

Decades of Disparity: Ethnic mortality trends in New Zealand 1980-1999

Tony Blakely, Bridget Robson, Martin Tobias, Shilpi
Ajwani, Martin Bonne

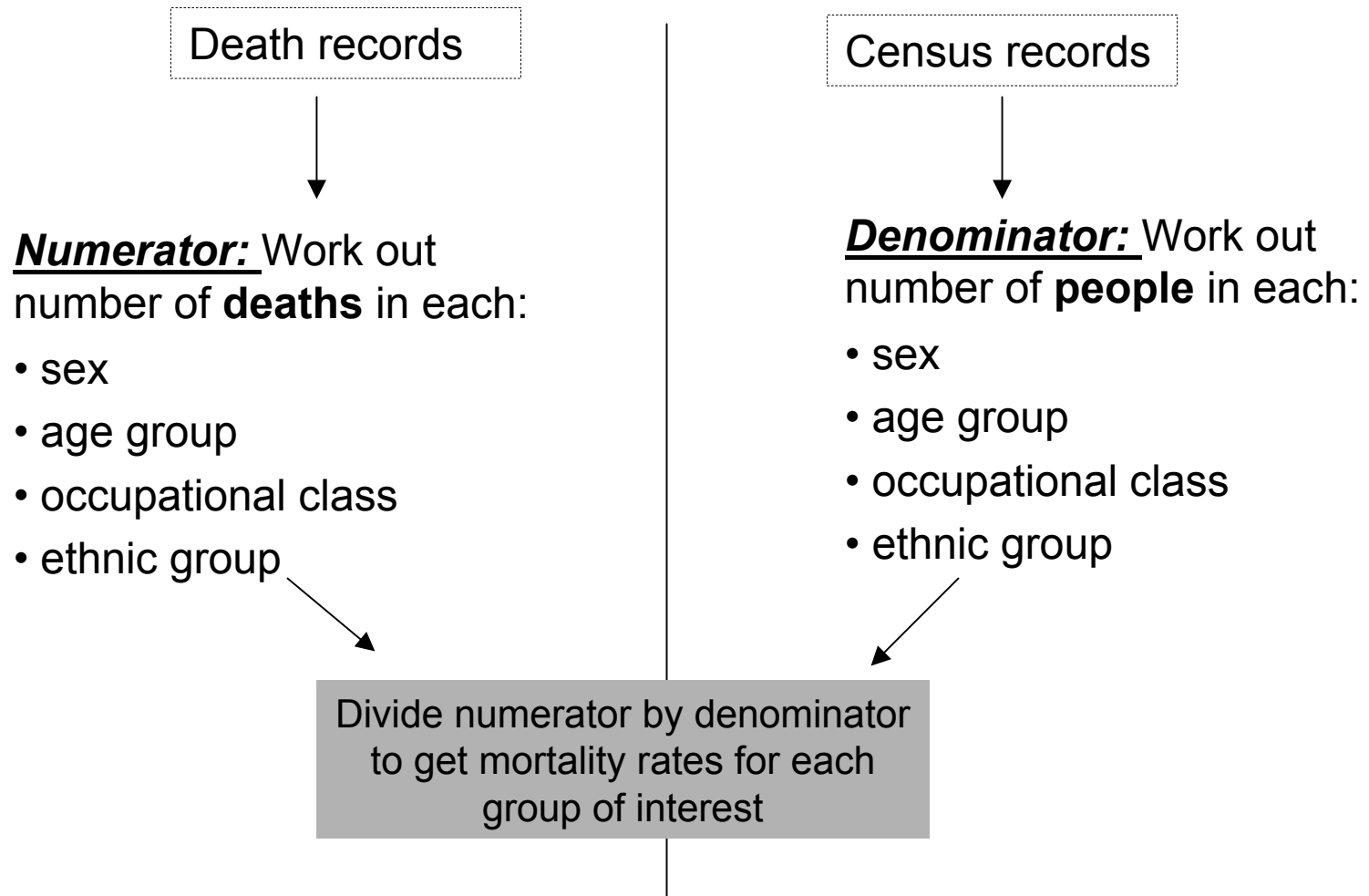
www.wnmeds.ac.nz/nzcms-info.html



Overview

- Problem - undercounting Māori and Pacific deaths
- Solution - New Zealand Census-Mortality Study
- Results:
 - life expectancy trends by ethnicity
 - age-specific and cause-specific mortality trends
- Possible explanations - structural, health services and epidemiological and risk factors
- Where to next?

Routine calculation of death rates



Ethnicity data collection

Census data	Mortality data
1981: 'biological', multiple groups allowed	
1986: self-identified ethnic origin	Prior to September 1995: <ul style="list-style-type: none">• biological• only 2 categories: Maori, Pacific
1991: self-identified ethnicity	<ul style="list-style-type: none">• sole categories only permitted
1996: self-identified ethnicity, more encouragement of multiple self-identity	After September 1995, identical questions to 1996 census (query implementation)
2001: revert back to 1991 question	

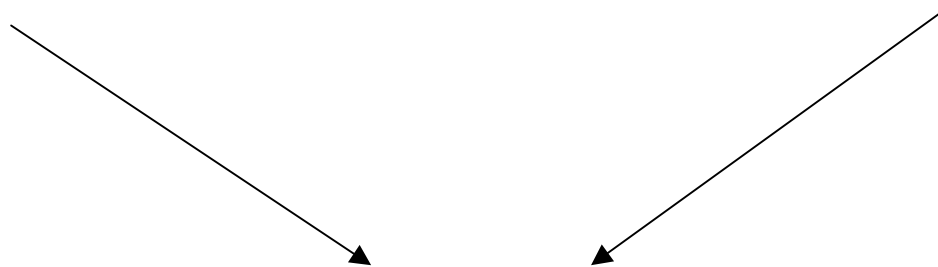
Impact on ethnic mortality rates

- Up to September 1995 Māori and Pacific deaths undercounted and European deaths over-counted
- Consequently:
 - Māori mortality rates underestimated ++
 - Pacific mortality rates underestimated +++
 - European mortality rates slightly overestimated

NZCMS as the solution

Death records

Census records



Mortality records linked back to a
census record to create a cohort
study

Comparing census and mortality data ethnicity, 1991-94

Census ethnicity	Death registration ethnicity			Total	Census to mortality ratio
	Maori	Pacific	non-M non-P		
<i>Sole</i>					
Maori	3,117	6	1,449	4,569	1.32
Pacific People	9	621	471	1,101	1.68
non-M non-P	351	30	35,262	35,640	0.96
Total	3,471	657	37,182	41,310	

Unlock ratios 1981-1999

Ethnic group	1981-84	1986-89	1991-94	1996-99
Māori	1.16	1.32	1.32	1.07
Pacific People	1.55	1.76	1.68	0.99
Asian	-	-	-	1.02
non-M non-P / non-A	0.98	0.97	0.96	0.99

1981-84: mortality compared to census 1/2 or more Māori and Pacific

1986-89 and 1991-94: mortality compared to census *sole* Māori and Pacific

1996-99: mortality *prioritised* compared to census *prioritised* Māori, Pacific, Asian and nM nP

Method to calculate mortality rates

- Used ‘appropriate’¹ NZCMS unlock ratios to correct 20 years of mortality data
- Calculated ethnic mortality trends for both *sole* and *prioritised* series
- Grouped data as:
 - 1980-84, 1985-1989, 1990-1995, and 1996-99
- Both mortality rate and life expectancies

1. Different adjustment ratios were used depending on whether the sole or prioritised series was being calculated.

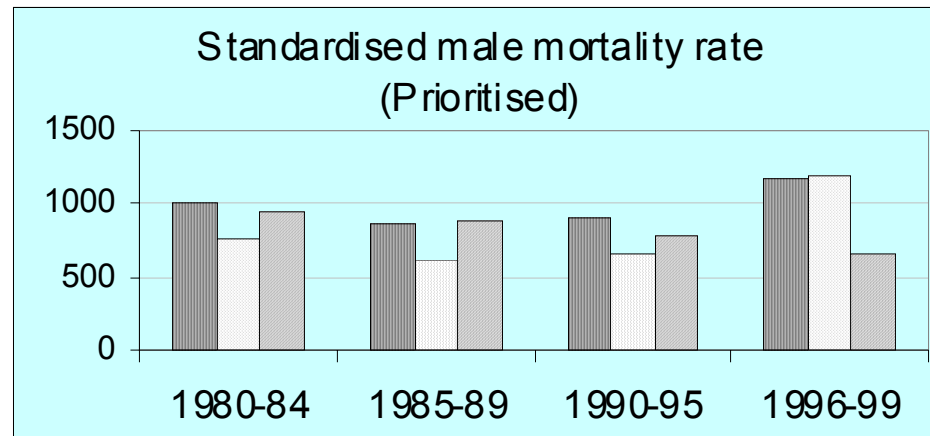
Limitations

- The mortality rates for each period apply to the corresponding census's definition of ethnicity:
 - comparisons over time not exactly comparable, particularly for 1990-95 to 1996-99
 - however, use of both sole and prioritised series gives alternative series
- Still some underlying inaccuracy in adjustment, particularly Pacific people in 1980s

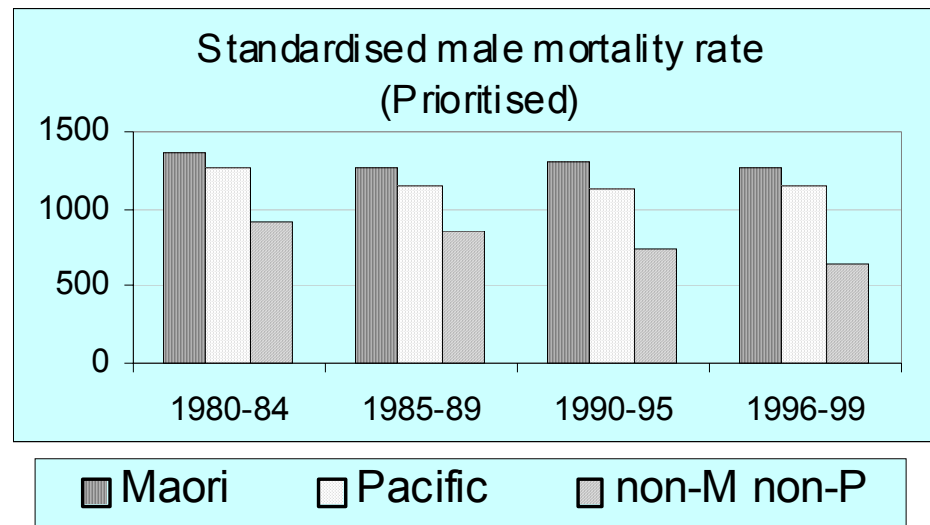
RESULTS

Impact of adjusting for numerator-denominator bias

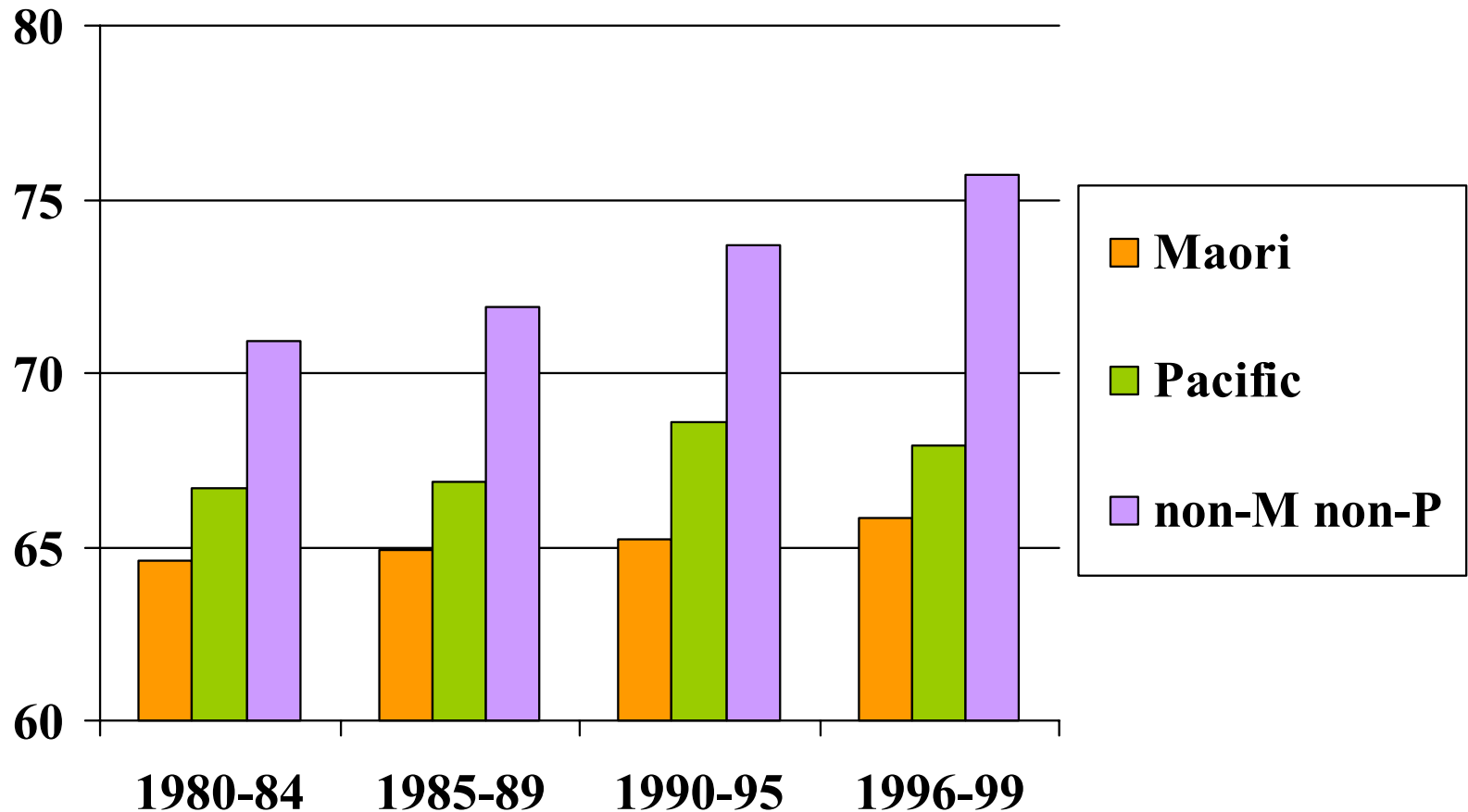
Unadjusted



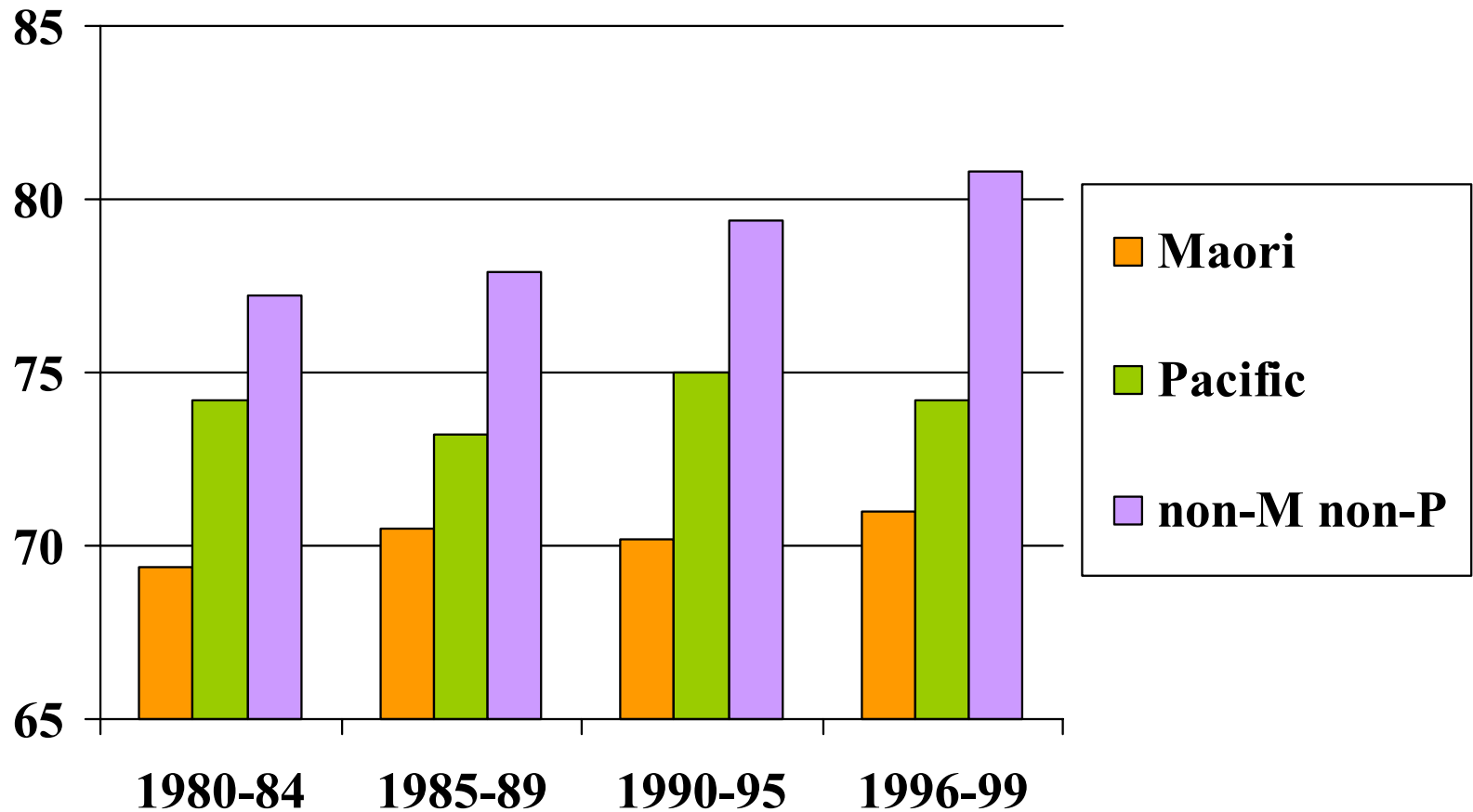
Adjusted



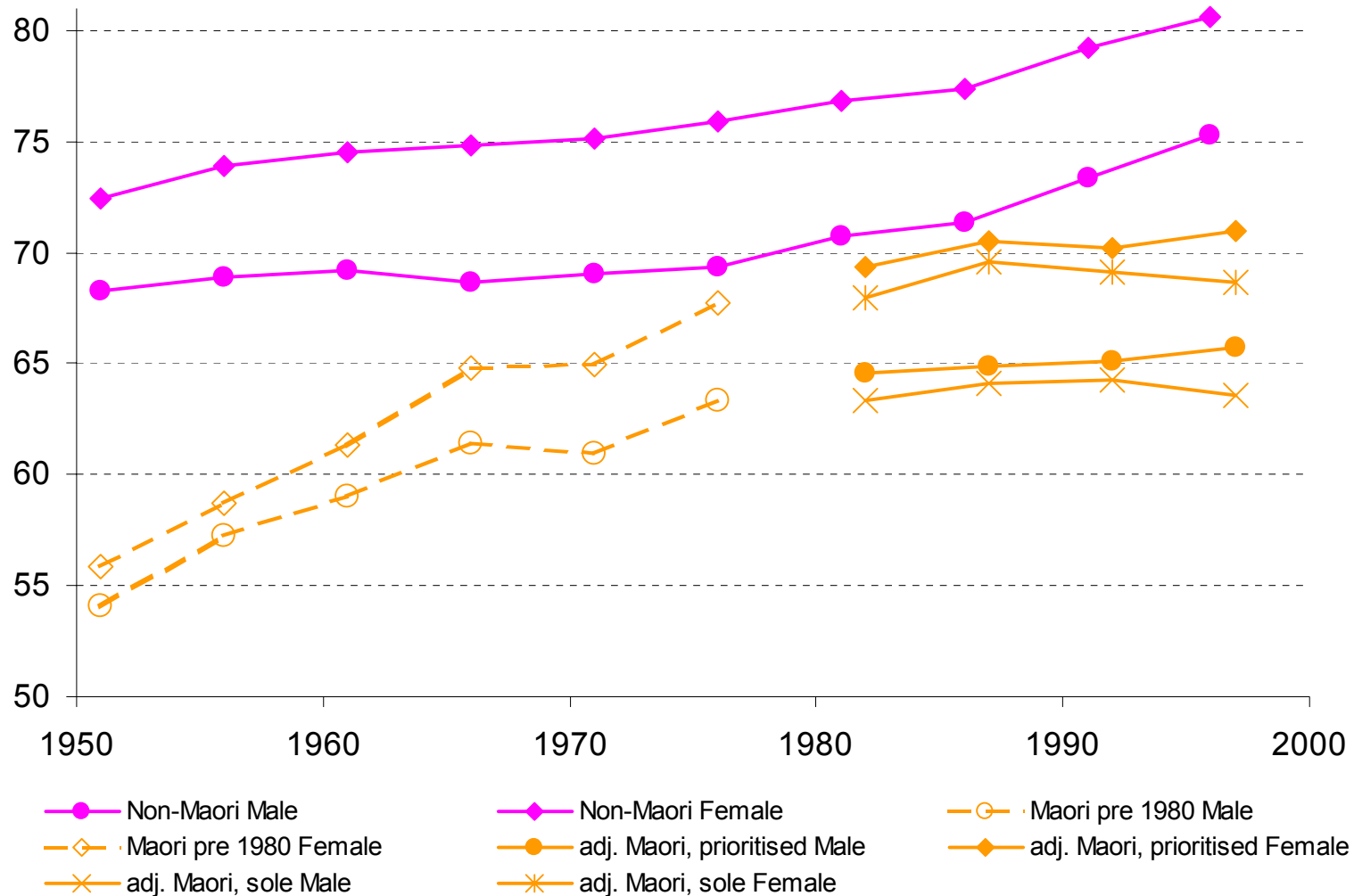
Life expectancy: males, prioritised

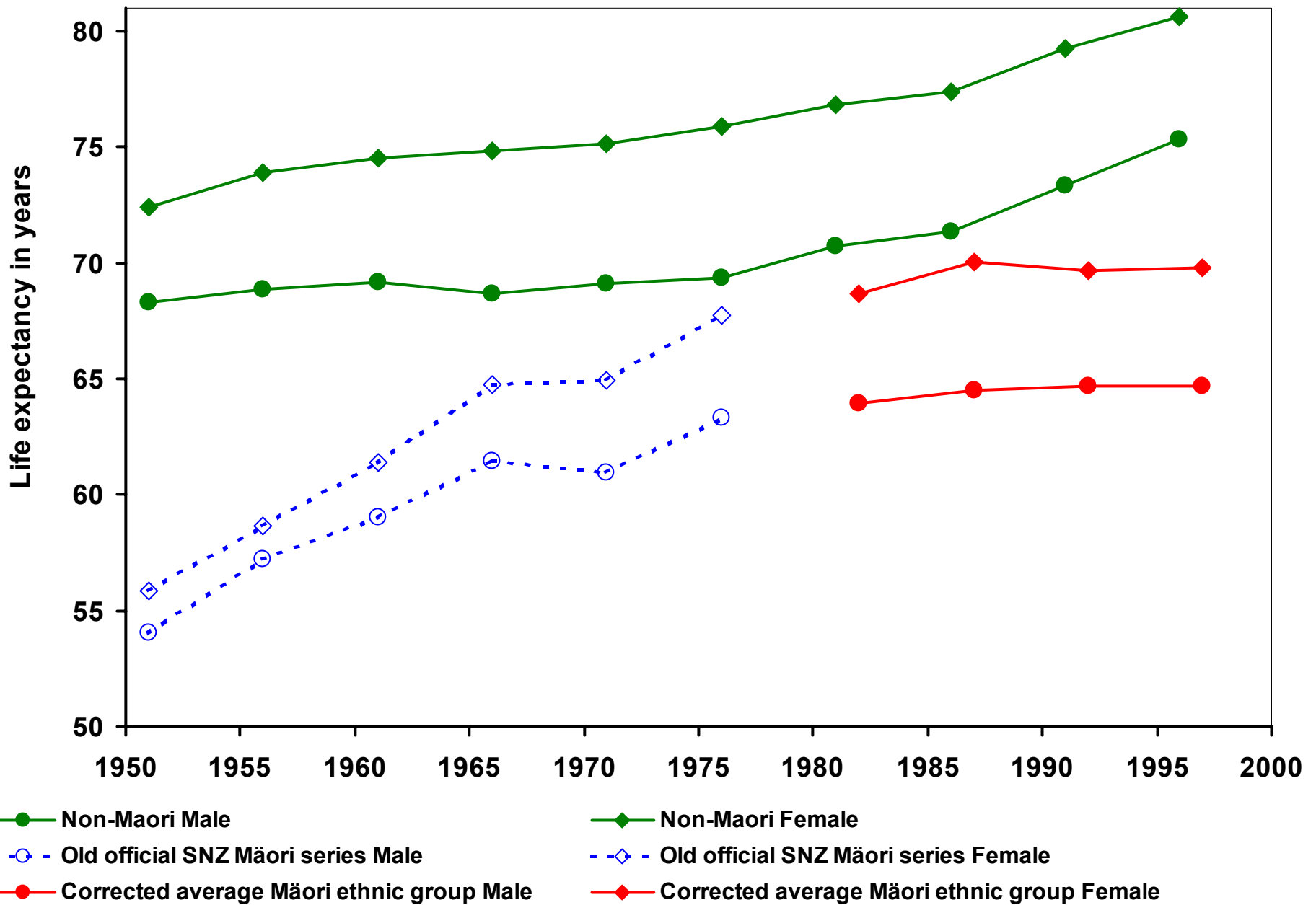


Life expectancy: females, prioritised

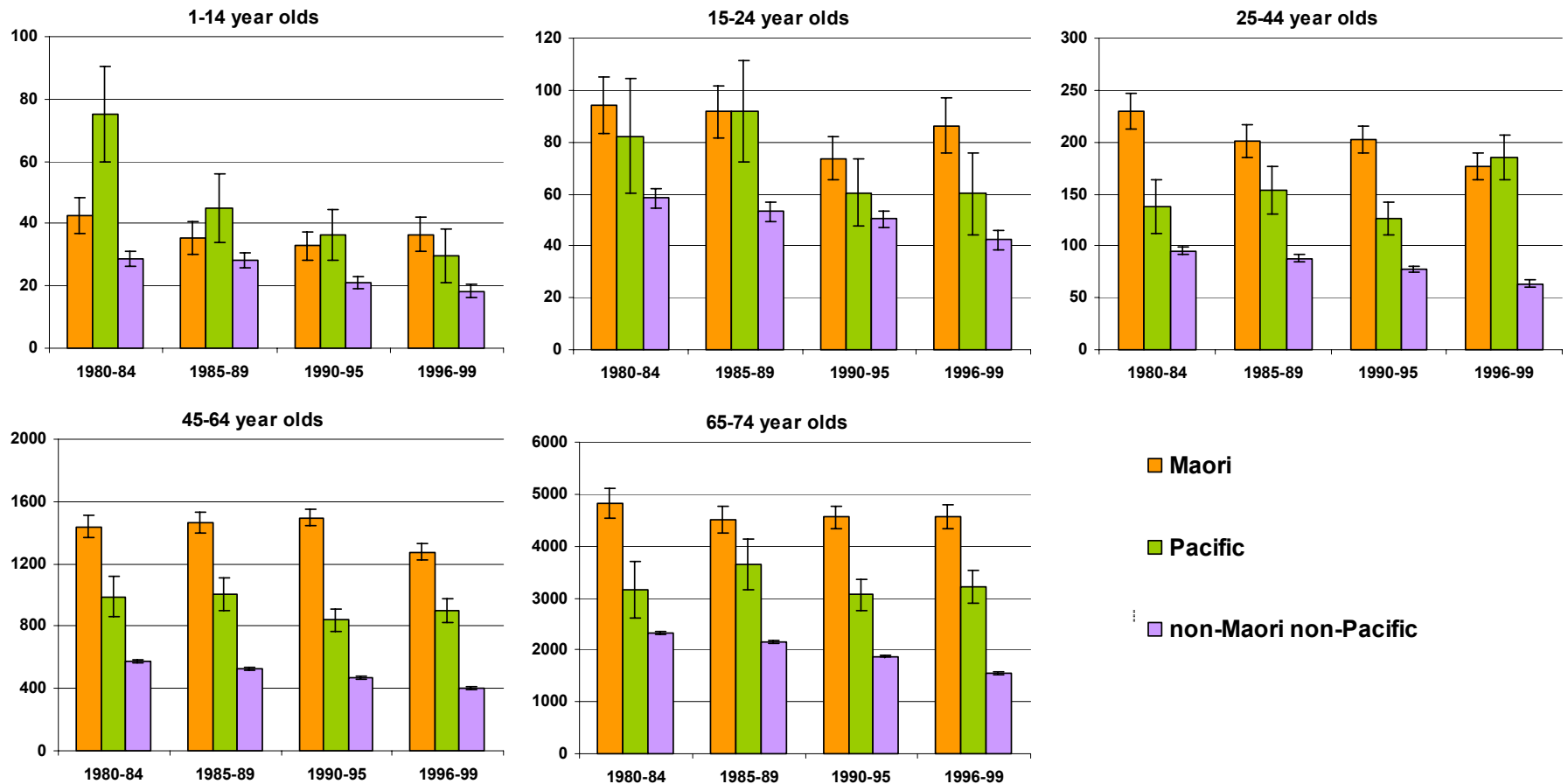


Life expectancy: Māori and non-Māori, 1950 to 2000

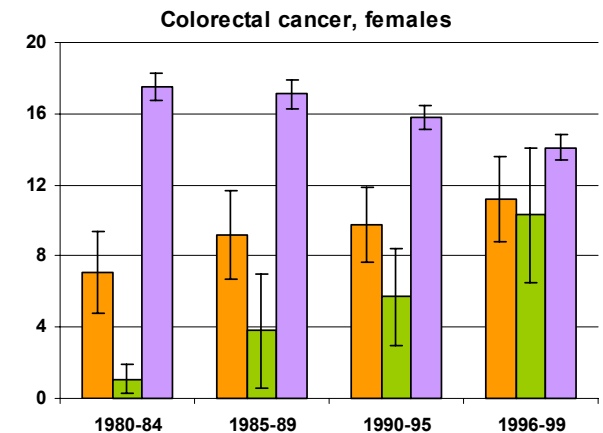
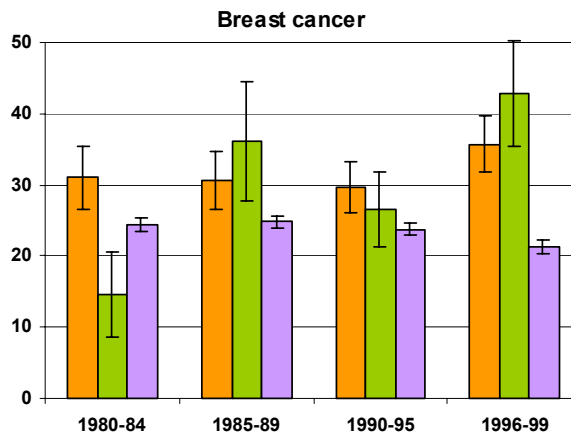
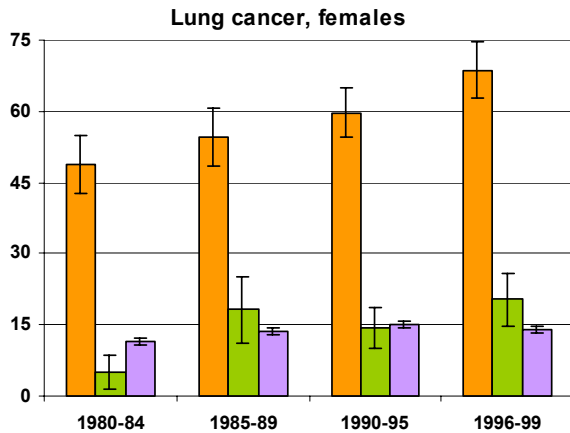
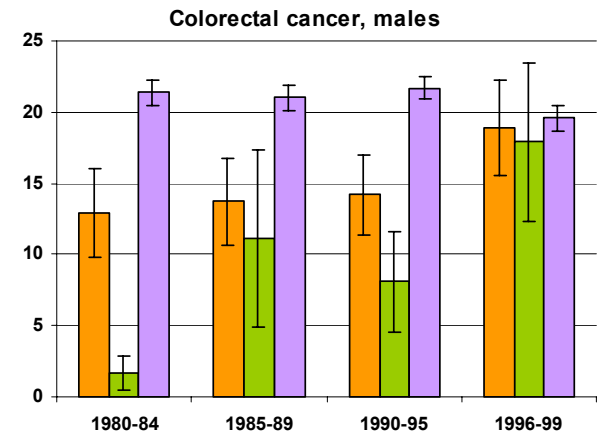
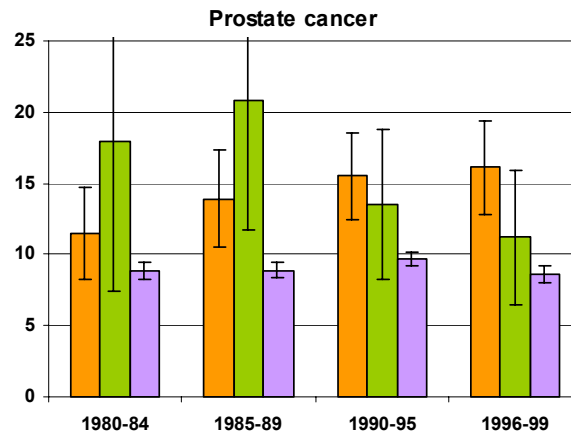
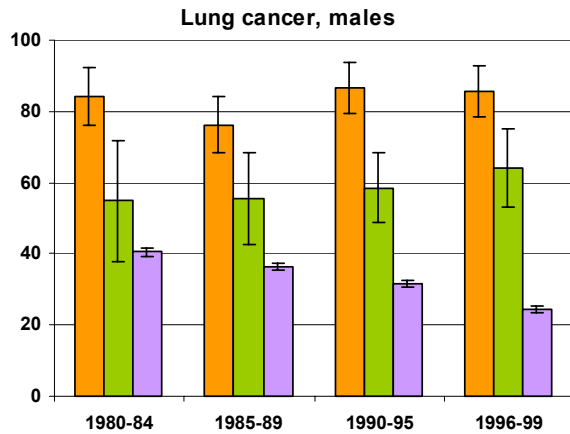




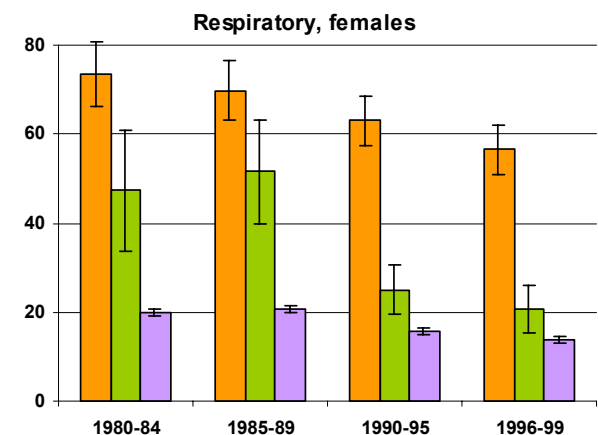
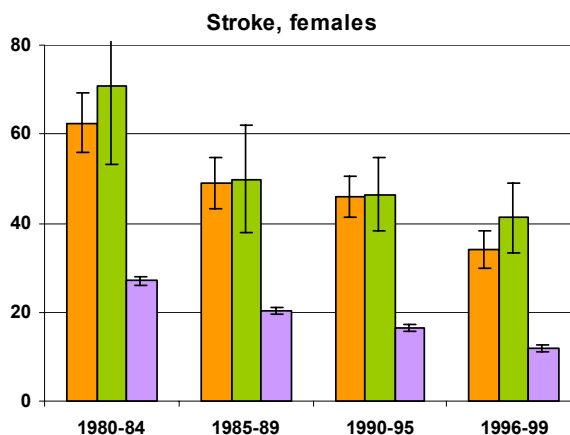
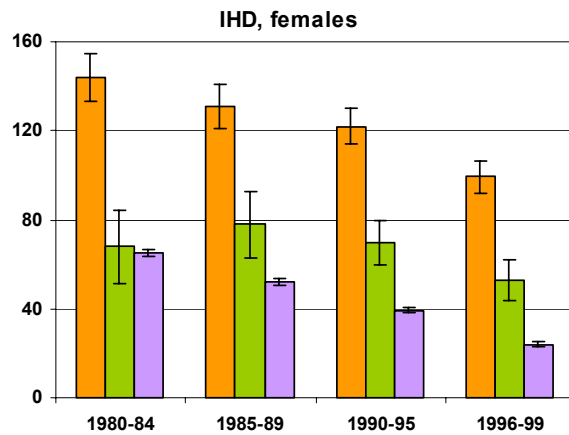
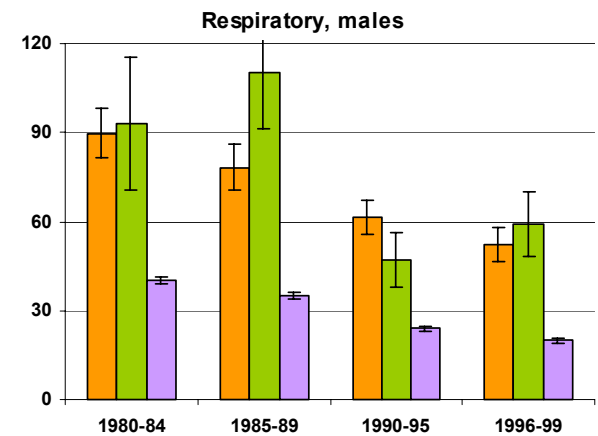
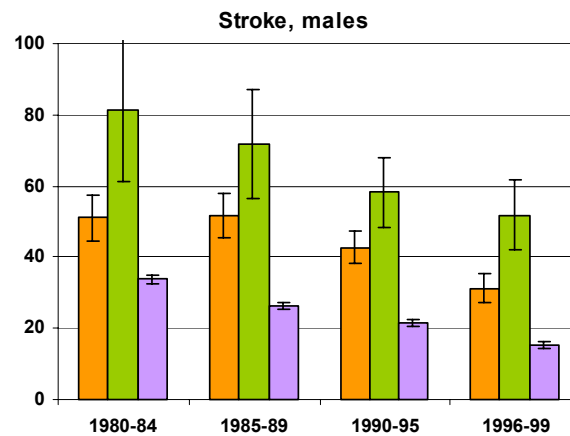
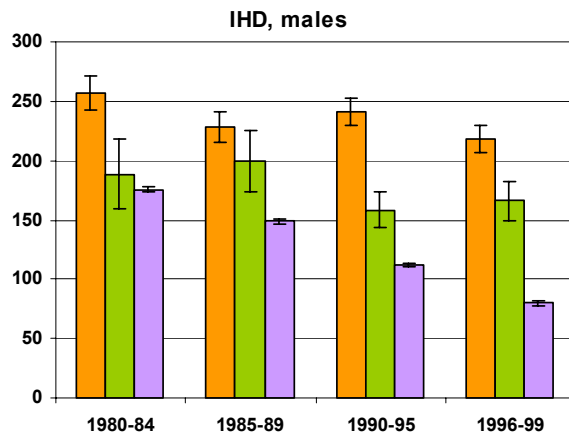
Mortality rates by age: sexes combined, prioritised



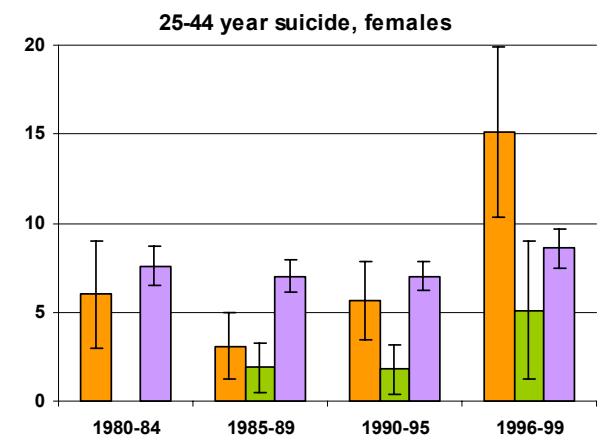
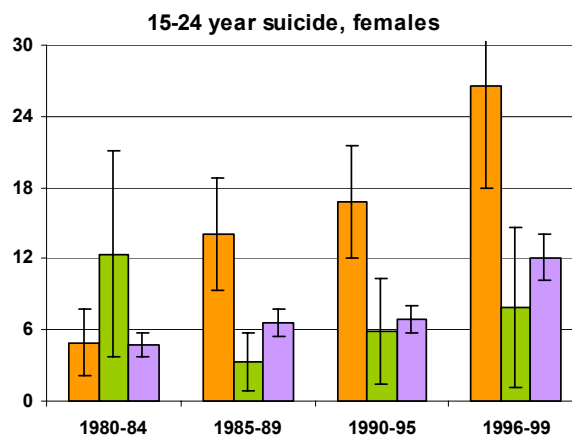
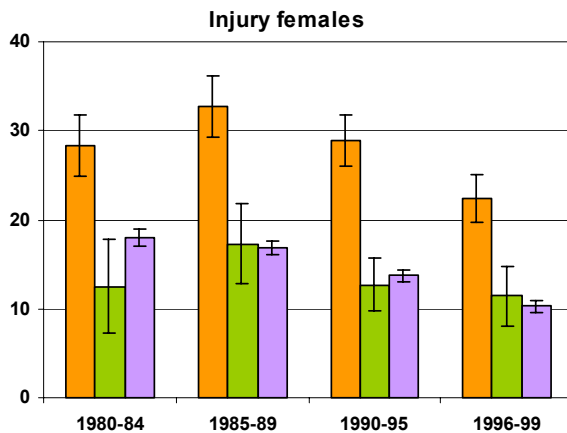
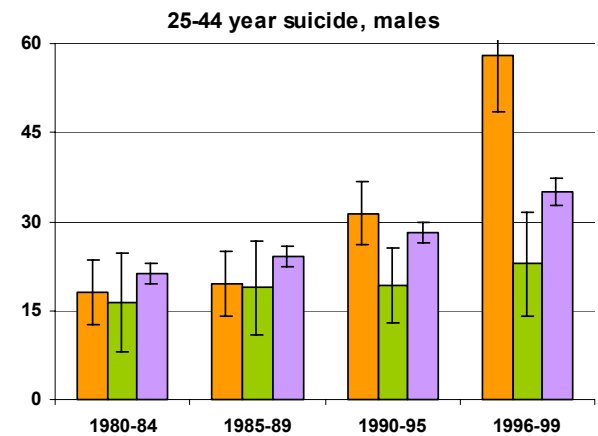
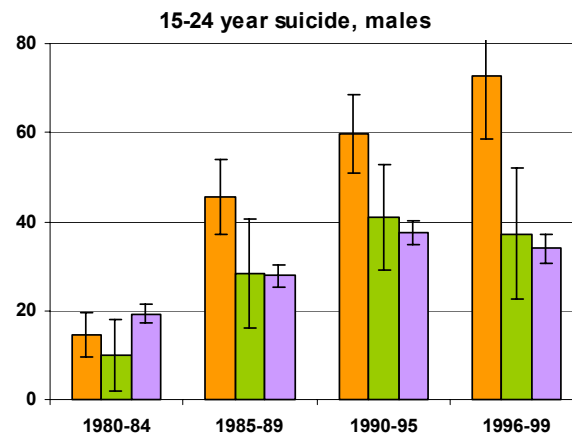
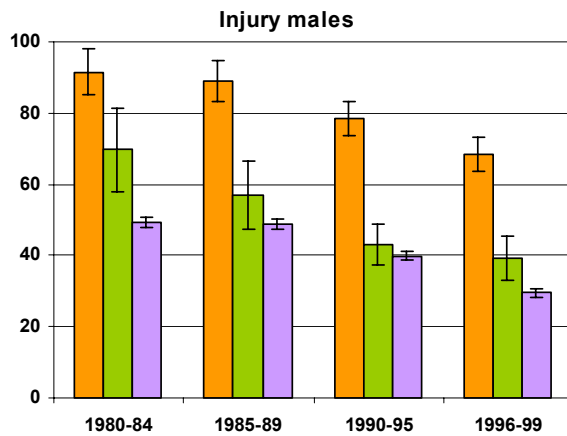
Cancer mortality rates: prioritised



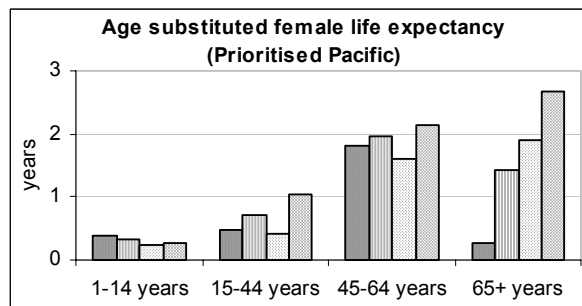
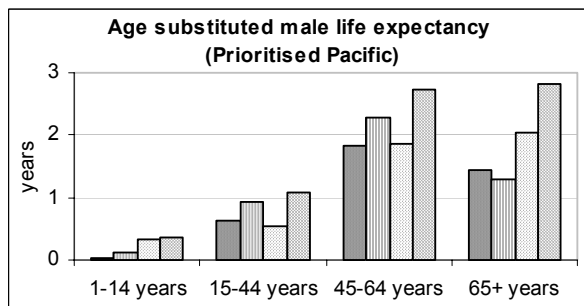
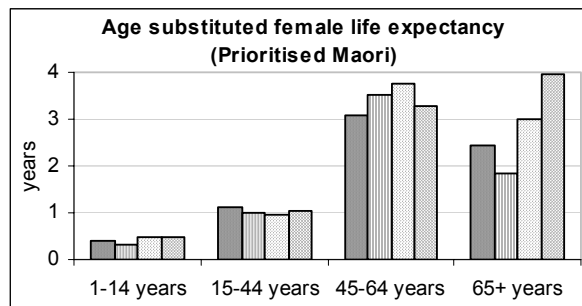
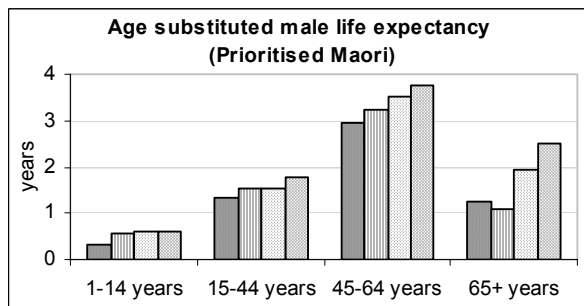
Cardiovascular and respiratory mortality rates: prioritised



Injury and suicide mortality rates: prioritised

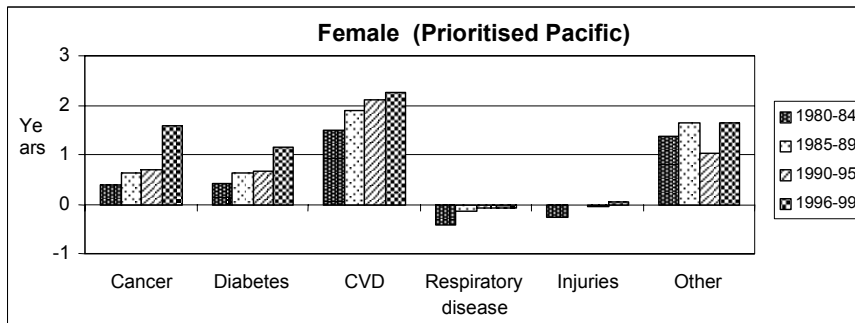
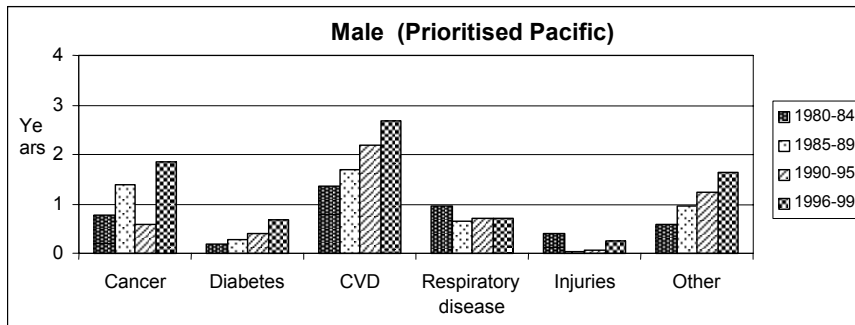
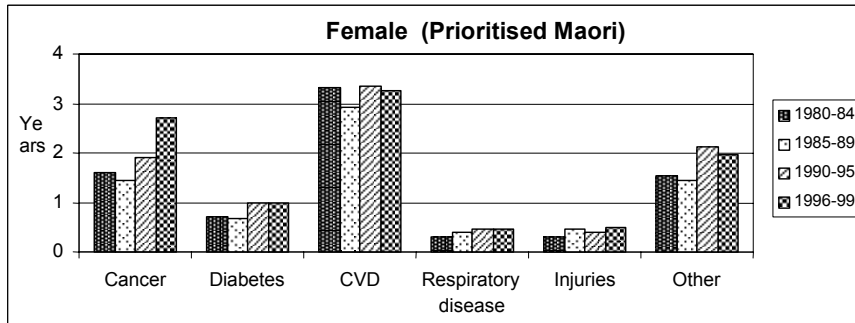
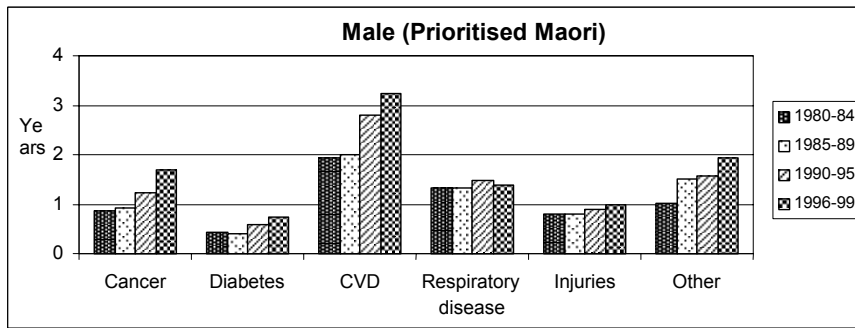


Age substituted life expectancy

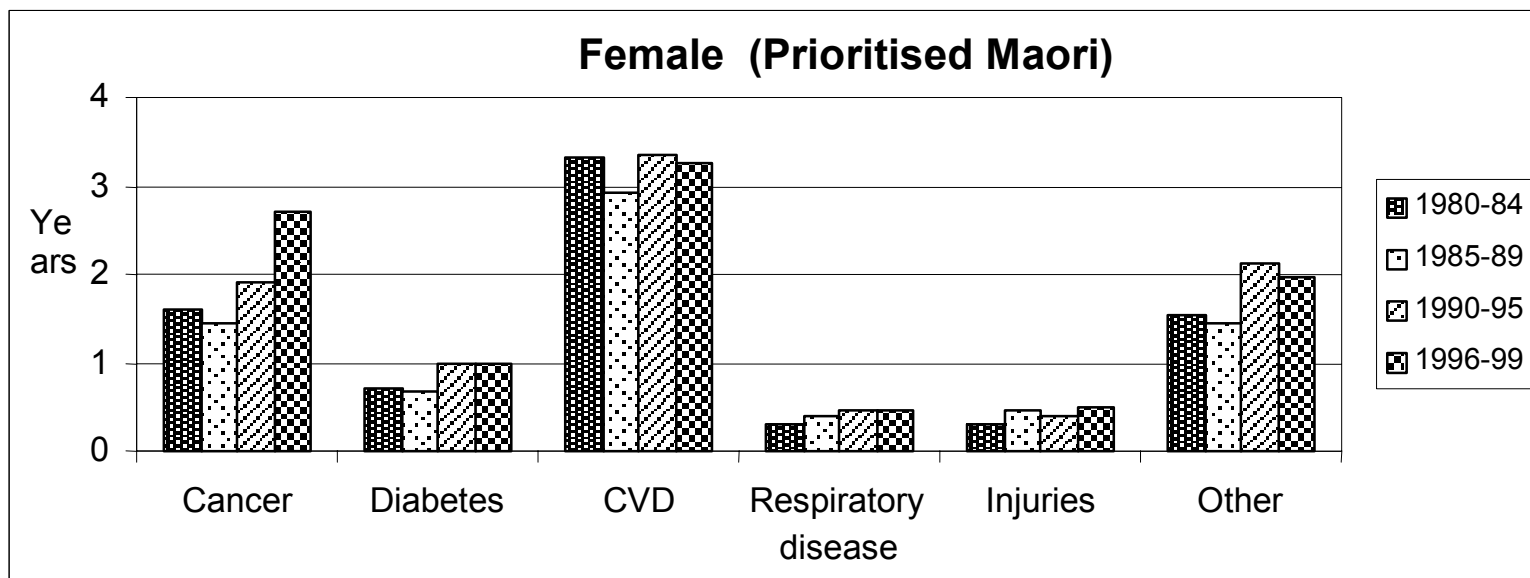
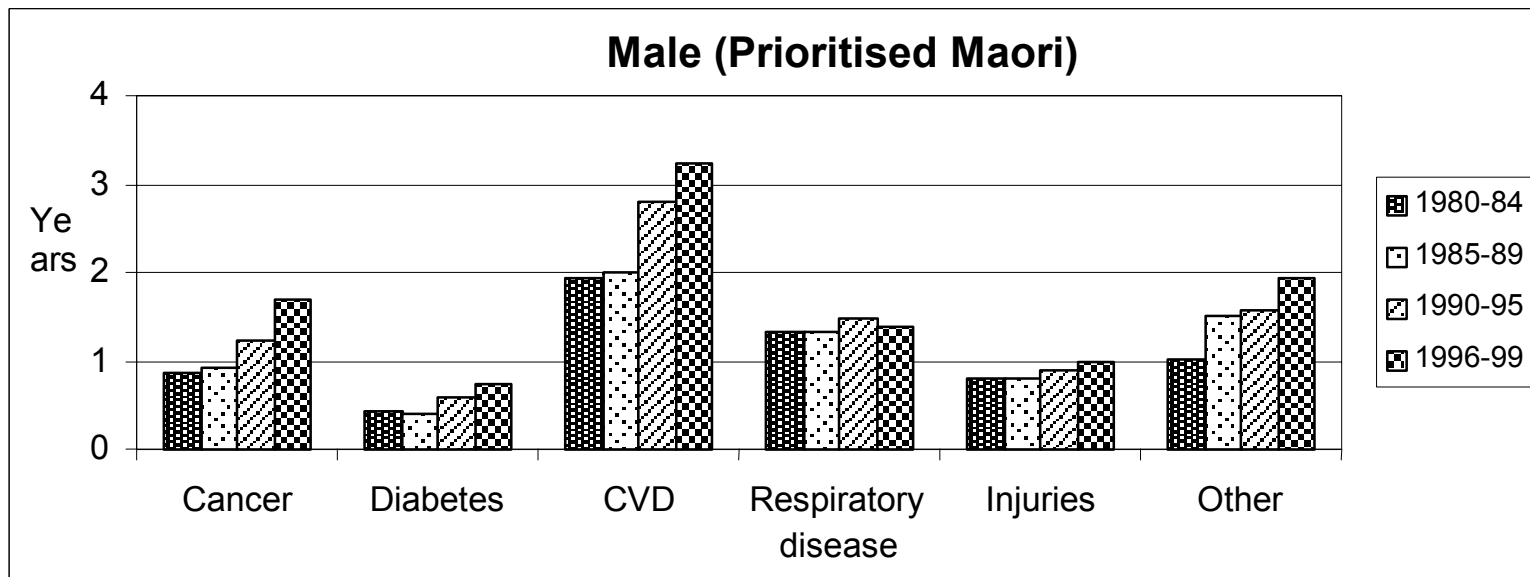


■ 1980-84 ■ 1985-89 ■ 1990-95 ■ 1996-99

Cause-substituted life expectancy



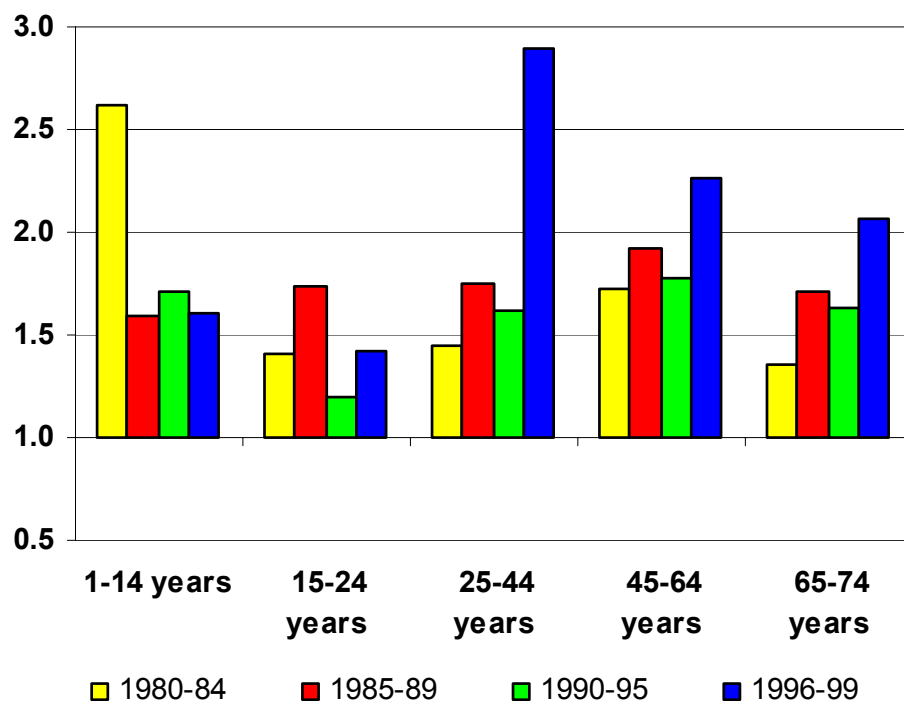
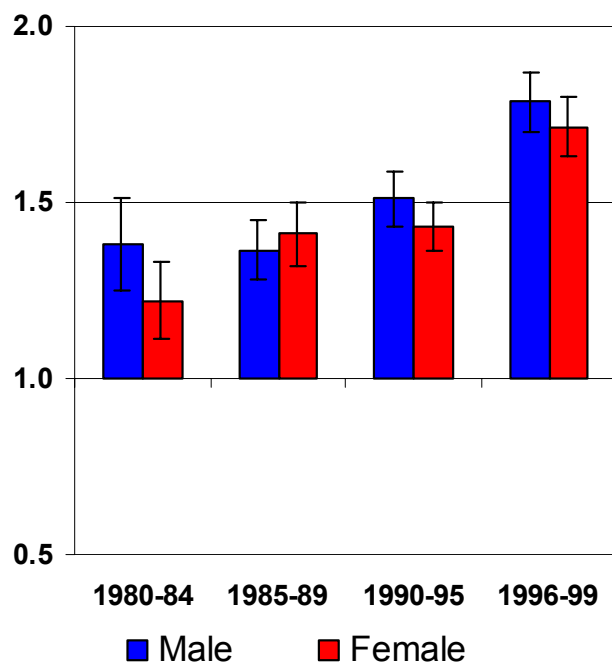
Cause deleted life expectancy



Key findings for Pacific people

- Downward trend in all-cause mortality rates up to 25 years of age, but static at older ages
- Cancer, cardiovascular disease and diabetes related mortality cause disparity compared to non-Māori non-Pacific
- Intermediary between Māori and non-Māori non-Pacific
- Stroke mortality high
- Breast cancer and male lung cancer now high
- Staggering increase in colorectal cancer mortality

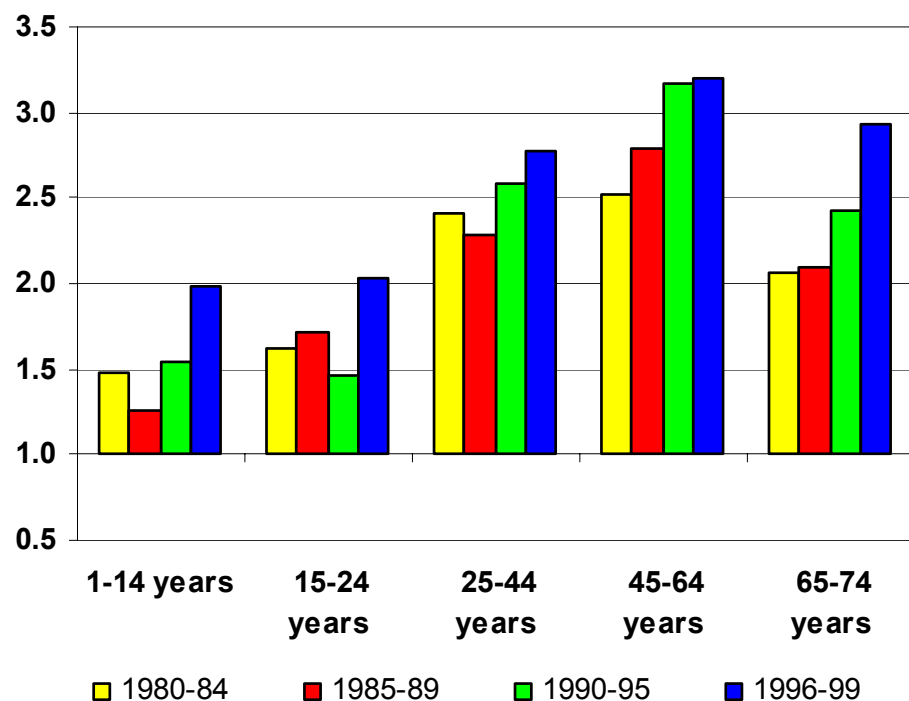
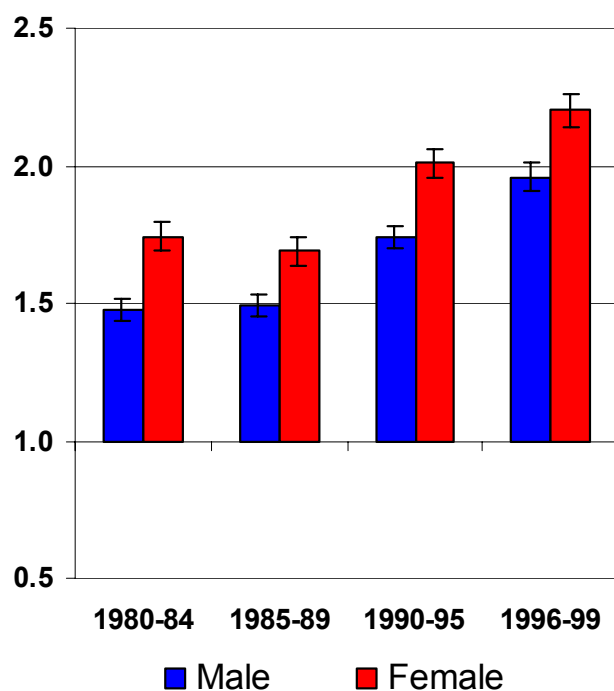
Pacific (prioritised) rate ratios by sex and age



Pacific rate ratios by cause of death

Cause	1980-84	1985-89	1990-95	1996-99
<i>Females</i>				
Lung cancer	0.4	1.3	0.9	1.5
Breast cancer	0.6	1.5	1.1	2.0
Colorectal cancer	0.1	0.2	0.4	0.7
IHD	1.0	1.5	1.8	2.2
Stroke	2.6	2.4	2.8	3.5
Respiratory	2.4	2.5	1.6	1.5
Injuries	0.7	1.0	0.9	1.1
Suicide, 15-24	2.6	0.5	0.9	0.7
Suicide, 25-44	-	0.3	0.3	0.6
<i>Males</i>				
Lung cancer	1.3	1.5	1.8	2.6
Prostate cancer	2.0	2.3	1.4	1.3
Colorectal cancer	0.1	0.5	0.4	0.9
IHD	1.1	1.3	1.4	2.1
Stroke	2.4	2.7	2.7	3.4
Respiratory	2.3	3.2	2.0	3.0
Injuries	1.4	1.2	1.1	1.3
Suicide, 15-24	0.5	1.0	1.1	1.1
Suicide, 25-44	0.8	0.8	0.7	0.7

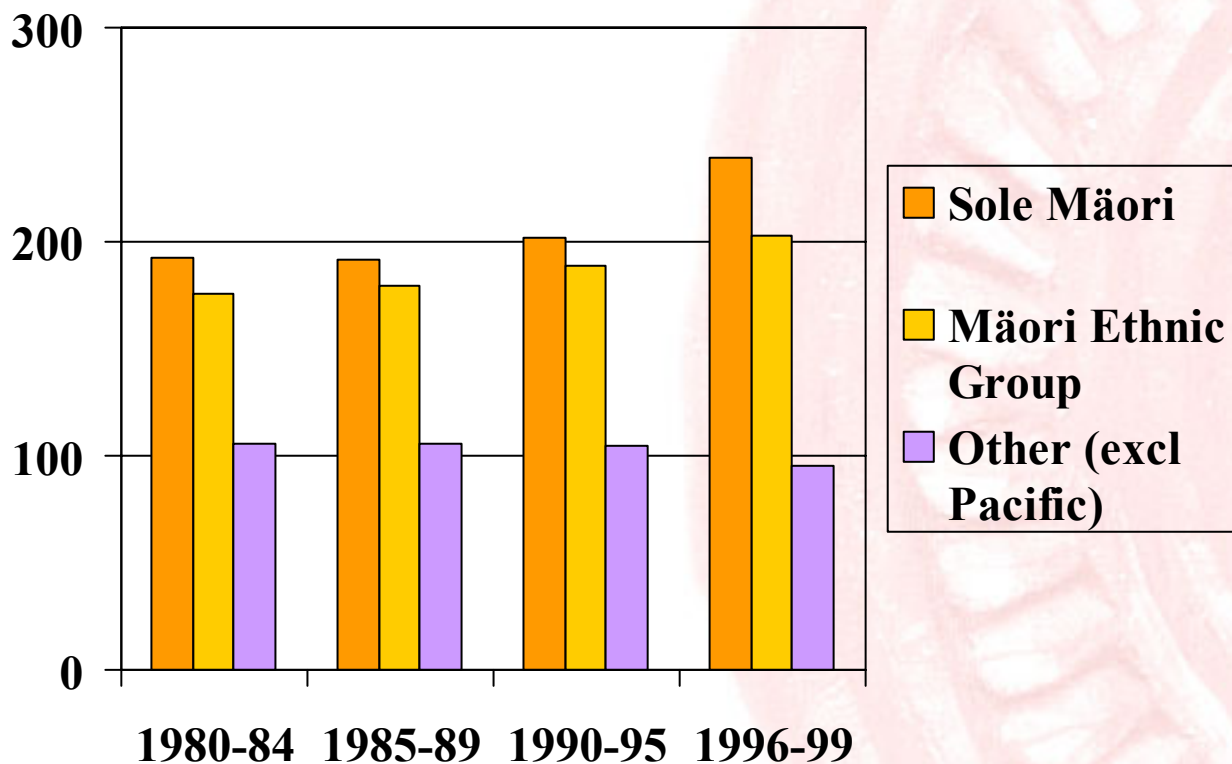
Māori (prioritised) rate ratios by sex and age



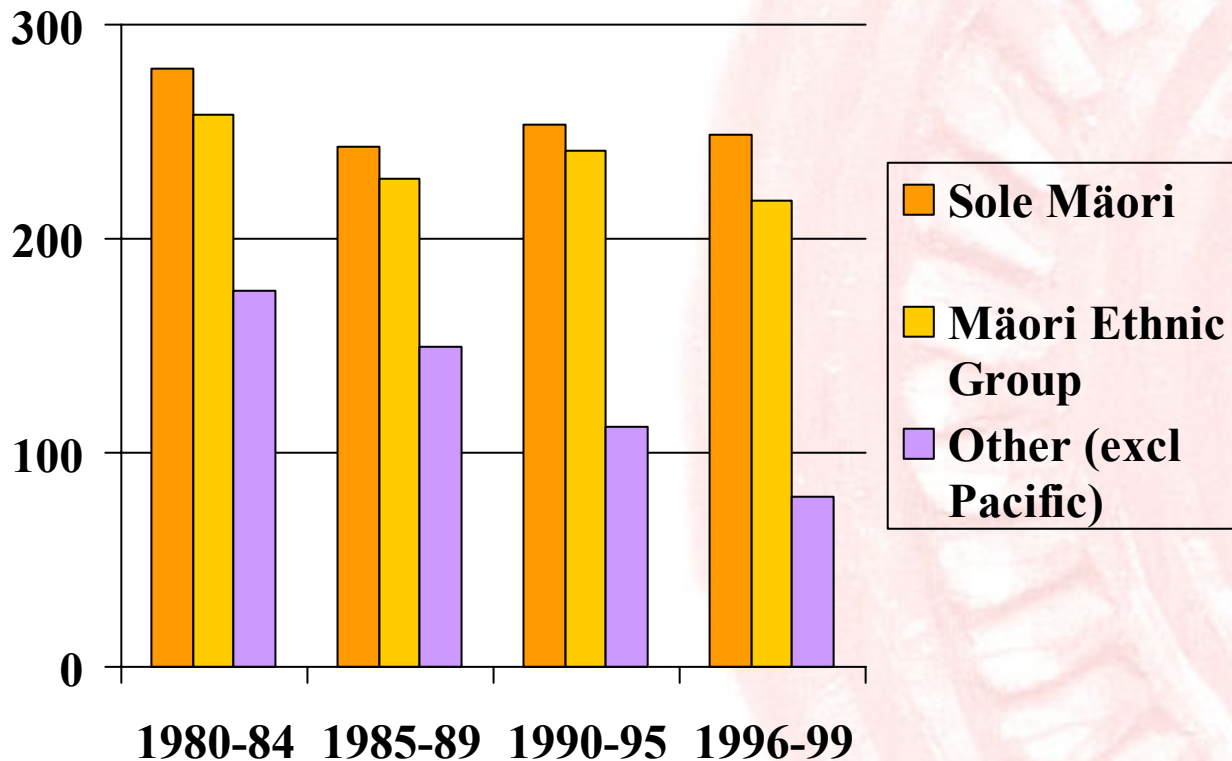
Māori rate ratios by cause of death

Cause	1980-84	1985-89	1990-95	1996-99
<i>Females</i>				
Lung cancer	4.2	4.0	3.9	4.9
Breast cancer	1.3	1.2	1.2	1.7
Colorectal cancer	0.4	0.5	0.6	0.8
IHD	2.2	2.5	3.1	4.1
Stroke	2.3	2.4	2.8	2.8
Respiratory	3.7	3.4	4.0	4.1
Injuries	1.6	1.9	2.1	2.2
Suicide, 15-24	1.0	2.1	2.4	2.2
Suicide, 25-44	0.8	0.4	0.8	1.8
<i>Males</i>				
Lung cancer	2.1	2.1	2.7	3.5
Prostate cancer	1.3	1.6	1.6	1.9
Colorectal cancer	0.6	0.7	0.7	1.0
IHD	1.5	1.5	2.1	2.7
Stroke	1.5	2.0	2.0	2.0
Respiratory	2.2	2.2	2.6	2.6
Injuries	1.9	1.8	2.0	2.3
Suicide, 15-24	0.8	1.6	1.6	2.1
Suicide, 25-44	0.9	0.8	1.1	1.7

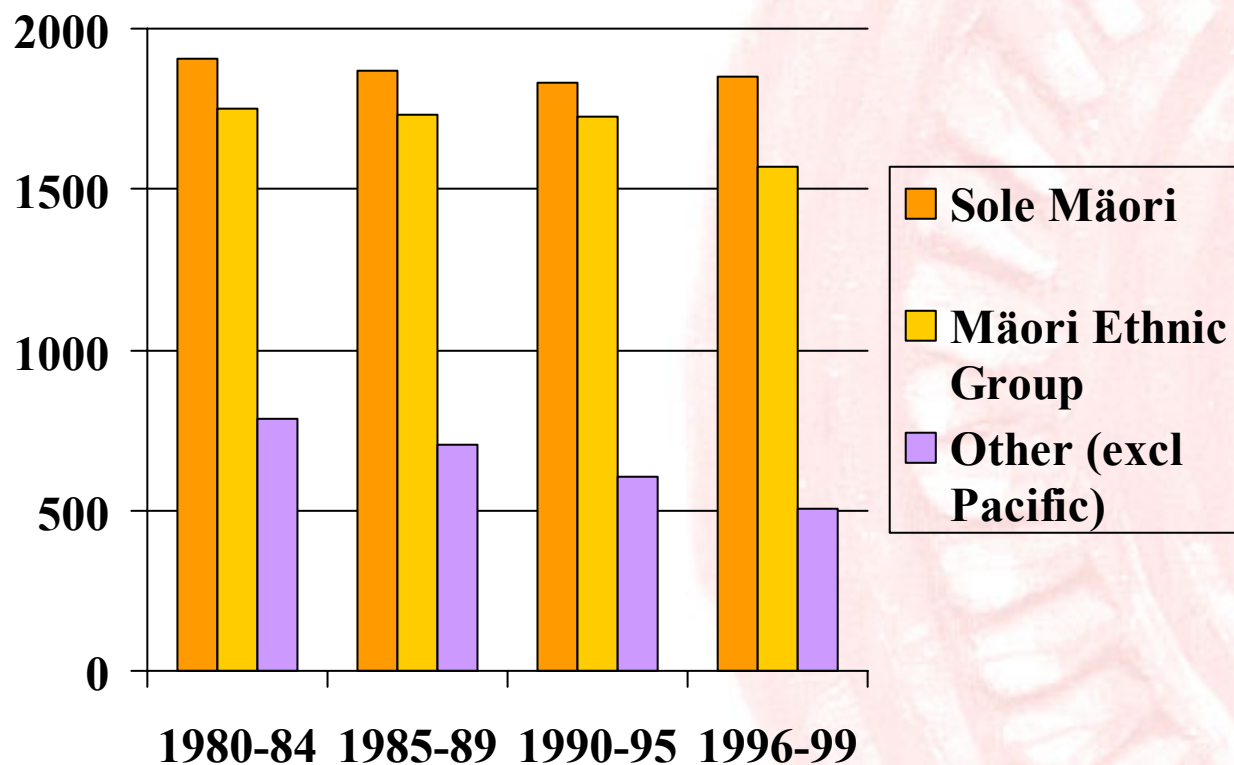
Female Standardised Mortality Rates Cancer



Male Standardised Mortality Rates Ischaemic Heart Disease



Mortality rates 45-64 years



Key findings for non-Māori non-Pacific

- Steadily decreasing mortality rates for all causes of death except:
 - suicide
 - female lung cancer
 - prostate cancer
- Life expectancy increases during 1980s to 1990s greatest post WW II

Key findings for Maori

- Life expectancy static over last 20 years while Pākehā gain
- Mortality gap widening in all age-groups, 45-64 years biggest gap
- Mortality rates higher for sole Māori group
- Cancer mortality rates increasing as Pākehā rates decrease
- Cardiovascular mortality - trending down, but not as fast
- Respiratory disease mortality trending down
- Unintentional Injury trending down – but gap remaining
- Youth suicide - increasing

Overview

- Problem - undercounting Māori and Pacific deaths
- Solution - New Zealand Census-Mortality Study
- Results:
 - life expectancy trends by ethnicity
 - age-specific and cause-specific mortality trends
 - key findings for European, Pacific and Māori populations
- **Possible explanations - structural, health services and epidemiological**
- Where to next?

Possible Explanations for Ethnic Mortality Trends

- Socio-economic factors
 - Health Services
 - “Epidemiological”

Three possible lenses through which to understand the diverging mortality trends by ethnic group.

1984 and all that

- 1970s and early 1980s:
 - subsidies, regulated economy, low unemployment, etc..
- 1984 to 1993:
 - deregulation of the financial sector
 - reorganising the state sector
 - ending of state support for industry

Resulting in:

- flatter tax rates, targeted welfare, regressive consumption tax, market rentals, privatisation, user charges, widening income inequalities, etc...
- health reform

Health Disparities

- Differential access to health determinants or exposures - differences in disease incidence
- Differential access to health care
- Differences in quality of care received

Jones, 2001



Social determinants of health

Hui Taumata 1984:

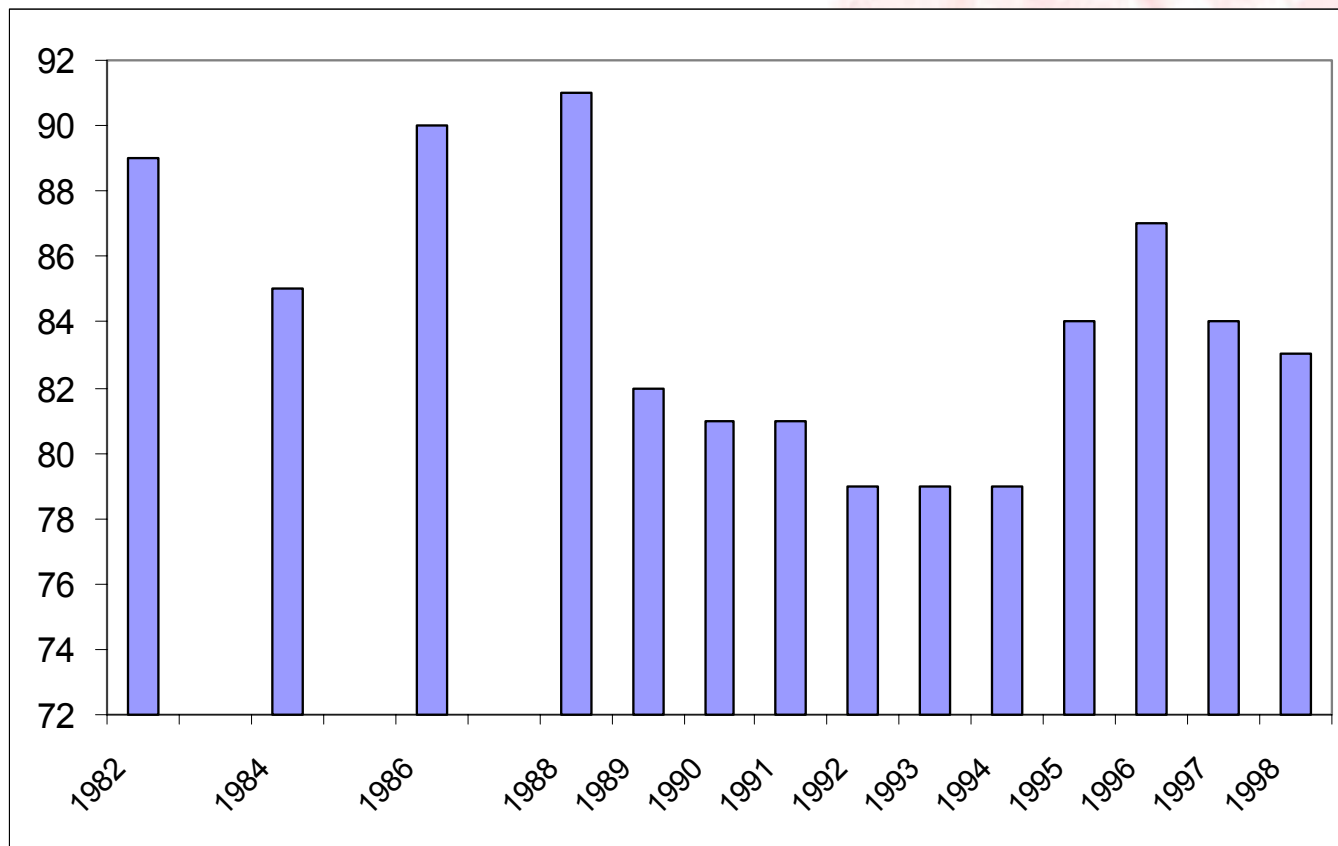
‘shock absorbers in the economy’

Social determinants of health

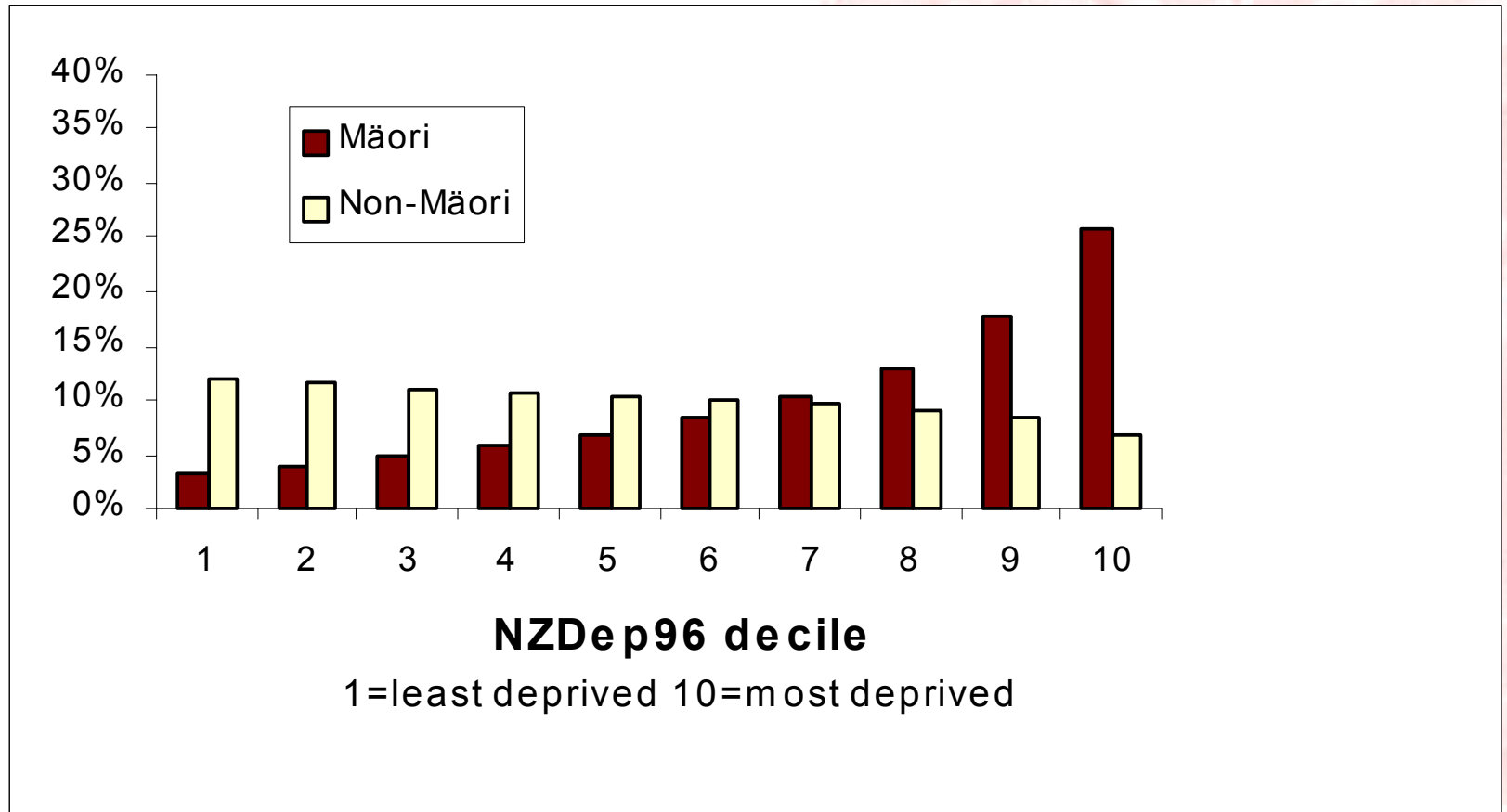
Gaps widened in

- Education
- Labour force status
- Income
- Housing

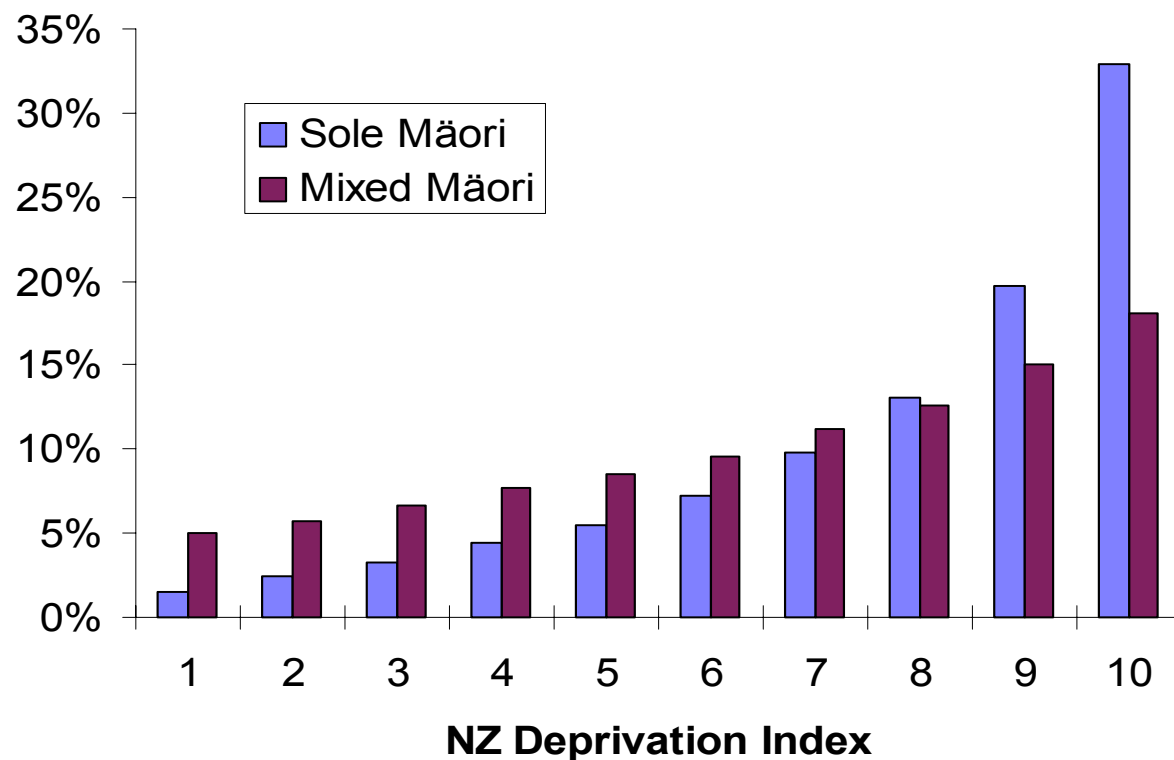
Mean equivalent disposable income as a percentage of overall mean - households with a Māori adult



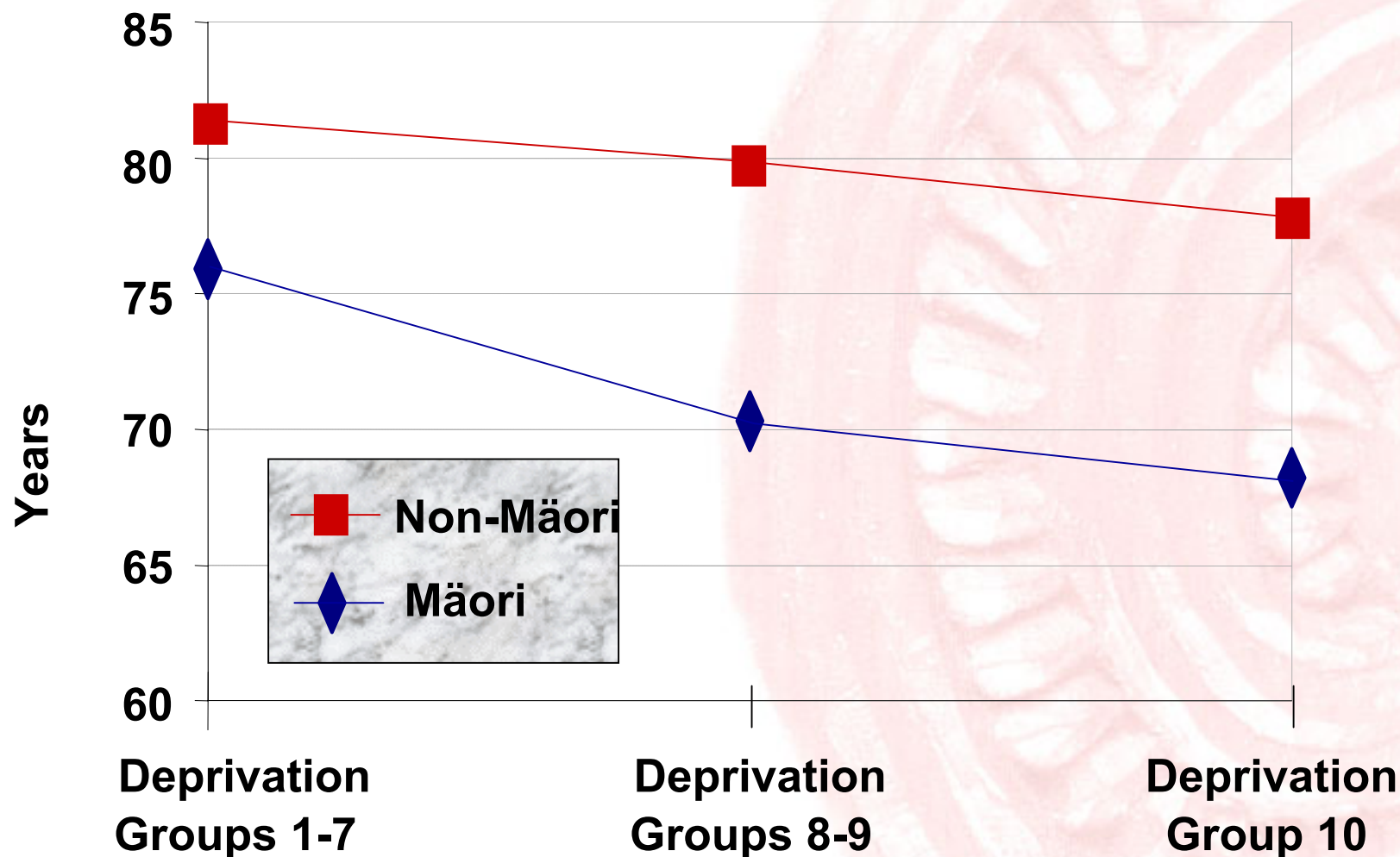
Distribution Gap



Distribution of Sole Māori vs Mixed Māori by NZDep96

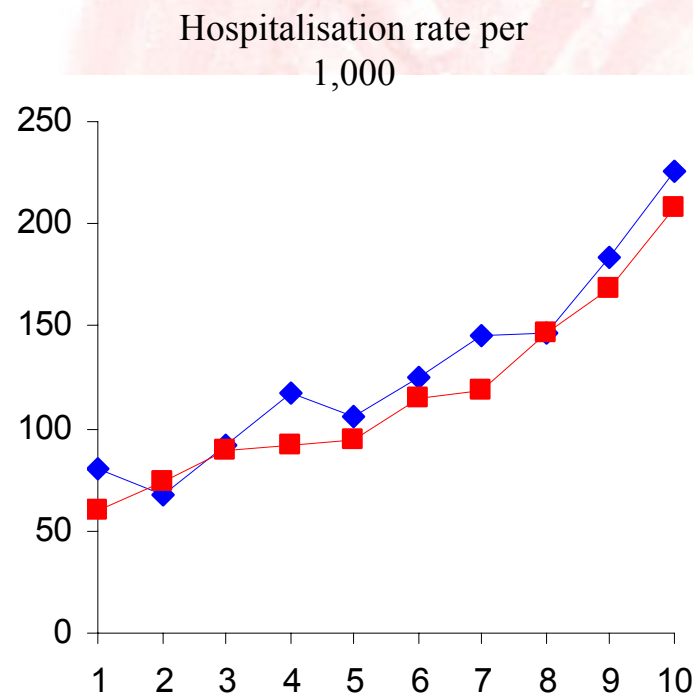
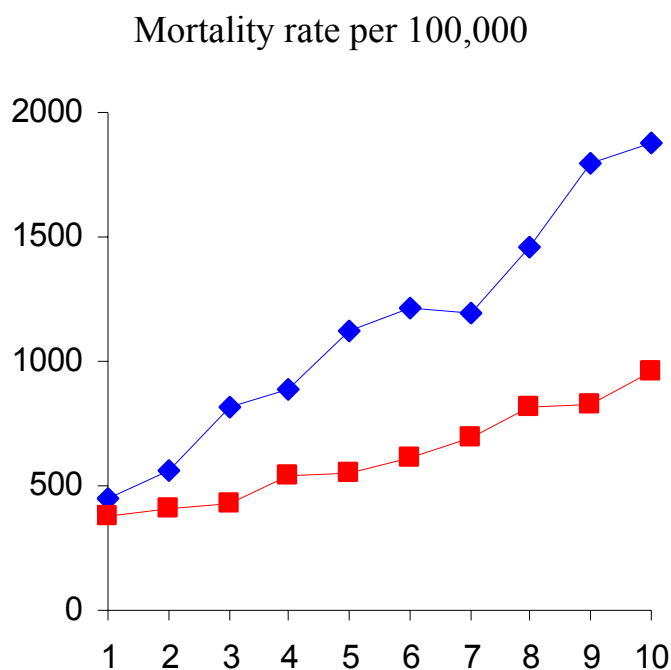


Life expectancies at Birth, 1995-97 for Females by Deprivation Group and Ethnic Group



Mortality vs Public Hospitalisations

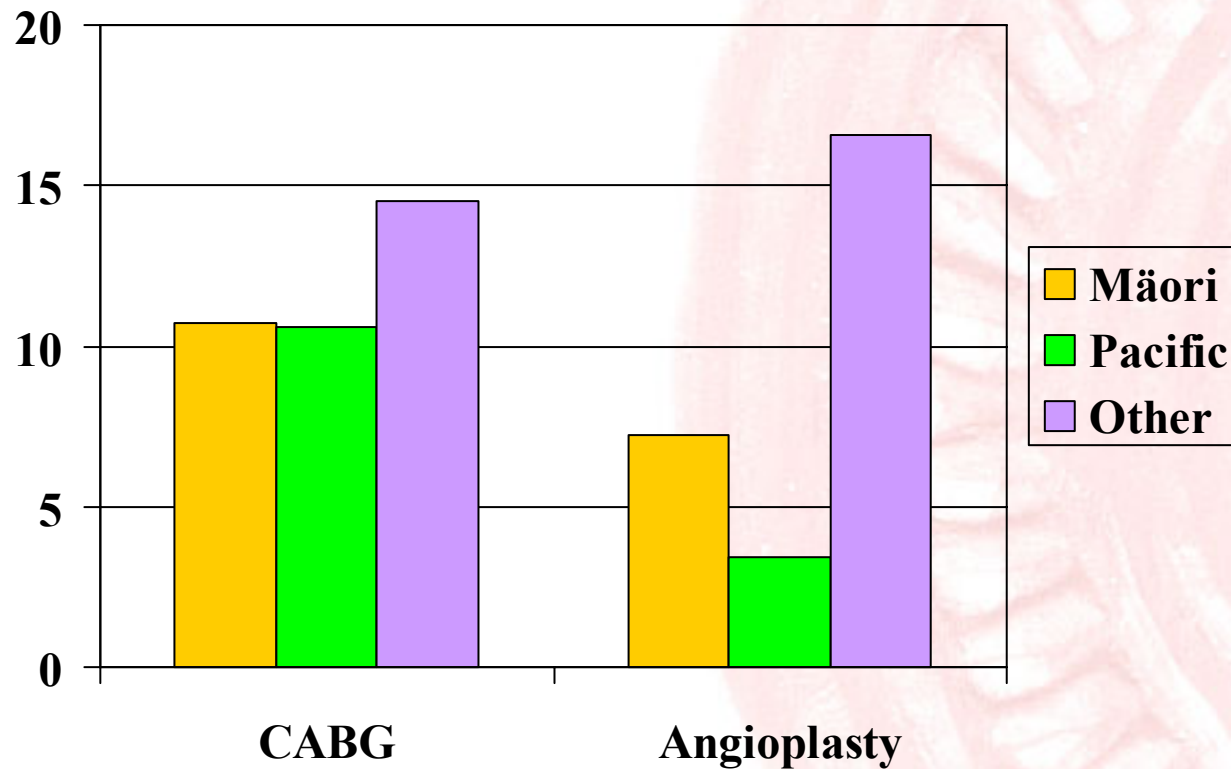
Males aged 45-64 years



◆ Māori ethnic group

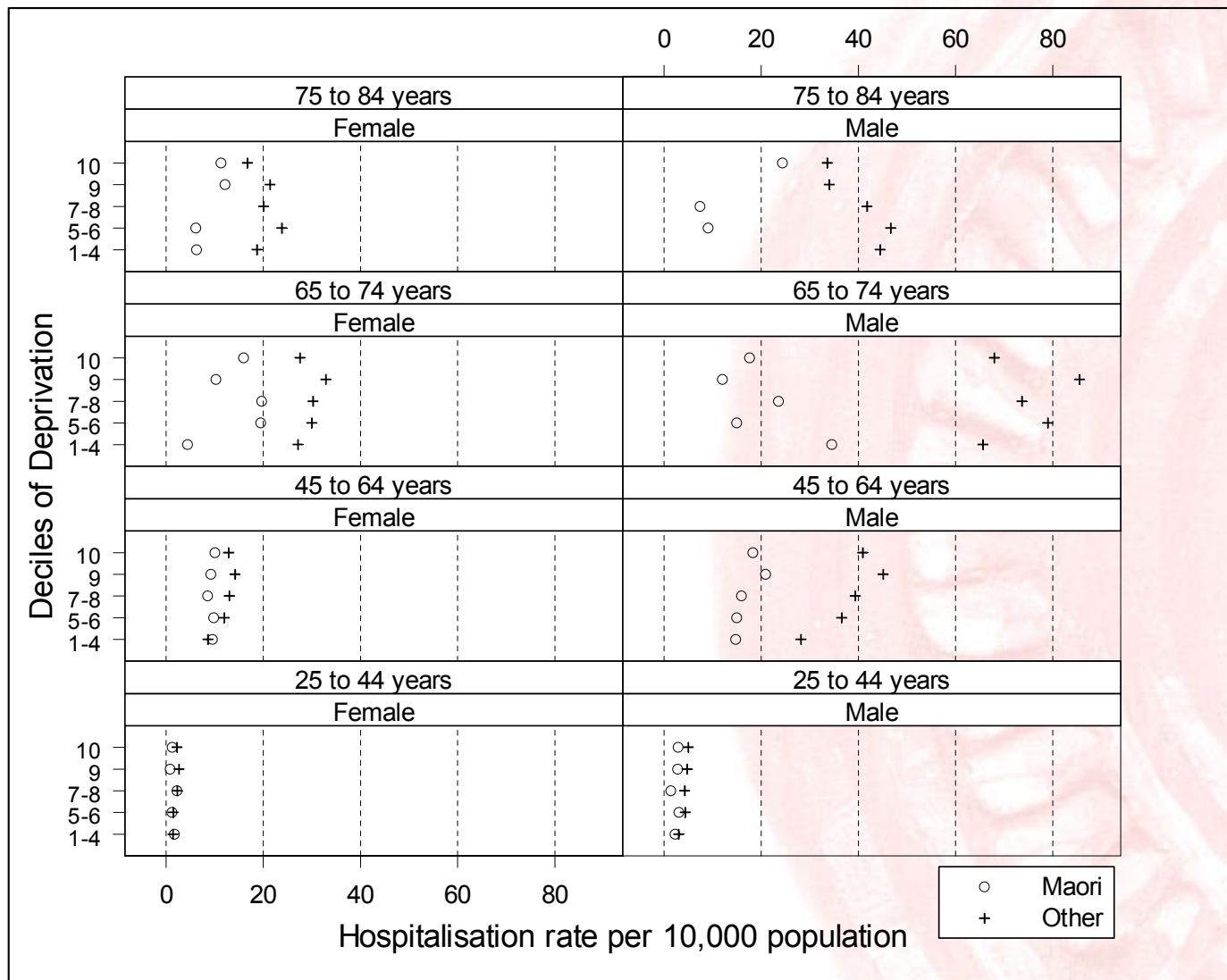
■ Pākehā

CABG and PTCA rates per 100,000 (1990 -1999) Females



Source: Tukuitonga & Bindman, 2002

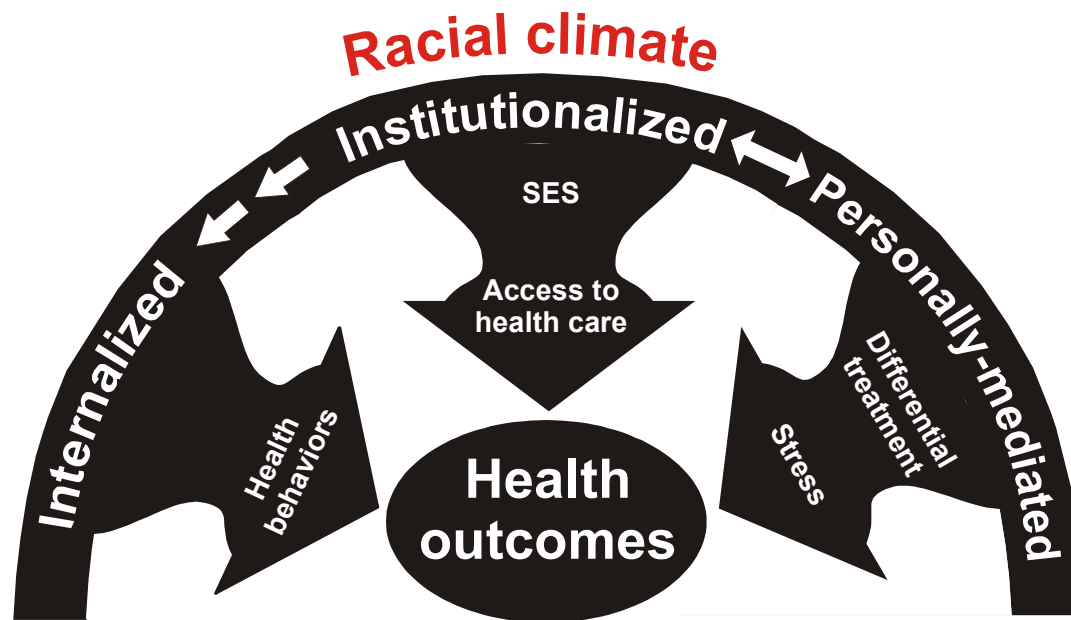
Publicly-funded Cardiac Interventions 1996 - 1999



Westbrooke, Baxter,
Hogan, 2001

Wider Determinants

The Impacts of Racism on Health



Summary of Issues

- Inequalities in health are the result of the unequal distribution of the determinants of health
- A systematic difference in access to goods, services and opportunities exists for Māori New Zealanders

Differential access to care, Differential quality of care

- NZ Health System – the better off have better access
- “It is a cruel fallacy that requiring co-payments will make poor people “more responsible” about their health care utilization.”(Doress-Worters, 1996)

Epidemiological Explanations: causes of death

- Life expectancy improvements up to 1980s for Māori largely due to decreasing infectious disease, TB cohort effects, falling infant mortality
- Hard to tell whether, and how much, chronic disease mortality falling among Māori up to 1980
- Small decreases in CVD (and diabetes?) mortality, accompanied by increases in cancer mortality, major reason why little (if any) improvement in Māori and Pacific life expectancy post-1980
- Non-Māori non-Pacific had rapidly decreasing CVD mortality (and modestly decreasing cancer mortality) post-1980

YOU'RE STUFFING YOURSELF
WITH LIFE-SHORTENING
SATURATED FATS, SUGARS,
AND CARCINOGENS BECAUSE
YOU'VE LOST YOUR LAND,
LANGUAGE AND MANA,
RIGHT?

GEE, I JUST
THOUGHT I
WAS HAVING
A FEED...

50¢



Epidemiological Explanations: risk factors

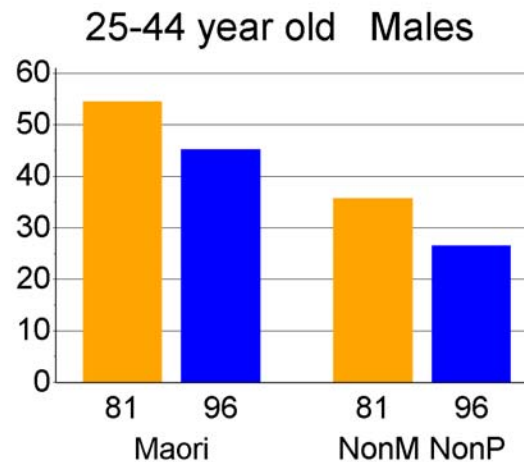
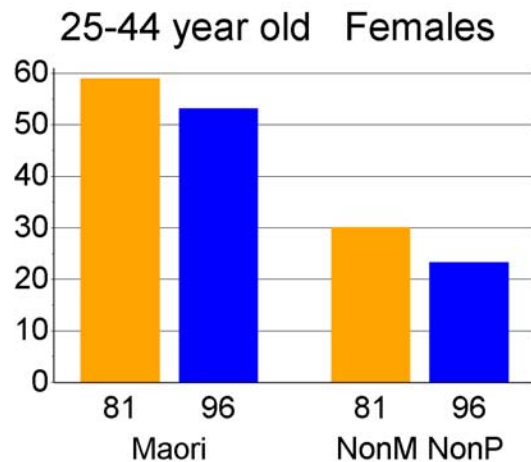
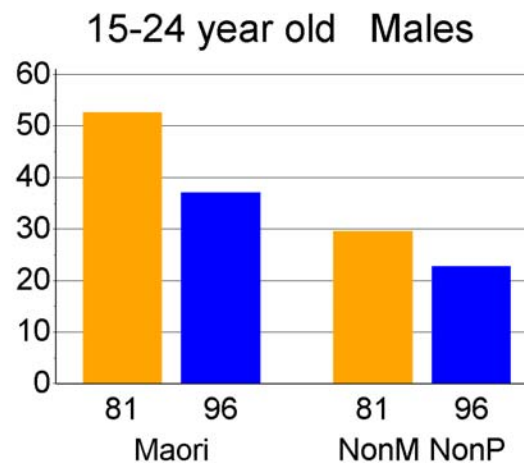
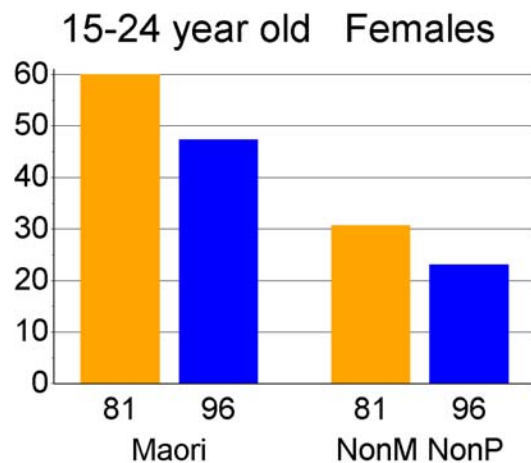
Caveat: An exclusive focus on risk factor explanations is erroneous given their social structuring. Past health education programmes may have actually exacerbated ethnic health inequalities.

- Poor time series data on risk factors (e.g. cholesterol, exercise, etc...) by ethnicity
- Tobacco consumption:

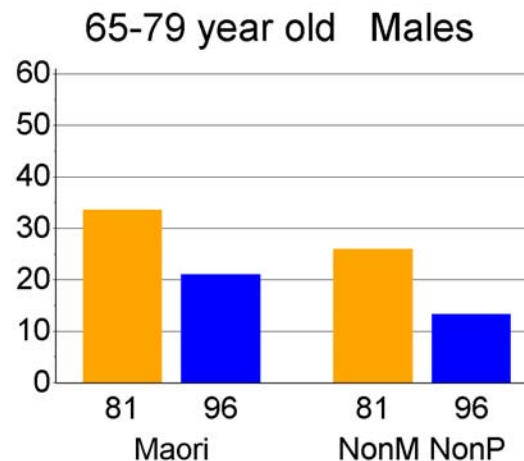
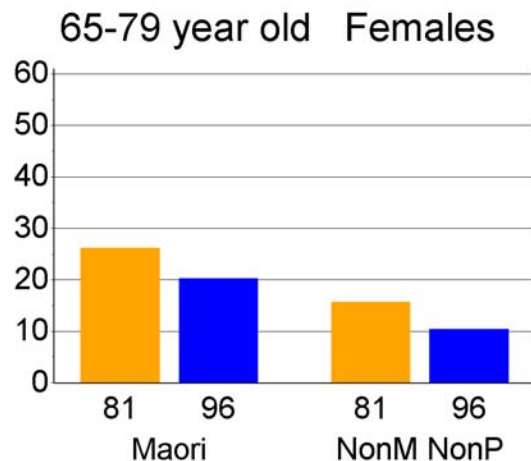
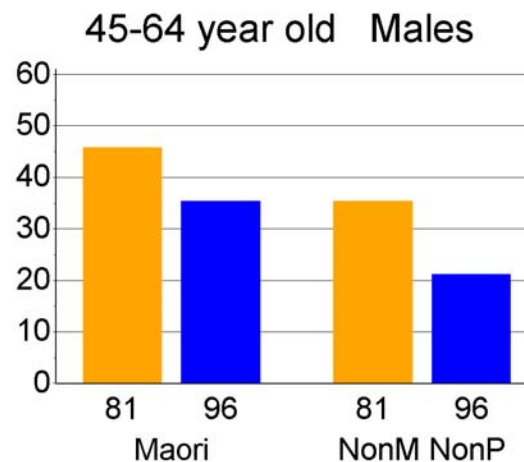
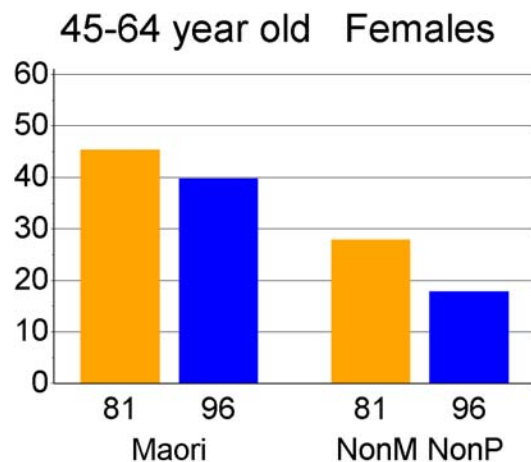
	1981	1996
Māori	51.9%	40.5%
Pacific	31.6%	28.0%
Non-Māori non-Pacific	30.9%	21.5%

Source: Borman, Wilson, Mailing. NZ Med J 1999; 112:460-3.

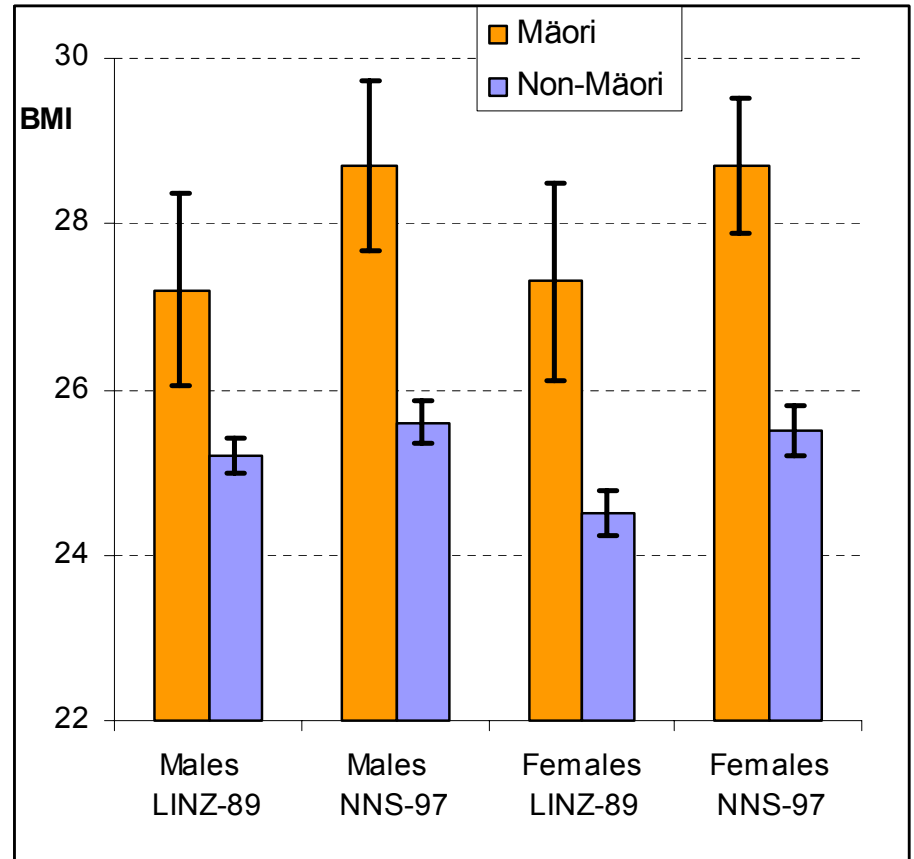
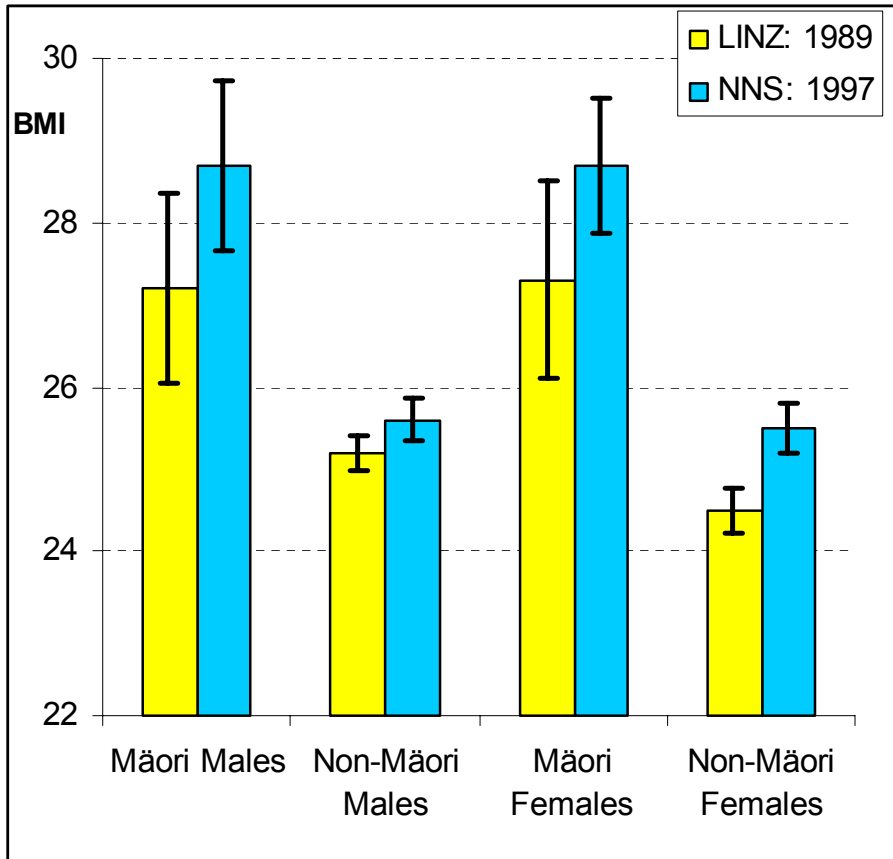
Smoking prevalence by ethnicity, 1981 and 1996 censuses



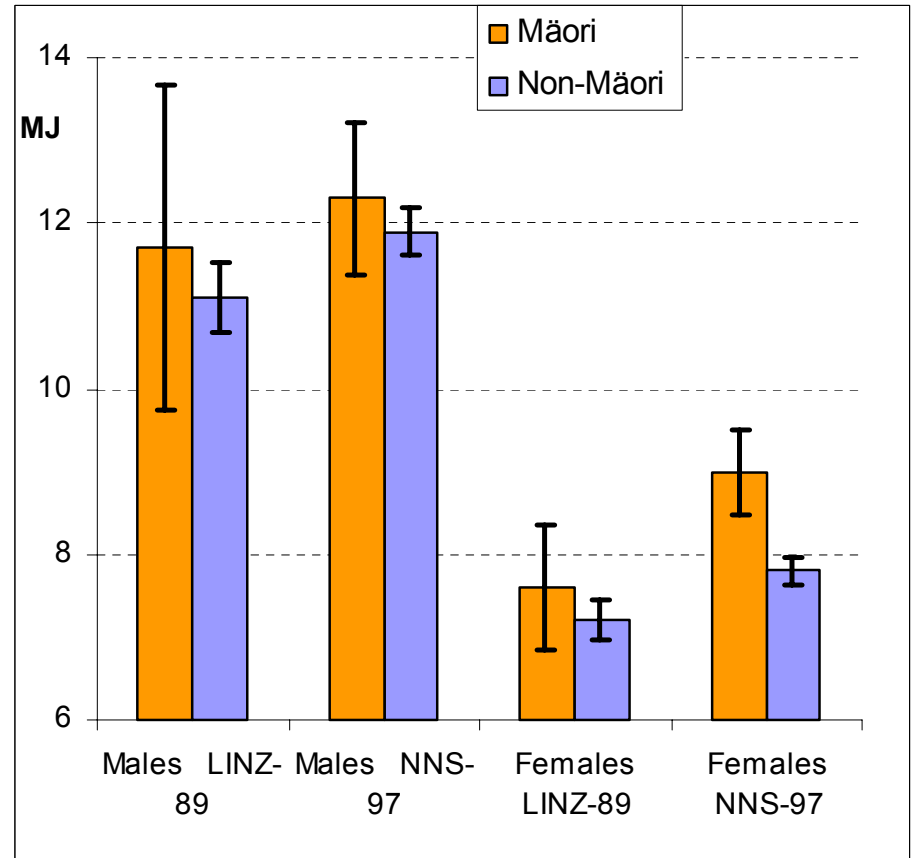
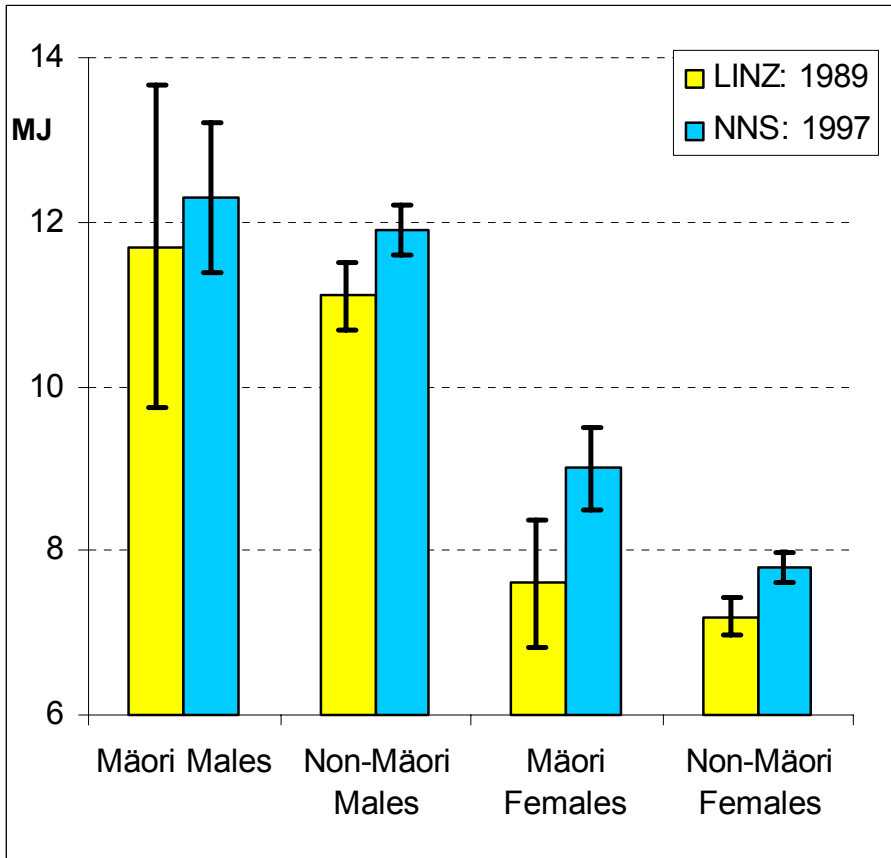
Smoking prevalence by ethnicity, 1981 and 1996 censuses



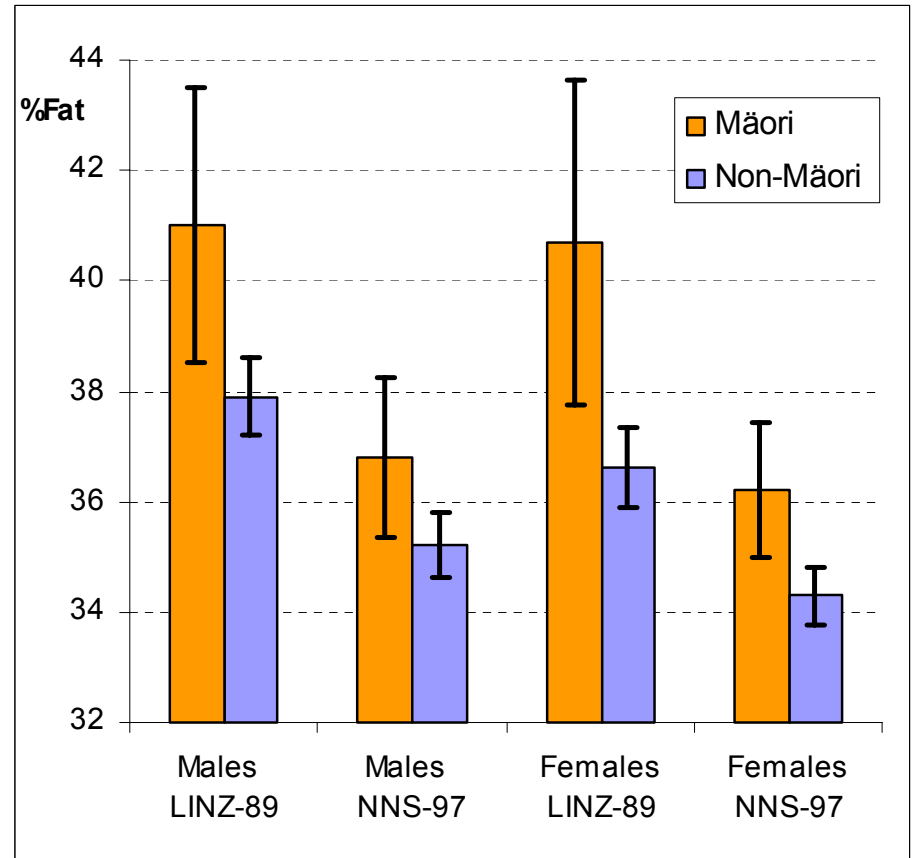
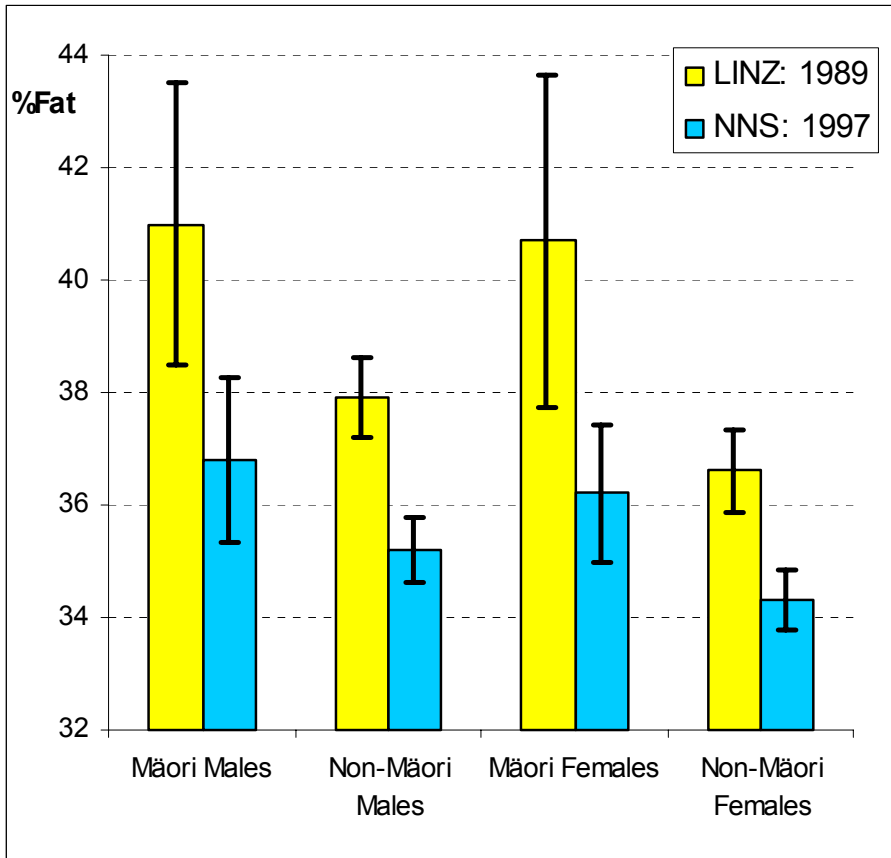
Trends in BMI



Trends in Energy intake



Trends in %Fat intake



Where to next? I

- Reducing socio-economic gaps between ethnic groups is a priority and will reduce health gaps
- Improving both mainstream health service responsiveness to Māori and Pacific and resourcing of Māori and Pacific delivered health services is required
- Possible interventions targeting risk factors:
 - need careful design and evaluation to ensure they reduce, not exacerbate, ethnic disparities in health
 - must avoid victim blaming and deficit thinking

Where to next? II

- The results presented here challenge policy makers, providers and researchers alike
- Ongoing critical reflection, analysis and research is required of:
 - current policy and practice
 - priorities and funding arrangements
 - institutional arrangements and racism
 - explanations of ethnic disparities in health
 - possible interventions to close the gaps.

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www.wnmeds.ac.nz/nzcms-info.html

