
523402	Otara West	523111	Point View	524601	Manukau Central
523501	Otara North	523202	Turanga	524602	Wiri
523502	Otara East	523300	Beachlands-Maraetai	524901	Hillpark
523601	Otara South	523713	Ormiston		
523602	Ferguson	523815	Wairere		
523711	Flat Bush	525200	Clevedon		
523721	Clover Park				

Note: Franklin suburb is missing due to incomplete CAU data for this suburb.

17.3 Summary of Indicators for Which No Differences Were Found

Note that this table includes a list of the indicators that were considered in this HNA for which no differences were found between the level 2 Pacific ethnic groups.

Table 17.3.1: Indicators for which no differences were found between level 2 Pacific ethnic groups

Indicator	Description
Demography	
Age Structure	Shape in population pyramids
Area of Residence in CM	% living in 'Mangere, Otara or Manurewa'
	% living in 'Howick Pakuranga or Clevedon'
Risk Factors	
Prevalence	Adult prevalence of: physical activity (150 minutes per week), eating at least 2 servings of fruit per day, eating at least three servings of vegetables per day, not at-risk gambling, 'overweight (but not obese)', obesity, and 'overweight or obesity'
Health Outcomes	
Life expectancy in CM	Life expectancy at birth (in CM) – note differences were found in All NZ
Mortality	In any of the top ten causes of PAM (within gender groups in either CM or All NZ)
General Health Status	Prevalence of self-reported 'good or better' general health
	SF-36 score for physical functioning and for mental health
Chronic Disease Prevalence	Prevalence of diabetes (in the NZHS), heart disease, stroke, cancer, asthma (<= 45 years of age), spinal disorders, osteoporosis, CORD*
Mental Illness Prevalence	12 month prevalence of 'any mental disorder', 'any anxiety disorder', 'any mood disorder', or 'any drug disorder'
Adult Health Care Utilisation	
Hospitalisation rates	Hospitalisation rates for diabetes, pneumonia, stomach cancer, or gout (in CM)
	Adult male PAH rates for angina and chest pain, cellulitis, asthma, or kidney/urinary infection
	Adult male hospitalisation rates for prostate cancer or road traffic injury
	Adult male surgical intervention rates for prostatectomy
Surgical intervention rates	Adult surgical intervention rates for angiography, angioplasty, CABG, total hip joint replacement, total knee joint replacement, cholecystectomy, or cataract extraction (in CM);
	Adult female surgical intervention rates for hysterectomy and assisted delivery
Other Service Use	Prevalence of reporting having a usual health care provider, usual health care provider being a general practitioner, seeing a Pacific health care provider in the previous 12 months, seeing a general practitioner in the previous 12 months, seeing a medical specialist in the previous 12 months (in NZHS)
Screening	Adult female Self-reported cervical smears (20-69 years of age), over previous 3 years [^]
	Adult female self-reported mammogram (50-64 years of age), self-reported mammograms (20-69 years of age), self-reported mammograms (15+ years of age) – all over previous 3 years [^]
Child Health	
Mortality	Infant mortality for all-causes (in CM or All NZ)
	Child (0-14 years) mortality rates for low birthweight (in All NZ)
Hospitalisation rates	Early childhood (0-4 years) PAH rates for ENT infections, kidney/urinary infection, epilepsy, meningococcal infection, whooping cough, and failure to thrive
	Early childhood (0-4 years) hospitalisation rates for bronchiectasis, congenital anomalies, road traffic injury, neural tube defects, birth trauma and asphyxia
	Child (5-14 years) PAH rates for ENT infections, cellulitis, dental conditions, rheumatic fever/heart disease, epilepsy, respiratory infections: other, kidney/urinary infection
	Child (5-14 years) hospitalisation rates (both genders combined) for road traffic injury
	Early childhood (0-4 years) female PAH rates for gastroenteritis
	Early childhood (0-4 years) male PAH rates for cellulitis
Immunisations and Well Child checks	Immunisation and Well Child check coverage level, and pattern over time
Women's Health	
Pre-eclampsia	Percentage of all deliveries that were complicated by pre-eclampsia
Hospitalisation rates	Hospitalisation rates for hysterectomy, pelvic inflammatory disease and ectopic pregnancy*

* Due to low numbers and extremely wide confidence intervals.

[^] Cook Islanders consistently reported the highest rates but all confidence intervals overlapped.

Note: Results are for CM unless stated otherwise.

17.4 Summary for 'All Pacific' (& non-Pacific/non-Māori)

Areas of Concern for 'All Pacific' people

Note: Where they fair relatively poorly compared to non-Pacific/non-Maori.

Table 17.4.1 below shows that non-Pacific/non-Māori fair better on many more indicators than 'All Pacific' people. All Pacific fair relatively poorly on:

- Many measures of deprivation (e.g. decile, income, employment, motor vehicle access);
 - Overcrowding;
 - Education;
- Risk factors (e.g. smoking, weight, nutrition, and gambling measures);
- Life expectancy;
 - Mortality (infants, children and adults);
 - General health status;
 - Chronic disease prevalence (e.g. diabetes) and mental illness;
 - Hospitalisation rates (children and adults);
 - Screening (cervical and breast);
 - Women's health (e.g. teenage delivery rates, diabetes in pregnancy, hospitalisations for PID and ectopic pregnancy).

Table 17.4.1: 'All Pacific' summary of findings

Indicator	Description	< or >	Comparison Group(s)	Health Effect (- / + or ?)**
Demography				
Deprivation Decile	% living in the most deprived deciles	>	non-Pacific/non-Maori	-
Income	% with no income	>	non-Pacific/non-Maori	-
	% earning less than \$10,000 per year	>	non-Pacific/non-Maori	-
Employment	% earning over \$30,000 per year	<	non-Pacific/non-Maori	-
	% employed full-time or part-time	<	non-Pacific/non-Maori	-
Home Ownership	% unemployed or not in the labour force	>	non-Pacific/non-Maori	-
	% owning or partly owning their usual residence	<	non-Pacific/non-Maori	-
Overcrowding	% people living in homes 'needing at least 1 more bedroom'	>	non-Pacific/non-Maori	-
	% people living in homes which have 'at least 1 spare bedroom'	<	non-Pacific/non-Maori	?
Home Heating	% using home heating	<	non-Pacific/non-Maori	-
Motor Vehicles	% with access to a motor vehicle	<	non-Pacific/non-Maori	-
Telecommunications	% with a telephone	<	non-Pacific/non-Maori	-
	% with no access to any telecommunication systems e.g. telephones, faxes or the internet	>	non-Pacific/non-Maori	-
Education	% with 'no qualification'	>	non-Pacific/non-Maori	-
	% with an 'overseas secondary school qualification'	>	non-Pacific/non-Maori	?
	% with a 'NZ secondary school qualification' or a	<	non-Pacific/non-Maori	-
	% with an 'tertiary qualification'	<	non-Pacific/non-Maori	-
Unpaid Work	% people undertaking unpaid work	>	non-Pacific/non-Maori	?
	% people looking after a child who is member of own household	>	non-Pacific/non-Maori	?
	% people looking after a member of own household who is ill or who has a disability	>	non-Pacific/non-Maori	?
Dependent Children	% people with 4 or more dependent children	>	non-Pacific/non-Maori	?
Risk Factors				

Smoking	Adult female and male prevalence of current smoking	>	non-Pacific/non-Maori females and males (NZHS)	-
Weight	Adult female and male prevalence of obesity, and 'overweight or obesity'	>	non-Pacific/non-Maori females and males (NZHS)	-
Nutrition	Adult female and male prevalence of eating at least 3 servings of vegetables per day	<	non-Pacific/non-Maori females and males (NZHS)	-
Gambling	Adult female and male prevalence of 'not at-risk gambling'	<	non-Pacific/non-Maori females and males (NZHS)	?
	Adult female prevalence of problem gambling	>	non-Pacific/non-Maori females (NZHS)	-
Health Outcomes				
Life Expectancy in CM and in All NZ	Adult female and male life expectancy at birth	<	non-Pacific/non-Maori females and males (in CM and in All NZ)	-
Mortality	Adult mortality rate for all-causes (in All NZ)	>	non-Pacific/non-Maori (in All NZ)	-
	Adult female and male mortality rate for colorectal cancer (in All NZ)	<	non-Pacific/non-Maori females and males (in All NZ)	+
	Adult female mortality rates for diabetes (in CM and All NZ), and stroke, CORD, lung cancer, and 'hepatitis and liver cancer' (in All NZ)	>	non-Pacific/non-Maori females (in respective areas)	-
	Adult male mortality rates for ischaemic heart disease, diabetes, CORD, and lung cancer (in CM and All NZ), and stroke and 'hepatitis and liver cancer' (in All NZ)	>	non-Pacific/non-Maori males (in respective areas)	-
General Health Status (in All NZ)	Adult female SF-36 score for physical functioning	<	non-Pacific/non-Maori females (NZHS)	-
Chronic Disease Prevalence in All NZ	Adult female prevalence of diabetes	>	non-Pacific/non-Maori females (NZHS)	-
	Adult female prevalence of cancer, and asthma <= 45 years	<	non-Pacific/non-Maori females (NZHS)	+
	Adult female and male prevalence of spinal disorders	<	non-Pacific/non-Maori females and males (NZHS)	+
Mental Illness Prevalence and service use in All NZ	Adult unadjusted 12 month prevalence of any mental illness	>	The total NZ population	-
	% of adults with serious mental illness, having visiting any health service for this reason	<	The total NZ population	-
Adult Health Care Utilisation				
Hospitalisation rates	Adult female and male hospitalisation rates for all causes	>	non-Pacific/non-Maori females and males	-
	Adult female PAH rates for angina and chest pain, CORD, pneumonia, diabetes, cellulitis, congestive heart failure, asthma, stroke, and kidney/urinary infection	>	non-Pacific/non-Maori females	-
	Adult female hospitalisation rates for stomach cancer and gout	>	non-Pacific/non-Maori females	-
	Adult female hospitalisation rates for road traffic injury	<	non-Pacific/non-Maori females	+
	Adult male PAH rates for angina and chest pain, CORD, pneumonia, diabetes, cellulitis, myocardial infarction, congestive heart failure, asthma, stroke, and kidney/urinary infection	>	non-Pacific/non-Maori males	-
	Adult male hospitalisation rates for stomach cancer, road traffic injury and gout	>	non-Pacific/non-Maori males	-

Surgical Interventions	Adult intervention rates for coronary artery bypass grafting and cataract extraction	>	non-Pacific/non-Maori	-
	Adult intervention rates for total hip joint replacement	<	non-Pacific/non-Maori	?
	Adult female intervention rates for caesarean sections	>	non-Pacific/non-Maori females	-
	Adult female intervention rates for assisted delivery	<	non-Pacific/non-Maori females	?
Other Service Use	Adult female and male prevalence of reporting seeing a medical specialist in the previous 12 months and using a private hospital in the previous 12 months	<	non-Pacific/non-Maori females and males (NZHS)	?
Screening	Adult female prevalence of self-reported cervical smear (20-69 years of age) in previous 3 years	<	non-Pacific/non-Maori females (NZHS)	-
	Adult female prevalence of self-reported mammogram (20-69 years of age and 15+ years of age) in previous 3 years	<	non-Pacific/non-Maori females (NZHS)	-
Child Health				
Mortality	Female infant mortality rate for all-causes (in CM and in All NZ)	>	non-Pacific/non-Maori females (in CM and in All NZ)	-
	Child (0-14 years) female and male mortality rates for all-causes (in All NZ)	>	non-Pacific/non-Maori females and males (in All NZ)	-
	Child (0-14 years) female mortality rate for low birthweight (in All NZ)	>	non-Pacific/non-Maori females (in All NZ)	-
Hospitalisation rates	Early childhood (0-4 years) female and male PAH rates for 'all causes', acute bronchiolitis, pneumonia, asthma, 'respiratory infections: other', dental conditions, cellulitis, kidney/urinary infection, meningococcal infection and whooping cough	>	non-Pacific/non-Maori females and males	-
	Early childhood (0-4 years) female and male hospitalisation rates for bronchiectasis	>	non-Pacific/non-Maori females and males	-
	Early childhood (0-4 years) hospitalisation rates for 'birth trauma and asphyxia'	<	non-Pacific/non-Maori	+
	Early childhood (0-4 years) female hospitalisation rate for congenital anomalies	<	non-Pacific/non-Maori females	+
	Child (5-14 years) female and male PAH rates for 'all causes', ENT infection, cellulitis, rheumatic fever/heart disease, respiratory infection: other, asthma, pneumonia	>	non-Pacific/non-Maori females and males	-
	Child (5-14 years) female PAH rates for dental conditions and kidney/urinary infection	>	non-Pacific/non-Maori females	-
	Early childhood (0-4 years) male PAH rates for gastroenteritis and epilepsy	>	non-Pacific/non-Maori males	-
Women's Health				
Delivery Age	Average age of mother at delivery	<	non-Pacific/non-Maori females	+
	Average age of mother at first delivery	<	non-Pacific/non-Maori females	+
Teenage Delivery	Teenage delivery rates	>	non-Pacific/non-Maori females	-
Caesareans	% of caesareans	<	non-Pacific/non-Maori females	?
Assisted Deliveries	% of assisted deliveries	<	non-Pacific/non-Maori females	?
Diabetes in Pregnancy	% of diabetes in pregnancy	>	non-Pacific/non-Maori females	-
Hospitalisations	Adult female hospitalisation rate for pelvic inflammatory disease and ectopic pregnancy	>	non-Pacific/non-Maori females	-

Note: Results are for CM unless stated otherwise.

** Effect on Health has been allocated by the author – not validated in any way.

17.5 Samoan Summary

Areas of Concern for Samoans

Note: Where they fair relatively poorly compared to other Pacific ethnic groups.

- Income – Relatively high % with no income;
- Overcrowding - Relatively high % living in homes 'needing at least 1 more bedroom';
- Home Heating - Relatively low % using home heating;
- Telecommunications - Relatively low % with access to a telephone;
- Gambling – Relatively high male prevalence (amongst males aged 30-65 years) of reporting going into debt or borrowing money due to gambling;
- Life-expectancy – relatively low female life expectancy at birth;
- Mortality – Relatively high adult female mortality rate for all-causes;
- Hospitalisation
 - Relatively high adult female - angina and chest pain, myocardial infarction, stroke, kidney/urinary infection and congestive heart failure, and asthma;
 - Relatively high adult male - all-causes, congestive heart failure, stroke and CORD;
- Child hospitalisation rates
 - Relatively high early childhood (0-4 years) female - all-causes, acute bronchiolitis, asthma, pneumonia for 'respiratory infections: other' and cellulitis;
 - Relatively high child (5-14 years) female - all-causes, asthma, pneumonia;
 - Relatively high early childhood (0-4 years) male - all-causes, pneumonia, gastroenteritis and 'respiratory infections: other', acute bronchiolitis, asthma;
 - Relatively high child (5-14 years) male – pneumonia and gastroenteritis;
- Delivery - having babies relatively late;
- Caesareans – Relatively high % births complicated by caesareans;
- Diabetes in Pregnancy - Relatively high % pregnancies complicated by diabetes in pregnancy.

Results are for CM unless stated otherwise.

Table 17.5.1: Samoan summary of findings

Indicator	Description	< or >	Comparison Group(s)	Relative Health Effect (- / + or ?)**	Ratio ***
Demography					
Area of Residence in CM	% living in Otara	>	Tongans and Niueans	?	
Birthplace and duration in NZ	% been born in NZ	<	Cook Islanders and Niueans	?	
	% lived in NZ 'more than 20 years'	<	Cook Islanders and Niueans	?	
	% lived in NZ for 'less than 10 years' or between '11 and 20 years'	>	Cook Islanders and Niueans	?	
Income	% with no income	>	Cook Islanders and Niueans	-	0.97
Home Ownership	% owning or partly owning their usual residence	>	Cook Islanders and Niueans	+	
Overcrowding	% living in homes which have 'at least 1 spare bedroom'	<	Cook Islanders and Niueans	?	
	% living in homes with 'no bedrooms required and none spare'	<	Cook Islanders and Niueans	?	
	% living in homes 'needing at least 1 more bedroom'	>	Cook Islanders and Niueans	-	0.08
Home Heating	% using home heating	<	Cook Islanders and Niueans	-	0.56
Motor Vehicles	% having access to a motor vehicle	>	Cook Islanders and Niueans	+	
Telecommunicat	% with access to a telephone	<	Cook Islanders and Niueans	-	0.28

ions	% with no access to telecommunication systems e.g. telephones, faxes or the internet	>	Cook Islanders and Niueans	-	0.27
Education	% with no qualification	<	Cook Islanders and Niueans	+	
	% with 'any secondary school qualification'	>	Cook Islanders and Niueans	+	
	% with 'an overseas secondary school qualification'	>	Cook Islanders and Niueans	+	
	% with any 'NZ secondary school qualification'	>	Tongans and Cook Islanders	+	
	% with a tertiary qualification	>	Tongans and Cook Islanders*	+	
Language	% able to speak their corresponding language of Pacific ethnic origin	>	Cook Islanders and Niueans	+	
	% able to speak 'any Pacific language'	>	Cook Islanders and Niueans	+	
Unpaid Work	% people looking after a member of own household who is ill or who has a disability	>	Cook Islanders and Niueans	?	
Dependent Children	% having 4 or more dependent children	>	Cook Islanders and Niueans	?	
	% having 1 and 2 dependent children	<	Cook Islanders and Niueans	?	
Risk Factors					
Smoking	Prevalence of adult female current smoking	<	Cook Island females (NZHS)	+	
	Prevalence (amongst females aged 13-29 years) of smoking in the last 12 months	<	Sample of Total Pacific females (PDACS)	+	
	Prevalence (amongst females aged 30-65 years) of having ever tried marijuana	<	Sample of Total Pacific females (PDACS)	+	
Alcohol	Amount (amongst females aged 13-29 years and 30-65 years) of alcohol being consumed on a typical occasion	<	Sample of Total Pacific females (PDACS)	+	
	Prevalence (amongst females aged 30-65 years) of drinking enough to feel drunk at least once a week	<	Sample of Total Pacific females (PDACS)	+	
Gambling	Prevalence (amongst males aged 30-65 years) of reporting going into debt or borrowing money due to gambling	>	Sample of Total Pacific males (PDACS)	-	n/a
Hypertension	Adult male prevalence of hypertension	<	Cook Island males	+	
Health Outcomes					
Life Expectancy in All NZ	Female life expectancy at birth	<	Niuean females	-	0.57
Mortality in All NZ	Adult female mortality rate for all-causes	>	Niuean females	-	1.07
Chronic Disease Prevalence	Adult male prevalence of arthritis (in All NZ)	<	Cook Island males	+	
	Adult prevalence of diabetes (in the South Auckland Diabetes Project 1992-1995)	<	Niueans	+	
Adult Health Care Utilisation					
Hospitalisation rates	Adult female PAH rates for angina and chest pain	>	Tongan and Niuean females	-	3.29
	Adult female PAH rates for myocardial infarction, stroke, kidney/urinary infection and congestive heart failure	>	Niuean females	-	n/a, 1.83, 0.94 and 1.64
	Adult female PAH rates for asthma	>	Cook Island females	-	0.67
	Adult male hospitalisation rates for all-causes	>	Cook Island and Niuean males	-	0.64
	Adult male PAH rates for congestive heart failure	>	Niuean males	-	1.43
	Adult male PAH rates for stroke and CORD	>	Cook Island males	-	1.75 and

					0.72
Child Health					
Birth Weight	% births being low birthweight	<	Cook Islanders and Niueans	+	
Mortality in All NZ	Child (0-14 years) male mortality rates for all-causes	<	Cook Island males	+	
Hospitalisation rates	Early childhood (0-4 years) female PAH rates for all-causes	>	Cook Island and Niuean females	-	0.62
	Early childhood (0-4 years) female PAH rates for acute bronchiolitis and asthma	>	Cook Island females	-	0.39 and 0.65
	Early childhood (0-4 years) female PAH rates for pneumonia	>	Females in the other level 2 Pacific ethnic groups	-	0.82
	Early childhood (0-4 years) female PAH rates for 'respiratory infections: other' and cellulitis	>	Niuean females	-	0.98 and 0.96
	Child (5-14 years) female PAH rates for all-causes	>	Females in the other level 2 Pacific ethnic groups	-	0.66
	Child (5-14 years) female PAH rates for asthma	>	Cook Island and Niuean females	-	1.44
	Child (5-14 years) female PAH rates for pneumonia	>	Cook Island females	-	1.37
	Early childhood (0-4 years) male PAH rates for all-causes, pneumonia, gastroenteritis and 'respiratory infections: other'	>	Cook Island and Niuean males	-	0.75, 1.19, 1.77 and 1.59
	Early childhood (0-4 years) male PAH rates for acute bronchiolitis	>	Cook Island males	-	0.48
	Early childhood (0-4 years) male PAH rates for asthma	>	Cook Island males	-	0.74
	Early childhood (0-4 years) male PAH rates for dental conditions	<	Tongan males	+	
	Child (5-14 years) male PAH rates for pneumonia	>	Cook Island males	-	1.57
	Child (5-14 years) male PAH rates for gastroenteritis	>	Cook Island males	-	n/a
Women's Health					
Delivery Age	Average age of mother at delivery	>	Cook Island and Niuean females	-	0.65
	Average age of mother at first delivery	>	Cook Island and Niuean females	-	0.56
Fertility	Total Fertility Rate	>	Cook Island and Niuean females	?	
Caesareans	% of caesareans	>	Cook Island females	-	0.54
Diabetes in Pregnancy	% of diabetes in pregnancy	>	Cook Island and Niuean females	-	1.0

* Absolute percentages very low.

** Effect on Health has been allocated by the author – not validated in any way.

*** Ratio is greatest difference between relevant Pacific ethnic groups: difference between All Pacific and non-Pacific/non-Maori. Subject to bias due to differing widths of confidence intervals.

Note: Results are for CM unless stated otherwise.

17.6 Tongan Summary

Areas of Concern for Tongans

Note: Where they fair relatively poorly compared to other Pacific ethnic groups.

- Deprivation Decile – Relatively high % living in 2 most deprived deciles and low % living in 4 most affluent deciles;
- Income
 - Relatively high % with no income and earning less than \$20,000 per year;
 - Relatively low % earning over \$40,000 per year;
- Employment - Relatively high % not in the labour force;
- Overcrowding - Relatively high % living in homes 'needing at least 1 more bedroom';
- Home heating - Relatively low % using home heating;
- Telecommunications - Relatively low % with access to a telephone;
- Hospitalisation rates
 - Relatively high adult female – stroke, road traffic injury, caesarean sections;
 - Relatively high adult male - all-causes, COD and myocardial infarction;
- Child hospitalisation rates
 - Relatively high early childhood (0-4 years) female - all-causes, dental conditions;
 - Relatively high child (5-14 years) female – pneumonia;
 - Relatively high early childhood (0-4 years) male - all-causes, pneumonia, 'respiratory infections: other', acute bronchiolitis, gastroenteritis and dental conditions;
 - Relatively high child (5-14 years) male – pneumonia;
- Deliveries – having babies relatively late (and having the most babies);
- Caesareans – Relatively high % births complicated by caesareans;
- Diabetes in Pregnancy - Relatively high % pregnancies complicated by diabetes in pregnancy.

Results are for CM unless stated otherwise

Table 17.6.1: Tongan summary of findings

Indicator	Description	< or >	Comparison Group(s)	Relative Health Effect (- / + or ?)**	Ratio ***
Demography					
Area of Residence	% living in Mangere	>	Samoans and Cook Islanders	?	
Birthplace and duration in NZ	% been born in NZ	<	Cook Islanders and Niueans	?	
	% lived in NZ 'more than 20 years'	<	Cook Islanders and Niueans	?	
	% lived in NZ for 'less than 10 years' or between '11 and 20 years'	>	Cook Islanders and Niueans	?	
Deprivation Decile	% people living in the two most deprived deciles	>	The other level 2 Pacific ethnic groups	-	0.07
	% people living in the four most affluent deciles	<	The other level 2 Pacific ethnic groups	-	0.01
Income	% with no income	>	Cook Islanders and Niueans	-	1.38
	% people earning less than \$20,000 per year	>	The other level 2 Pacific ethnic groups	-	1.43
	% people earning over \$40,000 per year	<	The other level 2 Pacific ethnic groups	-	0.06
Employment	% not in the labour force	>	The other level 2 Pacific ethnic groups	-	1.06
Home Ownership	% owning or partly owning their usual residence	>	Cook Islanders and Niueans	+	
Overcrowding	% living in homes which have 'at least 1 spare bedroom'	<	Cook Islanders and Niueans	?	
	% living in homes with 'no bedrooms required and none spare'	<	Cook Islanders and Niueans	?	
	% living in homes 'needing at least 1 more bedroom'	>	Cook Islanders and Niueans	-	0.16

Home Heating	% using home heating	<	Cook Islanders and Niueans	-	0.60
Motor Vehicles	% having access to a motor vehicle	>	Cook Islanders and Niueans	+	
Telecommunications	% with access to a telephone	<	Cook Islanders and Niueans	-	0.17
	% with no access to telecommunication systems e.g. telephones, faxes or the internet	>	Cook Islanders and Niueans	-	0.17
Education	% with no qualification	<	Cook Islanders and Niueans	+	
	% with 'any secondary school qualification'	>	Cook Islanders and Niueans	+	
	% with 'an overseas secondary school qualification'	>	Cook Islanders and Niueans	+	
Language	% able to speak their corresponding language of Pacific ethnic origin	>	Cook Islanders and Niueans	+	
	% able to speak 'any Pacific language'	>	Cook Islanders and Niueans	+	
Unpaid Work	% people looking after a child who is a member of their own household	>	The other level 2 Pacific ethnic groups	?	
	% people looking after a member of own household who is ill or who has a disability	>	Cook Islanders and Niueans	?	
Dependent Children	% having 4 or more dependent children	>	Cook Islanders and Niueans	?	
	% having 1 and 2 dependent children	<	Cook Islanders and Niueans	?	
Risk Factors					
Smoking	Prevalence (amongst those aged 30-65 years) of starting regular smoking by the age of 15 years	<	Total Pacific sample (PDACS)	+	
	Prevalence (amongst females aged 30-65 years) of smoking in the last 12 months	<	Sample of Total Pacific females (PDACS)	+	
	Prevalence (amongst females aged 30-65 years) of smoking in the last 30 days	<	Sample of Total Pacific females (PDACS)	+	
	Prevalence (amongst females aged 30-65 years) of using marijuana in the last 12 months	<	Sample of Total Pacific females (PDACS)	+	
	Adult prevalence of having ever tried marijuana	<	Total Pacific sample (PDACS)	+	
Gambling	Adult prevalence of having ever gambled	<	Total Pacific sample (PDACS)	+	
	Adult female prevalence of having ever gambled	<	Sample of Total Pacific females (PDACS)	+	
	Prevalence (amongst females aged 30-65 years) of reporting feeling worried or sad after gambling	<	Sample of Total Pacific females (PDACS)	+	
	Adult female prevalence of reporting going into debt or borrowing money due to gambling	<	Sample of Total Pacific females (PDACS)	+	
	Prevalence (amongst males aged 13-29 years) of reporting gambling in the last week	<	Sample of Total Pacific males (PDACS)	+	
	Prevalence (amongst males aged 13-29 years) of reporting feeling worried or sad after gambling	<	Sample of Total Pacific males (PDACS)	+	
Health Outcomes					
Life Expectancy in All NZ	Female life expectancy at birth	>	Cook Island females	+	
Adult Health Care Utilisation					
Hospitalisation rates	Adult female PAH rates for stroke	>	Niuean females	-	1.68
	Adult female hospitalisation rates for road traffic injury	>	Niuean females	-	3.28?
	Adult female intervention rates for caesarean sections (NZHIS)	>	Females in the other level 2 Pacific ethnic groups	-	2.97
	Adult female PAH rates for angina and	<	Samoan females	+	

	chest pain				
	Adult male hospitalisation rates for all-causes	>	Cook Island and Niuean males	-	0.63
	Adult male PAH rates for CORD	>	Males in the other level 2 Pacific ethnic groups	-	1.54
	Adult male PAH rates for myocardial infarction	>	Cook Island males	-	2.26
Child Health					
Birth Weight	% births being low birthweight	<	Cook Islanders and Niueans	+	
Hospitalisation rates	Early childhood (0-4 years) female PAH rates for all-causes	>	Cook Island and Niuean females	-	0.41
	Early childhood (0-4 years) female PAH rates for dental conditions	>	Cook Island females	-	0.94
	Child (5-14 years) female PAH rates for pneumonia	>	Cook Island females	-	1.63
	Early childhood (0-4 years) male PAH rates for all-causes, pneumonia, gastroenteritis and 'respiratory infections: other'	>	Cook Island and Niuean males	-	0.69, 0.91, 1.91 and 1.52
	Early childhood (0-4 years) male PAH rates for acute bronchiolitis	>	Cook Island males	-	0.49
	Early childhood (0-4 years) male PAH rates for dental conditions	>	Samoan and Cook Island males	-	1.44
	Child (5-14 years) male PAH rates for pneumonia	>	Cook Island males	-	1.27
Women's Health					
Delivery Age	Average age of mother at delivery	>	Cook Island and Niuean females	-	1.1
	Average age of mother at first delivery	>	Cook Island and Niuean females	-	0.62
Fertility	Total Fertility Rate	>	Females in the other level 2 Pacific ethnic groups	?	
Caesareans	% of caesareans	>	Cook Island females	-	1.12
Diabetes in Pregnancy	% of diabetes in pregnancy	>	Cook Island and Niuean females	-	1.58

* Absolute percentages very low.

** Effect on Health has been allocated by the author – not validated in any way.

*** Ratio is greatest difference between relevant Pacific ethnic groups: difference between All Pacific and non-Pacific/non-Maori. Subject to bias due to differing widths of confidence intervals.

Note: Results are for CM unless stated otherwise.

17.7 Cook Island Summary

Areas of Concern for Cook Islanders

Note: Where they fair relatively poorly compared to other Pacific ethnic groups.

- Employment - Relatively high % unemployed;
- Education - Relatively high % with no qualification;
- Homeownership - Relatively low % owning own home;
- Language - Relatively low % able to speak Cook Island Māori;
- Smoking - Relatively high prevalence of adult females currently smoking (and starting smoking early);
- Alcohol
 - Adult females consume relatively high amounts of alcohol on an occasion and have a higher prevalence of drinking enough to feel drunk once per week;
 - Relatively high adult 12 month prevalence of any alcohol disorder;
- Blood pressure – Relatively high adult male prevalence of hypertension;
- Life expectancy – Female relatively low;
- Mortality – Adult female relatively high;
- Hospitalisation
 - For congestive heart failure relatively high in females;
- Birth weight - Relatively high % births being LBW;
- Child Mortality - (0-14 years) relatively high for all-causes;
- Teenage Delivery – Relatively high;

Results are for CM unless stated otherwise.

Table 17.7.1: Cook Islander summary of findings

Indicator	Description	< or >	Comparison Group(s)	Relative Health Effect (- / + or ?)**	Ratio ***
Demography					
Area of Residence in CM	% living in Otara	>	Tongans and Niueans	?	
Birthplace and duration in NZ	% been born in NZ	>	Samoans and Tongans	?	
	% lived in NZ 'more than 20 years'	>	Samoans and Tongans	?	
	% lived in NZ for 'less than 10 years' or between '11 and 20 years'	<	Samoans and Tongans	?	
Deprivation Decile	% people living in the four most affluent deciles	>	Tongans	+	
Income	% with no income	<	Samoans and Tongans	+	
Employment	% unemployed	>	The other level 2 Pacific ethnic groups	-	0.33
Home Ownership	% owning or partly owning their usual residence	<	Samoans and Tongans	-	0.28
Overcrowding	% living in homes which have 'at least 1 spare bedroom'	>	Samoans and Tongans	?	
	% living in homes with 'no bedrooms required and none spare'	>	Samoans and Tongans	?	
	% living in homes 'needing at least 1 more bedroom'	<	Samoans and Tongans	+	
Home Heating	% using home heating	>	Samoans and Tongans	+	
Motor Vehicles	% having access to a motor vehicle	<	Samoans and Tongans	-	0.68
Telecommunications	% access to a telephone	>	Samoans and Tongans	+	
	% with no access to telecommunication systems e.g. telephones, faxes or the internet	<	Samoans and Tongans	+	
Education	% with no qualification	>	Samoans and Tongans	-	1.92

	% with 'any secondary school qualification'	<	Samoans and Tongans	-	n/a
	% with 'an overseas secondary school qualification'	<	Samoans and Tongans	-	n/a
	% with 'any New Zealand secondary school qualification'	<	Niueans and Samoans	-	n/a
	% with a tertiary qualification	<	Samoans and Tongans*	-	0.09
Language	% able to speak their corresponding language of Pacific ethnic origin	<	Samoans and Tongans	-	n/a
	% able to speak 'any Pacific language'	<	Samoans and Tongans	-	n/a
Unpaid Work	% people looking after a member of own household who is ill or who has a disability	<	Samoans and Tongans	?	
Dependent Children	% having 4 or more dependent children	<	Samoans and Tongans	?	
	% having 1 and 2 dependent children	>	Samoans and Tongans	?	
Risk Factors					
Smoking	Prevalence of adult female current smoking	>	Samoan females (NZHS)	-	1.61
	Prevalence (amongst females aged 13-29 years) of smoking in the last 12 months	>	Sample of Total Pacific females (PDACS)	-	n/a
	Prevalence (amongst females in both 13-29 and 30-65 age groups) of smoking in the last 30 days	>	Sample of Total Pacific females (PDACS)	-	n/a
	Percentages (amongst females aged 13-29 years) starting regular smoking by the age of 15 years	>	Sample of Total Pacific females (PDACS)	-	n/a
Physical Activity	Adult male prevalence of reporting undertaking regular (150 mins: 30 mins 5+ times per week) physical activity	>	Niuean males (NZHS)	+	
Alcohol	Amount (amongst females) of alcohol being consumed on a typical occasion	>	Sample of Total Pacific females (PDACS)	-	n/a
	Prevalence (amongst females in both 13-29 and 30-65 age groups) having consumed any alcohol in the previous 12 months	>	Sample of Total Pacific females (PDACS)	-	n/a
	Prevalence (amongst females aged 13-29 years) of drinking enough to feel drunk once per week	>	Sample of Total Pacific females (PDACS)	-	n/a
	Prevalence (amongst adult males) of drinking enough to feel drunk once per week	<	Sample of Total Pacific males (PDACS)	+	
Gambling	Prevalence (amongst females aged 13-29 years) of having ever gambled	>	Sample of Total Pacific females (PDACS)	-	n/a
	Prevalence (amongst females aged 13-29 years) of having reported gambling in the last week	>	Sample of Total Pacific females (PDACS)	-	n/a
	Prevalence (amongst females aged 13-29 years) of reporting feeling worried or sad after gambling	>	Sample of Total Pacific females (PDACS)	-	n/a
	Prevalence (amongst males aged 30-65 years) of reporting feeling worried or sad after gambling	<	Sample of Total Pacific males (PDACS)	+	
	Prevalence (amongst males aged 30-65 years) of reporting lying to family or someone they respected about how much they gambled	<	Sample of Total Pacific males (PDACS)	+	
Hypertension	Adult male prevalence of hypertension	>	Samoan males (NZHS)	-	n/a
Health Outcomes					
Life Expectancy in All NZ	Female life expectancy at birth	<	Tongan and Niuean females	-	0.74
Mortality in All NZ	Adult female mortality rate for all-causes	>	Niuean females	-	1.31
Chronic Disease Prevalence in All NZ	Adult male prevalence of arthritis	>	Samoan males	-	n/a

Mental Illness Prevalence in All NZ	Adult 12 month prevalence of any alcohol disorder	>	'Other Pacific' people (all level 2 Pacific ethnic groups excluding Samoans, Cook Islanders, and Tongans e.g. it includes Niueans, Fijians, Tokelauans, Tuvaluans etc).	-	n/a
Adult Health Care Utilisation					
Hospitalisation rates	Adult female PAH rates for asthma	<	Samoan females	+	
	Adult female PAH rates for congestive heart failure	>	Niuean females	-	1.17
	Adult male hospitalisation rates for all-causes	<	Samoan and Tongan males	+	
	Adult male PAH rates for CORD	<	Samoan and Tongan males	+	
	Adult male PAH rates for stroke	<	Samoan males	+	
	Adult male PAH rates for myocardial infarction	<	Tongan males	+	
Child Health					
Birth Weight	% births being low birthweight	>	Samoans and Tongans	-	1.33
Mortality in All NZ	Child (0-14 years) male mortality rate for all-causes	>	Samoan males	-	2.64
Hospitalisation rates	Early childhood (0-4 years) female PAH rates for all-causes	<	Samoan and Tongan females	+	
	Early childhood (0-4 years) female PAH rates for acute bronchiolitis and asthma	<	Samoan females	+	
	Early childhood (0-4 years) female PAH rates for dental conditions	<	Tongan females	+	
	Child (5-14 years) female PAH rates for asthma	<	Samoan females	+	
	Child (5-14 years) female PAH rates for pneumonia	<	Samoan and Tongan females	+	
	Early childhood (0-4 years) male PAH rates for all-causes, acute bronchiolitis, pneumonia, gastroenteritis and 'respiratory infections: other'	<	Samoan and Tongan males	+	
	Early childhood (0-4 years) male PAH rates for asthma	<	Samoan males	+	
	Early childhood (0-4 years) male PAH rates for dental conditions	<	Tongan males	+	
	Child (5-14 years) male PAH rates for pneumonia	<	Samoan and Tongan males	+	
	Child (5-14 years) male PAH rates for gastroenteritis	<	Samoan males	+	
Women's Health					
Delivery Age	Average age of mother at delivery	<	Samoan and Tongan females	+	
	Average age of mother at first delivery	<	Samoan and Tongan females	+	
Teenage Delivery	Teenage delivery rates	>	Females in the other level 2 Pacific ethnic groups	-	0.97
Fertility	Total Fertility Rate	<	Samoan and Tongan females	?	
Caesareans	% of caesareans	<	Samoan and Tongan females	+	
Diabetes in Pregnancy	% diabetes in pregnancy	<	Samoan and Tongan females	+	

* Absolute percentages very low.

** Effect on Health has been allocated by the author – not validated in any way.

*** Ratio is greatest difference between relevant Pacific ethnic groups: difference between All Pacific and non-Pacific/non-Maori. Subject to bias due to differing widths of confidence intervals.

Note: Results are for CM unless stated otherwise.

17.8 Niuean Summary

Areas of Concern for Niueans

Note: Where they fair relatively poorly compared to other Pacific ethnic groups.

- Home Ownership - Relatively low % owning own home;
- Vehicle access - Relatively low % with access to a motor vehicle;
- Education
 - Relatively high % with no qualification;
 - Relatively low % with any secondary school qualification;
- Language - Relatively low % able to speak Niuean or any Pacific language;
- Physical Activity – Relatively low for adult males;
- Diabetes – Relatively high prevalence (in the South Auckland Diabetes Project 1992-1995);
- Birth weight – Relatively high % births being LBW;
- Assisted Delivery - Relatively high % of births being complicated by assisted delivery.

Results are for CM unless stated otherwise.

Table 17.8.1: Niuean summary of findings

Indicator	Description	< or >	Comparison Group(s)	Relative Health Effect (- / + or ?)**	Ratio ***
Demography					
Area of residence in CM	% living in Mangere	>	Samoans and Cook Islanders	?	
Birthplace and duration in NZ	% been born in NZ	>	Samoans and Tongans	?	
	% lived in NZ 'more than 20 years'	>	Samoans and Tongans	?	
	% lived in NZ for 'less than 10 years' or between '11 and 20 years'	<	Samoans and Tongans	?	
Deprivation Decile	% people living in the two most deprived deciles	<	The other level 2 Pacific ethnic groups	+	
	% people living in the four most affluent deciles	>	Tongans	+	
Income	% with no income	<	Samoans and Tongans	+	
Employment	% not in the labour force	<	Tongans and Cook Islanders	+	
	% employed full-time	>	Tongans and Cook Islanders	+	
Home Ownership	% owning or partly owning their usual residence	<	Samoans and Tongans	-	0.13
Overcrowding	% living in homes which have 'at least 1 spare bedroom'	>	Samoans and Tongans	?	
	% living in homes with 'no bedrooms required and none spare'	>	Samoans and Tongans	?	
	% living in homes 'needing at least 1 more bedroom'	<	Samoans and Tongans	+	
Home Heating	% using home heating	>	Samoans and Tongans	+	
Motor Vehicles	% having access to a motor vehicle	<	Samoans and Tongans	-	0.66
Telecommunications	% access to a telephone	>	Samoans and Tongans	+	
	% with no access to telecommunication systems e.g. telephones, faxes or the internet	<	Samoans and Tongans	+	
Education	% with no qualification	>	Samoans and Tongans	-	0.72
	% with 'any secondary school qualification'	<	Samoans and Tongans	-	n/a
	% with 'an overseas secondary school qualification'	<	Samoans and Tongans	-	n/a
Language	% able to speak their corresponding language of Pacific ethnic origin	<	Samoans and Tongans	-	n/a
	% able to speak 'any Pacific language'	<	Samoans and Tongans	-	n/a

Unpaid Work	% people looking after a member of own household who is ill or who has a disability	<	Samoans and Tongans	?	
Dependent Children	% having 4 or more dependent children	<	Samoans and Tongans	?	
	% having 1 and 2 dependent children	>	Samoans and Tongans	?	
Risk Factors					
Alcohol	Prevalence (amongst females aged 30-65 years) having consumed alcohol in the previous 12 months	>	Sample of Total Pacific females (PDACS)	-	n/a
Gambling	Prevalence (amongst females aged 30-65 years) of reporting going into debt or borrowing money due to gambling	<	Sample of Total Pacific females (PDACS)	+	
	Prevalence (amongst males aged 13-29 years) of reporting going into debt or borrowing money due to gambling	<	Sample of Total Pacific males (PDACS)	+	
	Prevalence (amongst males aged 13-29 years) of reporting lying to family or someone they respected about how much they gambled	<	Sample of Total Pacific males (PDACS)	+	
Physical Activity	Adult male prevalence of undertaking regular (150 mins: 30 mins 5+ times per week) physical activity	<	Cook Island males (NZHS)	-	n/a
Accidents	Adult female prevalence of being involved in an accident causing injury or major damage	<	Sample of Total Pacific females (PDACS)	+	
Health Outcomes					
Life Expectancy in All NZ	Female life expectancy at birth	>	Samoan and Cook Island females	+	
Mortality in All NZ	Adult female mortality rate for all-causes	<	Samoan and Cook Island females	+	
Chronic Disease Prevalence	Adult prevalence of diabetes (in the South Auckland Diabetes Project 1992-1995)	>	Samoans	-	
Adult Health Care Utilisation					
Hospitalisation rates	Adult female hospitalisation rates for all-causes	<	Females in the other level 2 Pacific ethnic groups	+	
	Adult female PAH rates for CORD and cellulitis	<	Females in the other level 2 Pacific ethnic groups	+	
	Adult female PAH rates for stroke	<	Samoan and Tongan females	+	
	Adult female PAH rates for congestive heart failure	<	Samoan and Cook Island females	+	
	Adult female PAH rates for angina and chest pain, myocardial infarction and kidney/urinary infection	<	Samoan females	+	
	Adult female hospitalisation rates for road traffic injury	<	Tongan females	+	
	Adult male hospitalisation rates for all-causes	<	Samoan and Tongan males	+	
	Adult male PAH rates for congestive heart failure	<	Samoan males	+	
Child Health					
Birth Weight	% births being low birthweight	>	Samoans and Tongans	-	1.78
Hospitalisation rates	Early childhood (0-4 years) female PAH rates for all-causes	<	Samoan and Tongan females	+	
	Early childhood (0-4 years) female PAH rates for 'respiratory infections: other' and cellulitis	<	Samoan females	+	
	Child (5-14 years) female PAH rates for asthma	<	Samoan females	+	
	Early childhood (0-4 years) male PAH rates for all causes, pneumonia,	<	Samoan and Tongan males	+	

	gastroenteritis and 'respiratory infections: other'				
Women's Health					
Delivery Age	Average age of mother at delivery	<	Samoan and Tongan females	+	
	Average age of mother at first delivery	<	Samoan and Tongan females	+	
Fertility	Total Fertility Rate	<	Samoan and Tongan females	?	
Assisted Delivery	% assisted deliveries	>	Samoan and Cook Island females	-	0.53
Diabetes in Pregnancy	% diabetes in pregnancy	<	Samoan and Tongan females	+	

* Absolute percentages very low.

** Effect on Health has been allocated by the author – not validated in any way.

*** Ratio is greatest difference between relevant Pacific ethnic groups: difference between All Pacific and non-Pacific/non-Maori. Subject to bias due to differing widths of confidence intervals.

Note: Results are for CM unless stated otherwise.

17.9 Summary of Area Differences

Note that due to time and resource constraints very few indicators were compared by different areas.

Table 17.9.1: Area differences summary

Indicator	Description	< or >	Comparison Group(s)
Demography			
Area of Residence in CM and Birthplace	Mangere, Otara, Manurewa, Papatoetoe and Manukau - ratio of Pacific CM residents being born in New Zealand than in their Pacific country of ethnic origin	<	Papakura, Howick/Pakuranga and Clevedon.
Women's Health			
Fertility	TFRs (across all Pacific ethnic groups) in CM	>	Rest of NZ
Teenage Delivery	Rates of teenage delivery amongst All Pacific and Cook Islanders	>	Same groups in Rest of NZ
Caesareans	Percentage of deliveries that are caesareans for Samoans, Cook Islanders, All Pacific, and non-Pacific/non-Maori	<	Same groups in Rest of NZ
Diabetes in Pregnancy	Percentage of deliveries that are complicated by diabetes in pregnancy for Samoans, Tongans, All Pacific, and non-Pacific/non-Maori	>	Same groups in Rest of NZ

17.10 Summary of Gender differences

Table 17.10.1: Gender differences summary

Indicator	Description	< or >	Comparison Group(s)
Demography			
Income	% females from all the level 2 Pacific ethnic groups with 'no income'	>	Males from same groups
	% females from all the level 2 Pacific ethnic groups earning <\$20,000 per year	>	Males from same groups
	% females from all the level 2 Pacific ethnic groups earning >\$40,000 per year	>	Males from same groups
Risk Factors			
Alcohol	All Pacific and non-Pacific/non-Maori adult male prevalence of hazardous drinking	>	Females from same groups (NZHS)
Health Outcomes			
Life Expectancy	Male life expectancy at birth (across all ethnic groups)	<	Females from all groups
Mortality	Adult male mortality from all-causes (across all ethnic groups)	>	Females from all groups
Adult Health Care Utilisation			
Hospitalisation rates (amongst most or all ethnic groups)	Adult female PAH rates for asthma	>	Males
	Adult female PAH rates for angina and chest pain, myocardial infarction and CORD	<	Males
	Adult female hospitalisation rates for gout	<	Males
Child Health			
Hospitalisation rates (amongst most or all ethnic groups)	Early childhood (0-4 years) female PAH rates for acute bronchiolitis	<	Males

Note: Results are for CM unless stated otherwise.

17.11 Summary of Migration Differences

- The 12 month prevalence of any mental disorder was lower among Pacific people born in the Islands (especially in those who migrated after age 18) than among New Zealand-born Pacific people.