

Decades of Disparity

Ethnic Mortality Trends
in New Zealand
1980–1999

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Foreword

In New Zealand, as elsewhere, inequalities in health exist between ethnic and socioeconomic groups, people living in different geographic areas, people belonging to different generations, and between males and females. These inequalities are not random: in all countries, socially disadvantaged and marginalised groups have poorer health, greater exposure to health risks, and lesser access to high-quality health services. In addition, indigenous peoples tend to have poorer health. In New Zealand the extent of these inequalities is unacceptable.

Inequalities in access to and decisions over resources are the primary cause of health inequalities. Differential access to health services – and in the quality of care provided to patients – also contribute to unequal health outcomes. These structural inequalities may explain more of ethnic inequalities in health than is often recognised. Existing measures may not fully capture the dimensions and impacts of socioeconomic position relevant for different ethnic groups; cross sectional studies fail to take the effect of cumulative disadvantage over the lifecourse into account.

Nevertheless, it appears likely that discrimination makes an independent contribution to ethnic inequalities in health in New Zealand – albeit one that is not currently well quantified or understood. While discrimination may affect health partly through socioeconomic pathways, the experience of personal discrimination or institutional bias may also affect health more directly, through psychosocial stress.

Decades of Disparity: Ethnic Mortality Trends in New Zealand 1980–1999 represents an important contribution to this debate. For the first time, we have reliable estimates of ethnic specific mortality – estimates that are adjusted for the historical undercounting of Māori and Pacific deaths. This has allowed us to correct the historical record and analyse trends in ethnic inequality in mortality over a period of major social change. The results are of great concern: while life expectancy has improved dramatically for the majority ethnic group over the past 20 years, for Māori and Pacific ethnic groups it has remained static. The key contributor has been differential chronic disease mortality in middle and older ages – especially ischaemic heart disease, diabetes and cancer mortality.

This information should mobilise all sectors of government and the community – not just the health sector – to redouble our efforts to address this legacy of increasing ethnic inequality in survival chances. At the same time, the health sector clearly has a special responsibility to improve access to and provision of health care for those in greatest need.



Don Matheson
Deputy Director-General (Public Health)

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This report represents one output from the New Zealand Census – Mortality Study (NZCMS), which is funded jointly by the Ministry of Health and the Health Research Council of New Zealand.

The NZCMS is conducted in close collaboration with Statistics New Zealand. The adjustment ratios used in this report to correct mortality rates are calculated from NZCMS data that are stored on-site at Statistics New Zealand.

We wish to thank the Māori and Pacific people and organisations that participated in a consultative seminar in March 2003 regarding the content of this report, and the peer reviewers of the report both within and outside the Ministry of Health.

Summary Statistics New Zealand Security Statement regarding the NZCMS

(The full security statement is in a technical report to be published by the Wellington School of Medicine in hard copy and at <http://www.wnmeds.ac.nz/nzcms-info.htm>.)

The (New Zealand Census Mortality Study) NZCMS is a study of the relationship between socioeconomic factors and mortality in New Zealand, based on the integration of anonymised population census data from Statistics New Zealand and mortality data from the New Zealand Health Information Service.

The project was approved by Statistics New Zealand as a Data Laboratory project under the Microdata Access Protocols in 1997. The data sets created by the integration process are covered by the Statistics Act and can be used for statistical purposes only. Only approved researchers who have signed Statistics New Zealand's declaration of secrecy can access the integrated data in the Data Laboratory. For further information about confidentiality matters in regard to this study please contact Statistics New Zealand.

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Executive Summary

During the 1980s and early 1990s Māori and Pacific mortality was seriously undercounted. The undercounting occurred because ethnicity was recorded differently on death registration forms than in the census. Until recently it was not possible to estimate the extent of this numerator–denominator bias in ethnic specific mortality rates, with the result that the ethnic mortality time series was unreliable.

The New Zealand Census–Mortality Study, a record linkage study in which death registration data is linked anonymously and probabilistically to census data, has finally allowed this bias to be unlocked. Using undercount adjusters derived from this study, we have recalculated ethnic specific mortality rates for the 20-year period 1980–1999. For the first time we have an ethnic mortality time series that is largely free of numerator – denominator bias and can be considered valid and reliable.

Ethnic-specific mortality rates adjusted for numerator–denominator bias have been calculated for Māori, Pacific and non-Māori non-Pacific ethnic groups, defined according to both sole and prioritised concepts of ethnicity. The key finding is that mortality rates declined steadily over the observation period for both genders and at all ages for the non-Māori non-Pacific ethnic group, whichever definition of ethnicity is used. By contrast, both Māori and Pacific ethnic groups showed little change. The result has been a progressive widening of the gap in survival chances between the ethnic groups over the 20 years. For example, the gap in life expectancy at birth for males increased from 6.3 years at the beginning to 9.9 years at the end of the period, comparing Māori with non-Māori non-Pacific ethnic groups (prioritised series).

Most of this increase in inequality has arisen from widening differentials in chronic disease mortality in middle and old age. These two age groups now contribute about equally to the ethnic disparities in life expectancy at birth.

Among the chronic diseases, cardiovascular mortality has decreased over the 20 years for all ethnic groups – but more rapidly for non-Māori non-Pacific than other ethnic groups (especially for ischaemic heart disease mortality among males). This cause still ranks highest as a contributor to the total ethnic gap. However, cancer mortality is making an increasing contribution to the gap for both Māori and Pacific ethnic groups. In fact, cancer mortality has increased among both these ethnic groups, while decreasing slightly for the non-Māori non-Pacific ethnic group. Diabetes and chronic lung diseases also make a substantial contribution to the ethnic mortality gaps.

Beyond chronic disease mortality, unintentional injury (including road traffic crash) mortality has decreased more or less equally for all three ethnic groups, whereas suicide mortality has increased among the 15–44 age group, especially for Māori males.

These mortality trends coincide with major structural changes in New Zealand society in the 1980s and 1990s, changes that impacted differentially on the three ethnic groups. Differential access to health care, and disparities in the quality of the health care provided to patients, may represent additional explanations and provide further intervention points for policy.

Chapter 1: Introduction

1.1 Background

To achieve its health and independence objectives, the Government requires reliable and valid information on population health outcomes, how equitably these outcomes are distributed, and the causes or determinants of both the level and distribution of these health outcomes. This information is required to monitor trends, project future need for government intervention, and evaluate the effectiveness and efficiency of these policies.

Socioeconomic and ethnic inequalities in mortality are health outcomes of particular concern (Howden-Chapman and Tobias 2000). Yet reliable comparisons of mortality rates across ethnic groups and over time have always been problematic in New Zealand. This report aims to provide policy makers and others with accurate estimates for mortality rates (all-cause and by-cause) for Māori, Pacific and European/Other New Zealanders (described in this report as non-Māori non-Pacific people) for the 1980s and 1990s, a period of major structural change in the New Zealand economy and society. The mortality estimates are obtained using ‘adjusters’ derived from the New Zealand Census–Mortality Study (NZCMS), a record linkage study that anonymously and probabilistically links census and mortality data (Blakely 2002; Blakely et al 2000).

Before discussing the method in detail, the origin of numerator–denominator bias in the estimation of ethnic mortality rates needs to be understood. To calculate Māori mortality rates (for example) we routinely proceed as follows. First, we obtain data from death registration forms for the number of Māori deaths in each gender-by-age category (the numerator) for a particular time period. Second, we obtain census data for the number of Māori people in each of the same gender-by-age categories at risk of dying in the same period as that in which the deaths occurred (the denominator). Third, we divide the death counts by the population counts to derive the age- and gender-specific Māori mortality rates (which could be for all causes of death or for a specified cause of death).

Unfortunately, this process yields inaccurate (often very inaccurate) Māori and Pacific mortality rates. Why? Because the way ethnicity data are collected differs between the mortality and census records. Ethnicity on the death registration form is elicited by the funeral director from the next of kin, whereas on the census form ethnicity is self-reported. Also, for a period in the 1980s and early 1990s the ethnicity questions on the death registration form and the census forms were inconsistent, being based on a biological concept (ie, percentage of blood) in the former and a sociocultural concept (ie, cultural affiliation) in the latter. Coding rules have also differed between the two data sources, with ethnicity questions not being compulsory for all ethnic groups on the death registration form up to 1995. Instead, ethnicity was recorded only for Māori and Pacific deaths, and all deaths with missing ethnicity data were classified as non-Māori non-Pacific.

All these factors resulted in severe underestimation of Māori and Pacific deaths during the 1980s and early 1990s (Ajwani et al 2002; Blakely et al 2002; Ajwani et al 2003).

Since 1995 the degree of bias has lessened. This improvement has resulted from major changes to the way ethnicity has been recorded on death certificates since 1995 (Ajwani et al 2002), which aligned the recording of ethnicity across all vital records with the census.

1.2 Objectives of this report

The objectives of this report are to estimate:

- *trends* in mortality rates among Māori, Pacific and non-Māori non-Pacific ethnic groups, during the 1980s and 1990s
- *differences* in mortality rates between Māori, Pacific and non-Māori non-Pacific ethnic groups during the 1980s and 1990s.

The reason we can now tackle these objectives is the availability of the anonymous and probabilistic record linkage of census and mortality records carried out within the NZCMS. This study has created cohorts of census respondents followed up for mortality in order to study social inequalities in health (Blakely et al 2000; Hill et al 2002). However, as a result of the linkage of census and mortality records, it is also possible to quantify the amount of undercounting of Māori and Pacific deaths relative to census counts. The ethnicity recorded on the linked census questionnaire – the ‘gold standard’ – is compared to that recorded on the death registration form (Ajwani et al 2002; Blakely et al 2002; Ajwani et al 2003).

This report uses the NZCMS to recalculate mortality rates by ethnicity during the 1980s and 1990s. It is important to note that the NZCMS allows us to estimate adjusters for numerator–denominator bias in ethnic mortality rates at each census, but does not adjust for drift in the way New Zealanders self-identify their ethnicity in different censuses over time. It is for this reason that some caution should still be exercised in interpreting the apparent trends in ethnic mortality over the 20-year observation period.

The main audience for this report is health researchers, policy analysts, health service providers and communities interested in ethnic differences in health. As well as the substantive results, the report also highlights the importance of accurately recording ethnicity in all surveys and administrative records.

1.3 Concepts and measurement of ethnicity

Census data

The 1981 and 1986 censuses defined ethnicity in terms of ‘ethnic origin’. The 1991 census changed the definition from ethnic origin to that of ethnic group. The ethnicity question on the 1996 census was further modified to include extra categories, and encouraged multi-ethnic responses, although the underlying concept of self-identified cultural affiliation remained unchanged. Each ethnic group in all the censuses could be categorised into ‘sole’ and ‘prioritised’ series.

Sole ethnic group was assigned as Māori if only one ethnic group was self-identified, and that was Māori (or half or more Māori ethnic origin in the 1981 census). The sole group was assigned as Pacific if the census form recorded only one self-identified ethnic group, and that was Pacific (or half or more Pacific ethnic origin in the 1981 census). The remainder were assigned as non-Māori non-Pacific.

Prioritised ethnic group was assigned as Māori if one of the three possible self-identified ethnicity responses recorded on the 1986, 1991 or 1996 censuses was Māori. Therefore, for Māori, the prioritised ethnic group represents the total Māori ethnic group (MEG). For those not allocated as Māori, the prioritised ethnic group was assigned as Pacific if one of the self-identified ethnic groups was Pacific. The remainder were assigned as non-Māori non-Pacific. Note that the Pacific prioritised ethnic group did not represent the total number of census respondents who identified one ethnic group as Pacific – some of these people also self-identified as Māori and were therefore categorised as prioritised Māori. Similar comments apply to the prioritised non-Māori non-Pacific group, with the result that the non-Māori non-Pacific group in the prioritised series actually represents only those people who recorded no Māori or Pacific affiliation.

In the 1981 census those who recorded any degree of Māori ethnic origin were categorised as prioritised Māori (or MEG). Of the rest, those who recorded any degree of Pacific ethnic origin in the 1981 census were categorised as prioritised Pacific. Although the definition is not identical to the 1986 and 1991 censuses, it is similar enough to form a time series.

Mortality data

Between 1981 and 1995 the recording of ethnicity on the death certificate was different from that on the census. The concept of ethnicity used in the former was biological race (half or more blood). The data were collected only for Māori and Pacific groups and were based on questions about the percentage of blood of the *parents* of the deceased rather than the deceased him- or herself. The funeral directors often guessed or assumed the extent of ‘blood’ or did not complete the section at all (Pomare et al 1995). If the section was not completed (ie, data were missing) then the deceased was classified as non-Māori non-Pacific by default.

From September 1995 the death certificate was redesigned with a comparable question to the self-identified ethnicity question in the 1996 census, including allowance for multiple ethnic identities. Completion of the ethnic field was made mandatory.

1.4 Mortality rates used in this report

We present two series of ethnic mortality rates in this report, based on sole and prioritised concepts of ethnicity, as represented in census data (Table 1).

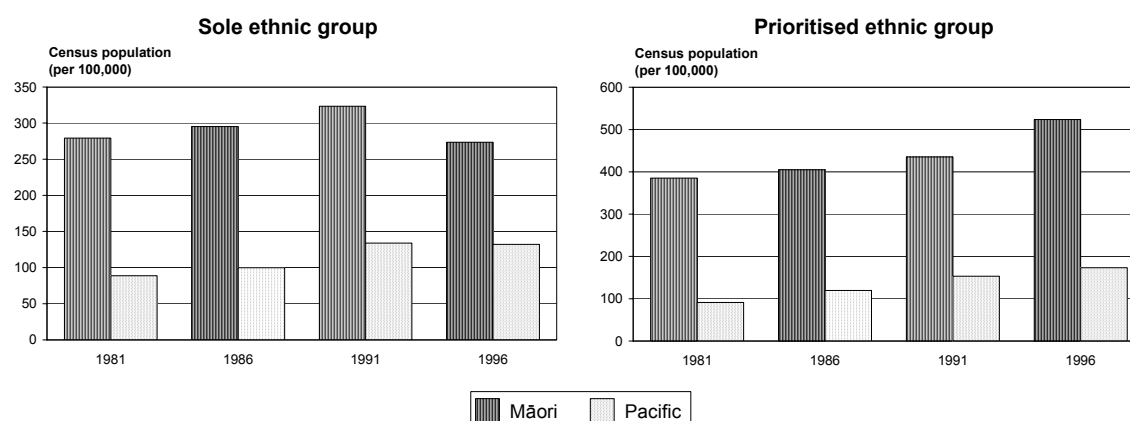
Table 1: Ethnic series used in this report and as identified in 1981, 1986, 1991 and 1996 census data

Series	1980–84	1985–89	1990–94	1995–99
Sole	<ul style="list-style-type: none"> Half or more Māori Half or more Pacific Rest 	<ul style="list-style-type: none"> Only one self-identified ethnic group, and that was Māori Only one self-identified ethnic group, and that was Pacific Rest 		
Prioritised	<ul style="list-style-type: none"> Any Māori Any Pacific (if no Māori origin) Rest 	<ul style="list-style-type: none"> Māori on one of up to three self-identified categories Pacific on one of up to three self-identified categories, and not self-identified as Māori Rest 		

Neither the sole nor the prioritised series are completely comparable over time. The 1981 census collected quantum of ethnic origin. The 1986 census continued to collect data on ethnic origin, using similar categories, but not as quantum. The 1991 census question was the same but used the term ‘ethnic group’. The 1981 census groupings probably coincide relatively well with the ethnicity groupings in the following years, but the concordance is not exact.

The 1996 census added extra categories, and saw a marked increase in the number of people self-identifying with two or more ethnic groups. In particular, the number of people categorised as belonging to the total Māori ethnic group (ie, prioritised) in 1996 jumped markedly from that expected based on the 1991 census. Conversely, the number of people categorised as sole Māori in 1996 fell markedly from that expected based on the 1991 census. These changes are shown in the figure below.

Figure 1: Māori and Pacific census population, 1981–96



What do these changes between 1991 and 1996 mean for comparing mortality rates over time? We would expect the 1996 prioritised Māori and Pacific mortality rates to be underestimated, and the corresponding sole rate to be overestimated, *relative* to the 1991 (and earlier) rates. It is important to emphasise that the adjustment for numerator–denominator bias reported here does not correct for these variations in ethnic identification between censuses, whether arising from cultural shifts in ethnic identification or simply from wording changes in the census ethnicity questions.

In this report we present adjusted **Māori**, **Pacific** and **non-Māori non-Pacific** estimates, for each of the **sole** and **prioritised** series for:

- all-cause mortality rates
 - all ages
 - by age group (1–14, 15–24, 25–44, 45–64 and 65–74 years)
- life expectancy
 - at birth
 - at selected ages (15, 45 and 65 years)
- age-substituted life expectancy at birth
 - by age group (1–14, 15–44, 45–64 and 65+ years)
- cause-specific mortality rates
 - all ages
 - by age group
- cause-substituted life expectancy at birth
 - by selected causes.

Chapter 2: Methods

2.1 Data sources

Mortality

Mortality data were provided by the New Zealand Health Information Services (NZHIS) for the years 1980–99 by year of registration of death. Years were grouped into four periods:

- 1980–84 (five years)
- 1985–89 (five years)
- 1990–95 (six years)
- 1996–99 (four years).

Periods were designed to reflect the denominator census years and the period following each census for which NZCMS ethnicity adjusters were derived (see below). Briefly, the adjusters were based on mortality data for the three years following census night, which is approximately the central three years of each of the above four periods.

The third period was extended from five to six years to coincide with the change in ethnicity concept on the death certificate from biological to cultural, which occurred during the last quarter of 1995. Accordingly, the fourth period comprises only four rather than five years.

For each period, ethnicity was available both as ‘sole’ and ‘prioritised’, as described above.

Population at risk

Sole and prioritised ethnic population denominators were extracted from the 1981, 1986, 1991 and 1996 censuses as described in the Introduction.

2.2 Calculation of adjustment ratios

The methodology has been described in detail in a technical report (Ajwani et al 2002). Briefly, mortality records for the three years following each of the 1981, 1986, 1991 and 1996 censuses were anonymously and probabilistically linked back to the corresponding census record to generate four cohort data sets. Approximately 75% of the mortality records were successfully linked. In order to compensate for any possible linkage bias, each of the four data sets was weighted.

To determine ethnic numerator–denominator bias, the linked records were further restricted to ‘highly probably links’ (HPLs), being those linked records for which ethnicity had no effect on the linkage probability. For each of the linked records in the HPL data set, data were available for both the self-identified ethnicity at the previous census and the ethnicity assigned on the death registration form.

The adjustment ratios for the numerator–denominator bias were calculated by cross-classifying the mortality record ethnicity by census ethnicity in the HPL data set. Because of varying inclusion in the HPL data set by ethnic group (and other demographic variables), we used weighted cross-classifications. (See Ajwani et al 2002 for further details.)

From these cross-classifications, we derived adjustment ratios. For example, an adjustment ratio of 1.5 for Māori means that 1.5 times (or 50% more) the number of people who died had self-identified as Māori on census night than were identified as Māori on the mortality database. The larger this adjustment ratio, the more severe is the underlying numerator–denominator bias, and the larger will be the underestimation of Māori mortality rates using routine (or unadjusted) analyses.

These adjustment ratios were also calculated for strata of gender, age at death, small area deprivation, health region, rurality and cause of death. There was little variation in the adjustment ratios by gender, level of deprivation or cause of death, but a marked variation for Māori was observed by age, with greater bias at younger ages. Therefore, we use age-specific adjustment ratios in this report, smoothed over five-year age groups (see Appendix 1 for details of the smoothing process). Adjustment for region is not required in this report as we only present national rates.

The application of the adjustment ratios is, in principle, straightforward. For example, assume for a given gender-by-age group in a particular period that the number of Māori deaths according to mortality data was 100 and the number of Māori census records was 50,000. Accordingly, the observed mortality rate was 200 per 100,000. However, also assume that for this stratum the adjustment ratio for numerator denominator bias was 1.50. Then the *adjusted* Māori mortality rate would be 300 per 100,000.

Adjustment ratios by age used in this report are given in Appendix 1.

2.3 Calculation of adjustment ratios for age groups less than one year and more than 74 years

Infancy

Adjustment ratios for infant mortality could not be calculated from the NZCMS because of its study design. Instead, ethnicity adjusters for infant mortality were derived by comparing birth registrations with the corresponding census counts for those less than one year of age, by ethnic group. The rationale for this is that the ethnicity reported on infant mortality records has been obtained by linkage to the birth certificate, which was routinely done until at least 1998 (Chris Lewis, New Zealand Health Information Services, personal communication, 2003). The assumption is that the ethnicity recorded on the birth certificate is likely to be more accurate than that recorded on the death certificate.

The ratio of the census population under one year of age (for each ethnic group and gender) to (annualised) birth registrations for the corresponding period for each series (sole and prioritised) therefore provides adjusters for the corresponding infant mortality rates.

75+ age group

The NZCMS links mortality and census data only for people aged under 75 years on census night. Hence adjusters could not be calculated directly for the 75+ age group. As a result, many analyses reported here are restricted to the 1–74 age group. However, for some analyses, adjusted mortality rates were required for all age groups. For these analyses it was assumed that the same adjusters apply to the 75+ age group as to the 70–74 age group. Note that in all periods, adjusters for the older age groups are low (close to 1), indicating that the impact of numerator–denominator bias among those aged 75+ years on mortality rates is likely to be small.

2.4 Calculation of adjusted mortality rates

Age-specific rates

The smoothed adjustment ratios by age were applied to each mortality record in the corresponding five-year age group in order to correct the total number of deaths by ethnicity. The mortality rate (by age and gender) was calculated by dividing the total number of adjusted deaths by the total census count (in that age group and gender). All the rates were calculated per 100,000.

$$\text{Mortality rate (over a five-year period)} = \frac{\text{Total number of adjusted deaths} * 100,000}{\text{Total census count} * 5}$$

Standardised mortality rates and ratios

To enable comparison of rates between ethnic groups with different age structures, mortality rates have been directly age standardised using the WHO world population as the reference population (WHO 2002). This direct standardisation adjusts for age variation between ethnic groups by multiplying the ethnic-specific five-year mortality rates into the WHO standard age distribution.

Both standardised rates (per 100,000) and standardised rate ratios (SRRs) are presented in this report. The SRRs are a relative risk measure, and are calculated for Māori and Pacific people compared to non-Māori non-Pacific people. 95% confidence intervals for both rates and rate ratios are presented in the figures and tables. They are calculated as per Rothman and Greenland (1998) using the adjusted numbers of deaths by ethnic group. This calculation may slightly underestimate the 95% confidence intervals among Māori and Pacific people.

Cause-specific mortality rates

Age-specific and age-standardised mortality rates by cause of death were calculated in the same way as the corresponding all-cause rates. Cause of death analyses included selected ICD-9 disease or injury categories, as well as the high-level Global Burden of Disease (WHO 2002) categories: I (communicable, maternal perinatal and nutritional conditions; II (chronic diseases); and III (intentional and unintentional injuries).

2.5 Life expectancy

Conventional demographic methods for abridged life-tables were used to calculate life expectancy from central mortality rates. Unlike most of the mortality rate analyses, which were restricted to the 1–74 age range, life table construction required estimation of infant mortality rates and mortality rates for the 75+ age group as well (described above).

Contribution of age- and cause-groups to ethnic disparities in life expectancy

To estimate the contribution of mortality at particular ages to the difference in life expectancy at birth (between Māori and Pacific compared to non-Māori non-Pacific people), the Māori and Pacific mortality rates for the age group of interest were replaced by the corresponding non-Māori non-Pacific rates and the increase in life expectancy at birth was then calculated (age-substituted life expectancy).

To show the contribution of mortality differentials with respect to particular causes of death (to the Māori and Pacific life expectancy at birth compared to non-Māori non-Pacific), the Māori and Pacific mortality rates due to cause group(s) of interest were replaced by the corresponding non-Māori non-Pacific rates in the multi-decrement life tables and the increase in life expectancy at birth was then calculated (cause-substituted life expectancy).

2.6 Validation of the study

The mortality rates calculated in this report apply the adjusters from the NZCMS to the routine mortality and census data held by the Ministry of Health. A major reason for this approach was to embed the use of the adjusters in the Ministry of Health's routine systems.

However, the linkage of census and mortality data in the NZCMS also allows a *direct* calculation of ethnic-specific rates based solely on the linked NZCMS data set. Such analyses were also undertaken as a validation test for the 'routine' method. While the two methods would be expected to give similar results, some disagreement is acceptable for at least two reasons:

- (1) the weighting used to calculate the numerator–denominator adjusters was different to the weighting used in the NZCMS data to allow for linkage bias (for details see Blakely et al 2000; Fawcett et al 2002; Hill et al 2002)
- (2) the follow-up time periods were slightly different (ie, three years post-census for the 'direct NZCMS' study compared to five years for the 'routine data' study in most instances).

The results of this validation exercise are summarised in Appendix 2 (see electronic version of this report).

Chapter 3: All-cause Mortality

3.1 Mortality rates

Age-standardised mortality rates and ratios

Figure 2 presents age-standardised mortality rates for the prioritised and sole ethnic groups for the four time periods. All mortality rates are standardised to the same WHO reference population, so removing any confounding by age.

Figure 3 presents the standardised rate ratios (SRRs) for Māori and Pacific ethnic groups compared to the non-Māori non-Pacific ethnic group for the sole and prioritised series. The SRR is a relative risk, and is calculated by simply dividing the Māori or Pacific standardised mortality rate by the non-Māori non-Pacific rate.

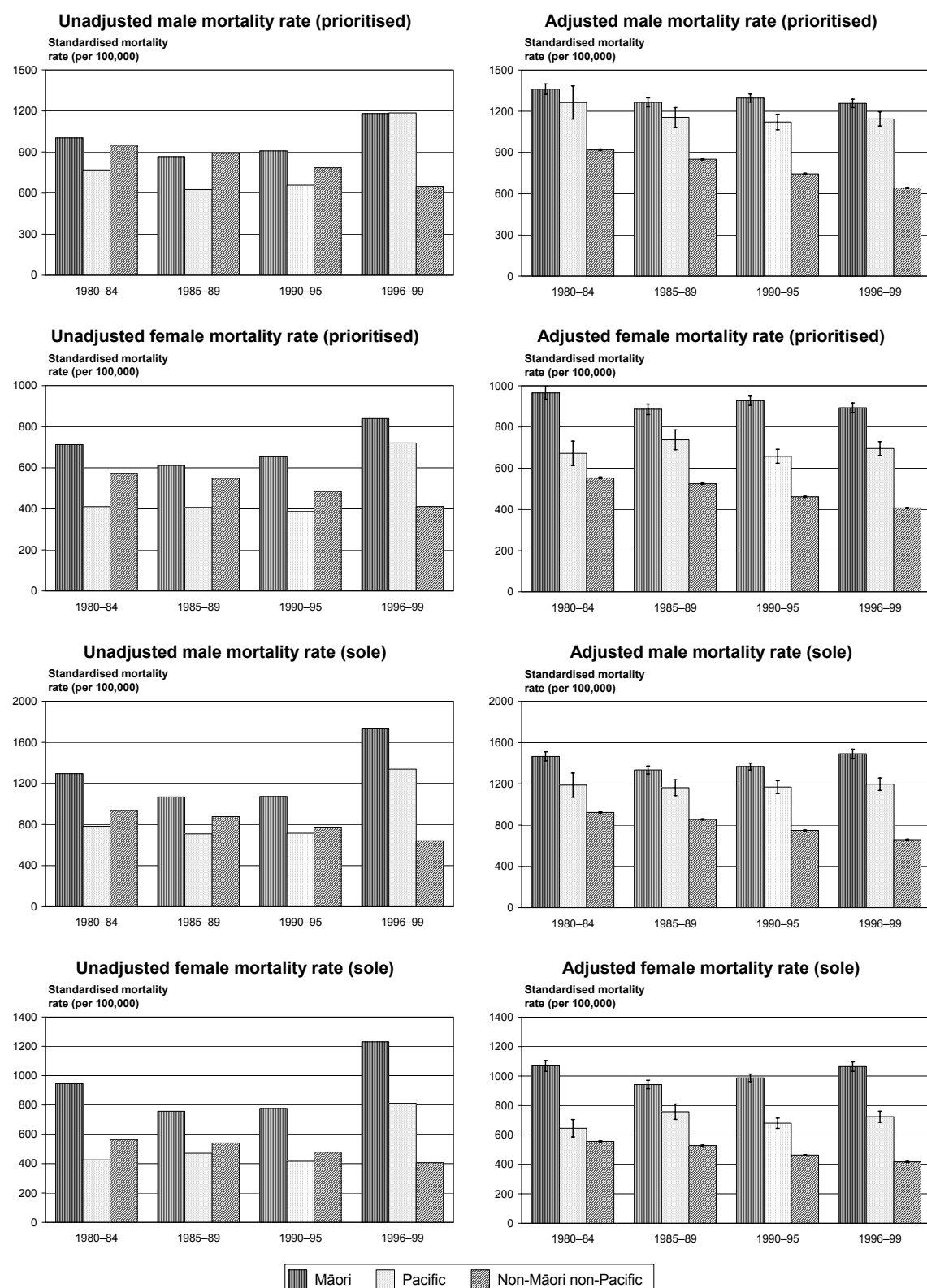
An SRR of 1.0 means that the Māori or Pacific standardised mortality rate was the same as the non-Māori non-Pacific mortality rate. An SRR of less than 1.0 means a lower mortality rate, and greater than 1.0 means a higher mortality rate than non-Māori non-Pacific.

Both Figures 2 and 3 show results *unadjusted* as well as *adjusted* for numerator–denominator bias to demonstrate the sizeable effect of this bias during the 1980s and early 1990s. Māori and Pacific mortality rates increase markedly after adjustment for numerator–denominator bias for the first three time periods, reflecting the undercounting of Māori and Pacific deaths in the earlier periods. Unadjusted rates suggest a sudden increase in mortality for both Māori and Pacific ethnic groups around the mid-1990s. This is clearly spurious. Also, unadjusted rate ratios (Figure 3) suggest that Māori had similar mortality rates to non-Māori non-Pacific people until the mid-1990s, and that Pacific people had lower mortality rates. However, when adjusted for numerator–denominator bias, higher mortality rates are now evident for both Māori and Pacific ethnic groups in all four time periods. Only results adjusted for numerator–denominator bias are presented in the remainder of this report.

Non-Māori non-Pacific ethnic group

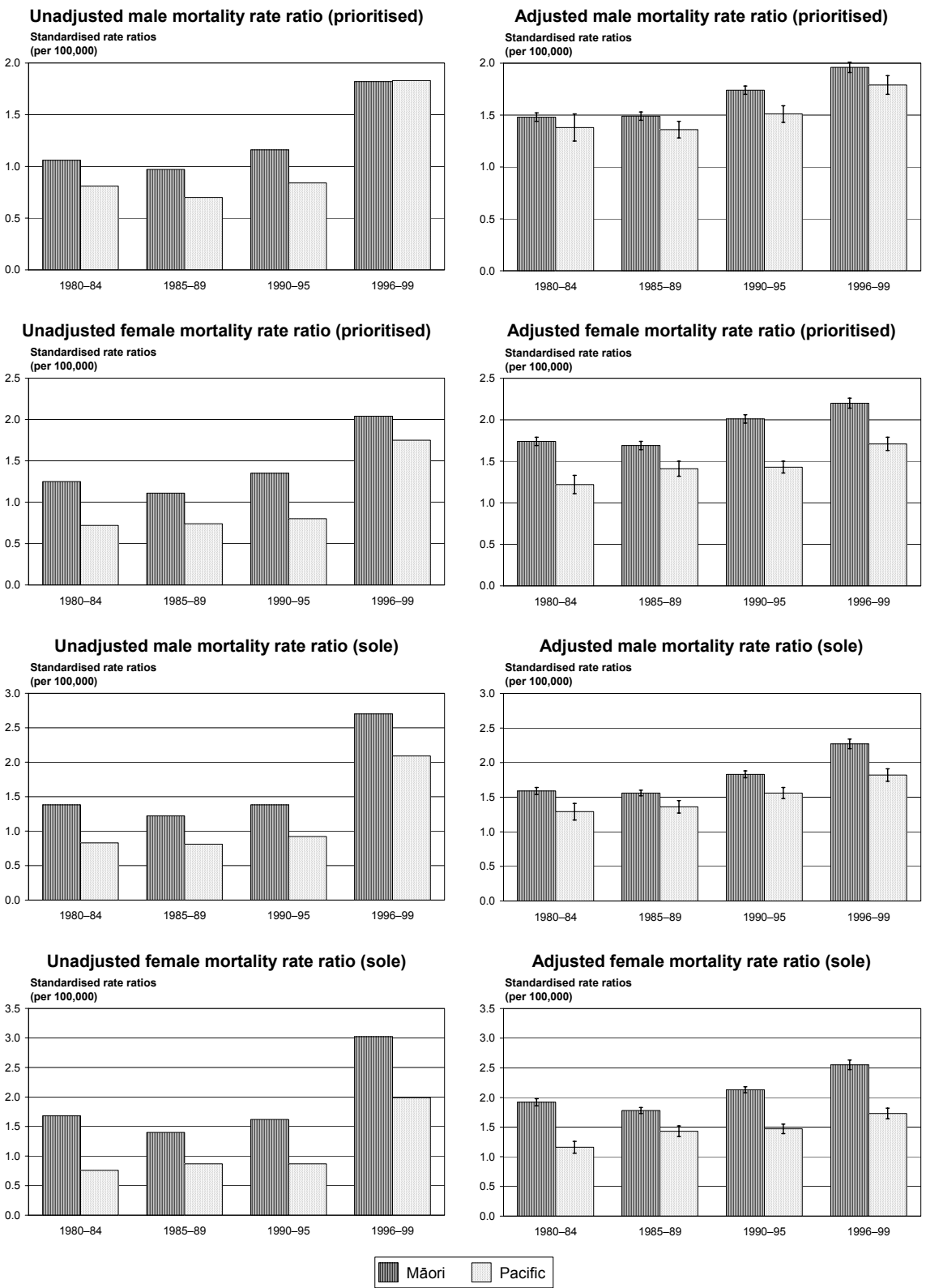
For both males and females there was a steady decrease in age-standardised mortality rates among non-Māori non-Pacific people over time. For the prioritised series, male mortality declined 30% from 919 per 100,000 in 1980–84 to 641 per 100,000 in 1996–99, and female mortality declined 26% from 553 to 407 per 100,000. The pattern was similar for the sole series.

Figure 2: Standardised mortality rates, all ages, by ethnicity and gender



Note: All mortality rates are per 100,000, standardised to the WHO World Population. Error bars are 95% confidence intervals. Data for all charts are provided in Appendix 3.

Figure 3: Standardised rate ratios, all ages, by ethnicity and gender



Note: Reference category is the non-Māori non-Pacific group.

Māori ethnic group

For the prioritised series (or total Māori ethnic group) there was a small decrease in age-standardised mortality rates over time, once adjusted for numerator–denominator bias (Figure 2). Male mortality declined 8% from 1361 per 100,000 in 1980–84 to 1258 per 100,000 in 1996–99, and female mortality declined 7% from 965 to 894 per 100,000. One possible reason for this modest decline is a marked increase in the number of people categorised as prioritised Māori in the 1996 census, resulting in a much larger total Māori ethnic group population in that year than in 1991.

For the sole series, the age-standardised Māori mortality rate in 1996–99 is actually higher than in 1990–95, after adjustment. Part of the reason for this apparent increase in sole Māori mortality rates is the contraction in the sole Māori population in the 1996 Census compared to the 1991 Census. Accordingly, both male and female sole Māori mortality rates in 1996–99 were unchanged relative to the rates in 1980–84 (Figure 2).

Pacific ethnic group

Pacific mortality rates during the early 1980s are statistically unstable due to small numbers. That said, there is little evidence for any change in Pacific mortality rates over the 20-year observation period. For the prioritised series, male mortality was 1264 per 100,000 in 1980–84, decreased by 9% in 1985–89 and then remained unchanged through to 1996–99. There was little evidence of any change in female mortality rates over the 20 years. For the sole series, there was possible evidence of a modest increase in Pacific mortality rates over the 20-year period. Again, the change in ethnic group populations between the 1991 and 1996 censuses may partly account for these trends.

Mortality differences by ethnicity

Regardless of period, gender and choice of sole or prioritised ethnicity concept, non-Māori non-Pacific people had the lowest mortality rates, Māori the highest rates and Pacific people intermediate rates (once adjusted for numerator–denominator bias (Figure 2)). However, as non-Māori non-Pacific people had falling mortality rates over time whereas Māori had stable or only modestly decreasing rates, the gap between Māori and non-Māori non-Pacific mortality rates widened over the 1980s and 1990s. Likewise, the gap between Pacific and non-Māori non-Pacific mortality rates also widened over the 1980s and 1990s. This widening of ethnic mortality gaps is evident on both absolute and relative scales.

Figure 3 shows the change over time in the standardised rate ratios comparing Māori (and Pacific) mortality with non-Māori non-Pacific mortality. Thus it depicts changing *relative* differences. Considering only the adjusted results, the rate ratio for Māori males compared to non-Māori non-Pacific males increased from 1.48 in 1980–84 to 1.96 in 1996–99 (prioritised series). That is, an approximately 50% excess mortality risk for Māori males (compared to non-Māori non-Pacific males) in 1980–84 had become a near 100% excess in 1996–99. Similarly, the prioritised rate ratio increased from 1.74 to 2.20 for Māori females compared to non-Māori non-Pacific females. Using the sole series, the Māori rate ratios increased from 1.59 to 2.27 for males and from 1.92 to 2.55 for females.

For Pacific people compared to non-Māori non-Pacific people, the rate ratios were less than those for Māori, but still sizeable and increasing over time. For the prioritised series, the rate ratios for Pacific males increased from 1.38 in 1980–84 to 1.79 in 1996–99, while for Pacific females the ratios increased from 1.22 to 1.71 respectively.

In summary, there is a clear pattern of *increasing* gaps in age-standardised mortality rates for both Māori and Pacific people compared to non-Māori non-Pacific people over the 1980s and 1990s. That is, while non-Māori non-Pacific mortality has declined substantially over the 20-year observation period, Māori and Pacific mortality has shown little change.

Mortality rates by five main age categories

Age-specific mortality rates were estimated for five lifecycle stages: 1–14 years (childhood), 15–24 years (youth), 25–44 years (young adulthood), 45–64 years (middle age) and 65–74 years (old age) years. We do not present infant mortality rates as the NZCMS is not well suited to adjusting these rates. We also do not present rates for the age group 75 years and older, as only deaths for people aged up to 74 on census night were linked back to a census record in the NZCMS.

Prioritised series

Figure 4 shows the adjusted mortality rates by age group for males and females for the prioritised series (values for the rates and their 95% confidence intervals can be found in Appendix 3).

For the non-Māori non-Pacific ethnic group there is a strong and consistent pattern of decreasing mortality rates for all ages and both sexes over time. The same health gains are not apparent for Māori and Pacific ethnic groups.

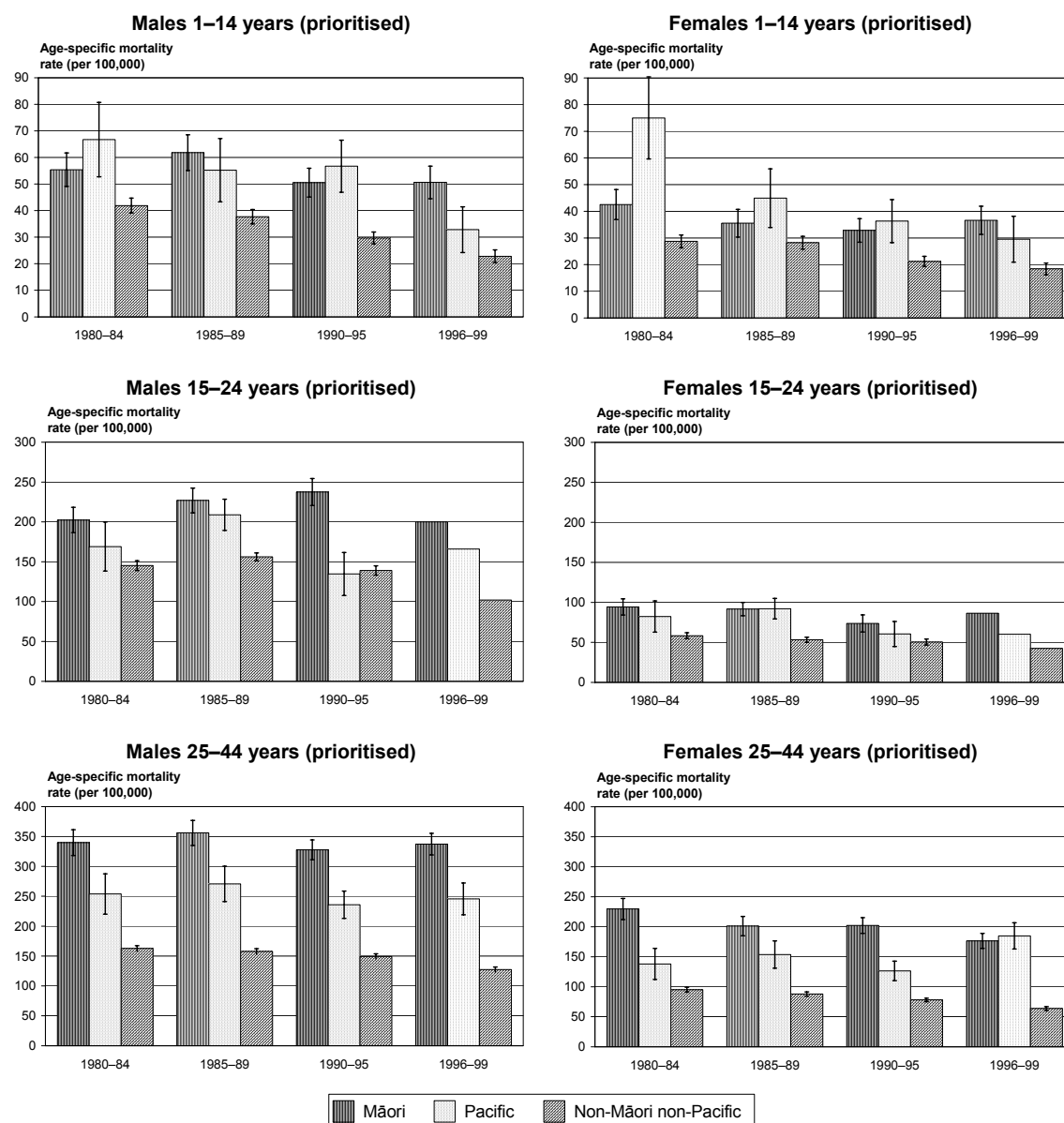
For the Māori ethnic group, taking into account the increased denominator population in 1996 and the width of the confidence intervals, there is little evidence of decreasing mortality rates between 1981 and 1996 in all age groups. (See also Figure 7 for just the Māori mortality rates.)

For Pacific people, the data are less reliable (particularly during the 1980s and among children) because of the small size of the Pacific population. Nevertheless, there appears to be some downward trend in the 1–14 and 15–24 age groups during the 1980s and 1990s, but little change in all other age groups.

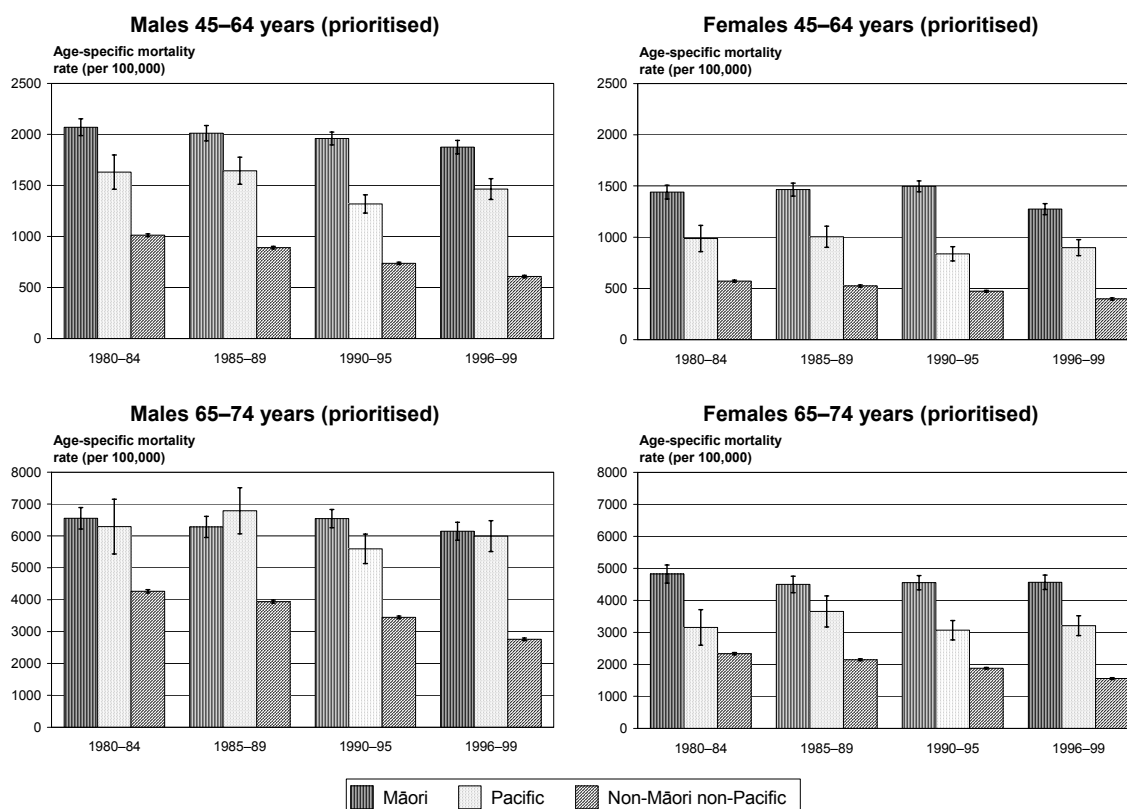
The relative differences in mortality rates between all three ethnic groups tended to be less at younger ages and during the early 1980s. The most notable relative differences between Māori and non-Māori non-Pacific mortality rates occurred among 45–64-year-olds. For example, among males the rate ratio comparing Māori to non-Māori non-Pacific ethnic groups was 2.05 during 1980–84 and increased to 3.09 during 1996–99. Among 45–64-year-old females this rate ratio was 2.40 during 1980–84 and increased to 3.56 during 1996–99.

Although not as large as the relative differences for 45–64-year-olds, the relative differences between Māori and non-Māori non-Pacific ethnic groups for 25–44 and 65–74-year-olds were also large *and* increasing over time.

Figure 4: Age-specific mortality rate, by gender and age group (prioritised series)



(Continued)

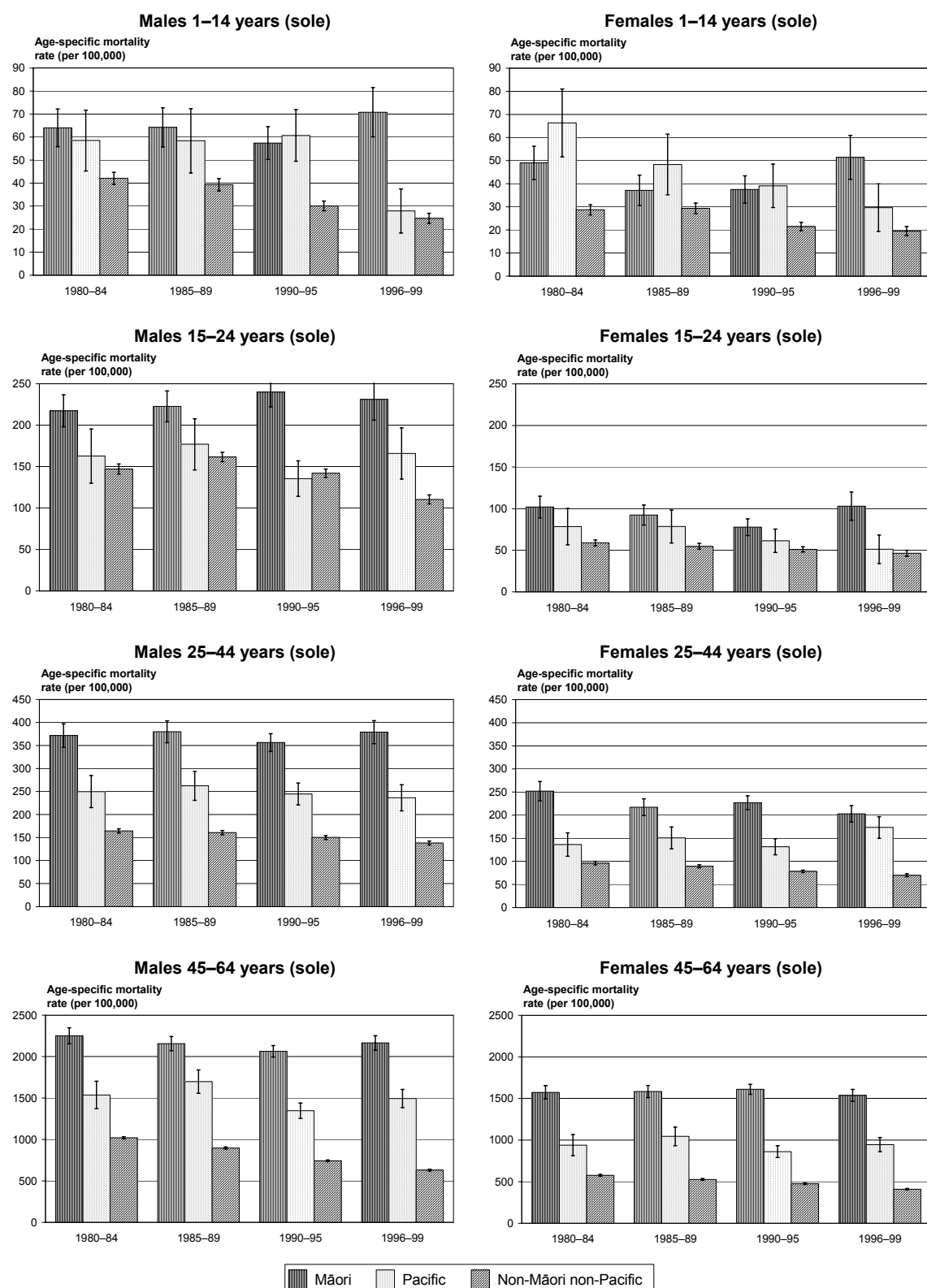


Sole series

The age-specific mortality rates for the ‘sole’ series are shown in Figure 5 (see Appendix 3 for actual values). Most patterns seen in the prioritised series were also evident in the sole series – except for apparent increases in the sole Māori mortality rates between 1981–84 and 1996–99 for almost all age groups among males, and for younger age groups among females. This results partly from the census population changes in 1996. However, there is no doubt that mortality rates for sole Māori were consistently higher than those for the total Māori ethnic group (ie, the prioritised series).

Figure 6 shows the age-specific rate ratios for Māori and Pacific ethnic groups compared to the non-Māori non-Pacific ethnic group (for both the prioritised and sole series). The consistent pattern is one of increasing relative gaps in mortality over time for all age groups and both series.

Figure 5: Age-specific mortality rates, by gender and age group (sole series)



(Continued)

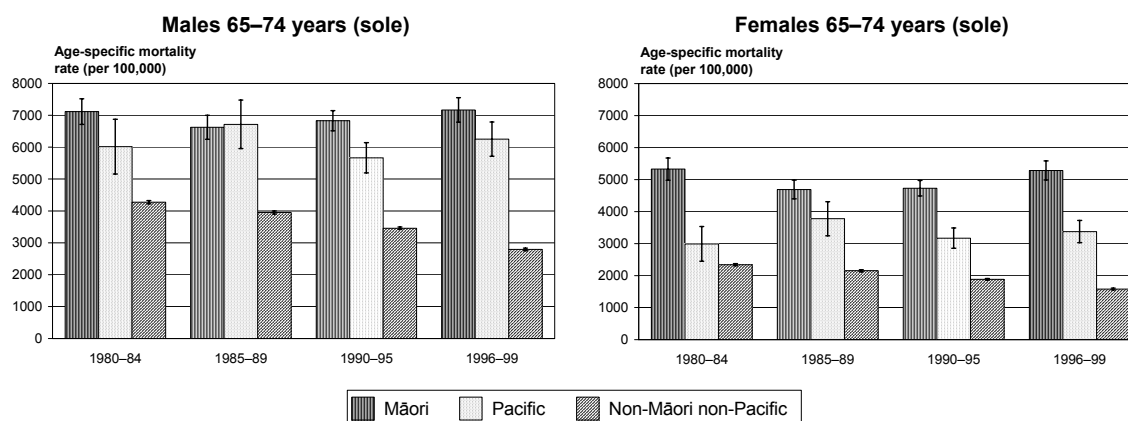
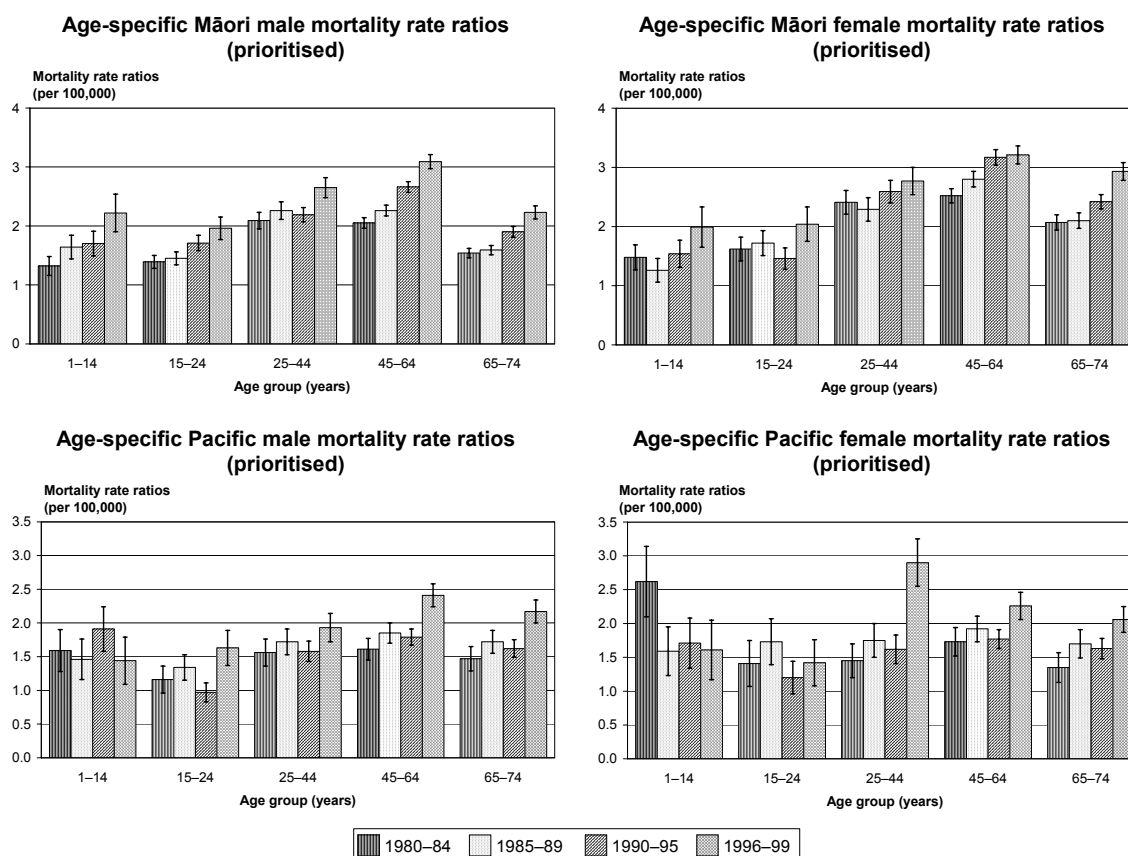
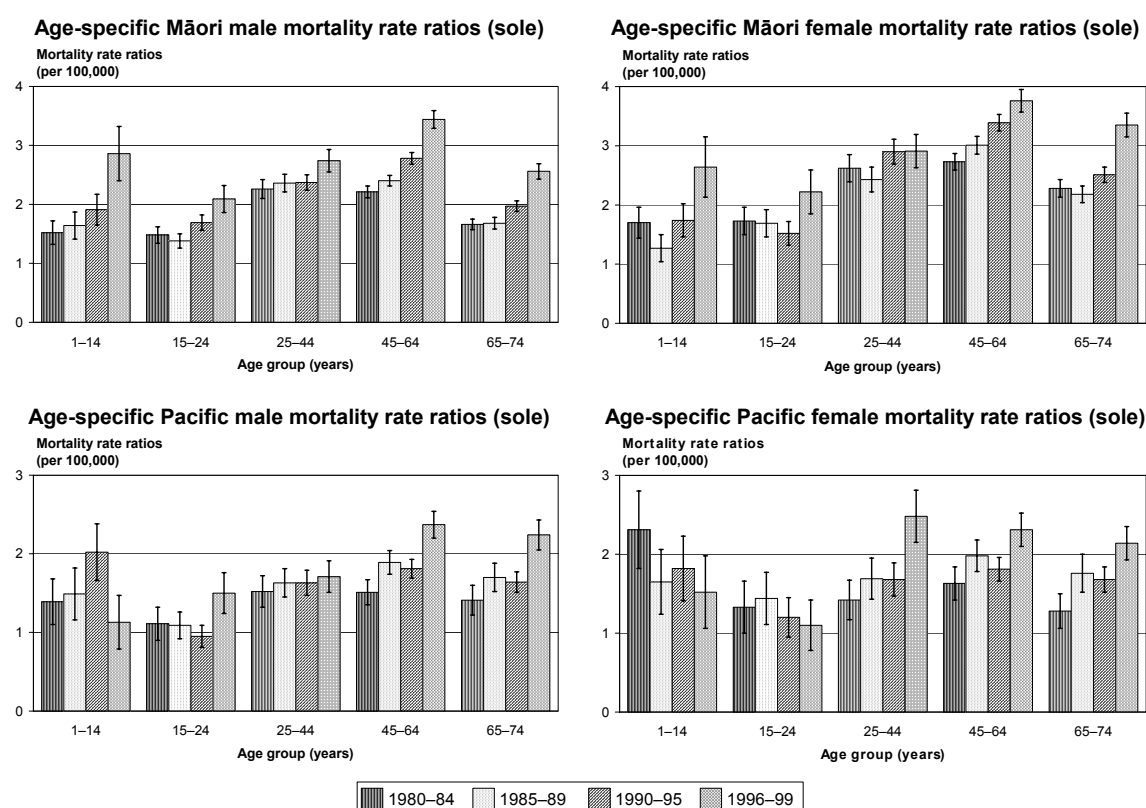


Figure 6: Mortality rate ratios, by gender and age group



(Continued)



Note: Reference category is the non-Māori non-Pacific ethnic group.

Sole ethnicity compared to prioritised ethnicity for Māori and Pacific ethnic groups

Figures 7 and 8 plot both the prioritised and the sole mortality rates (genders pooled) for Māori and Pacific people, respectively. The mortality rates in the sole series are consistently higher than those in the prioritised series. Among Māori, there has been a small decrease in mortality rates across all ages for the prioritised series between 1980–84 and 1996–99. However, the nature of the sole Māori population changed dramatically from the 1991 to 1996 census – particularly among children. More people self-identified as Māori and other ethnic groups in 1996, and this was particularly so for children. Conversely the sole Māori population decreased in size. Sole Māori mortality rates actually increased from the 1990–95 to the 1996–99 period for 1–14 and 15–24-year-olds, probably reflecting this apparent contraction in population size, at least in part.

Among Pacific people, the patterns observed in the sole and prioritised series are similar across all ages. The mortality rate has decreased for 1–14-year-olds and, possibly, 15–24-year-olds. There is no clear pattern for the older age groups.

Figure 7: Sole and prioritised Māori mortality rates, by age group, genders pooled

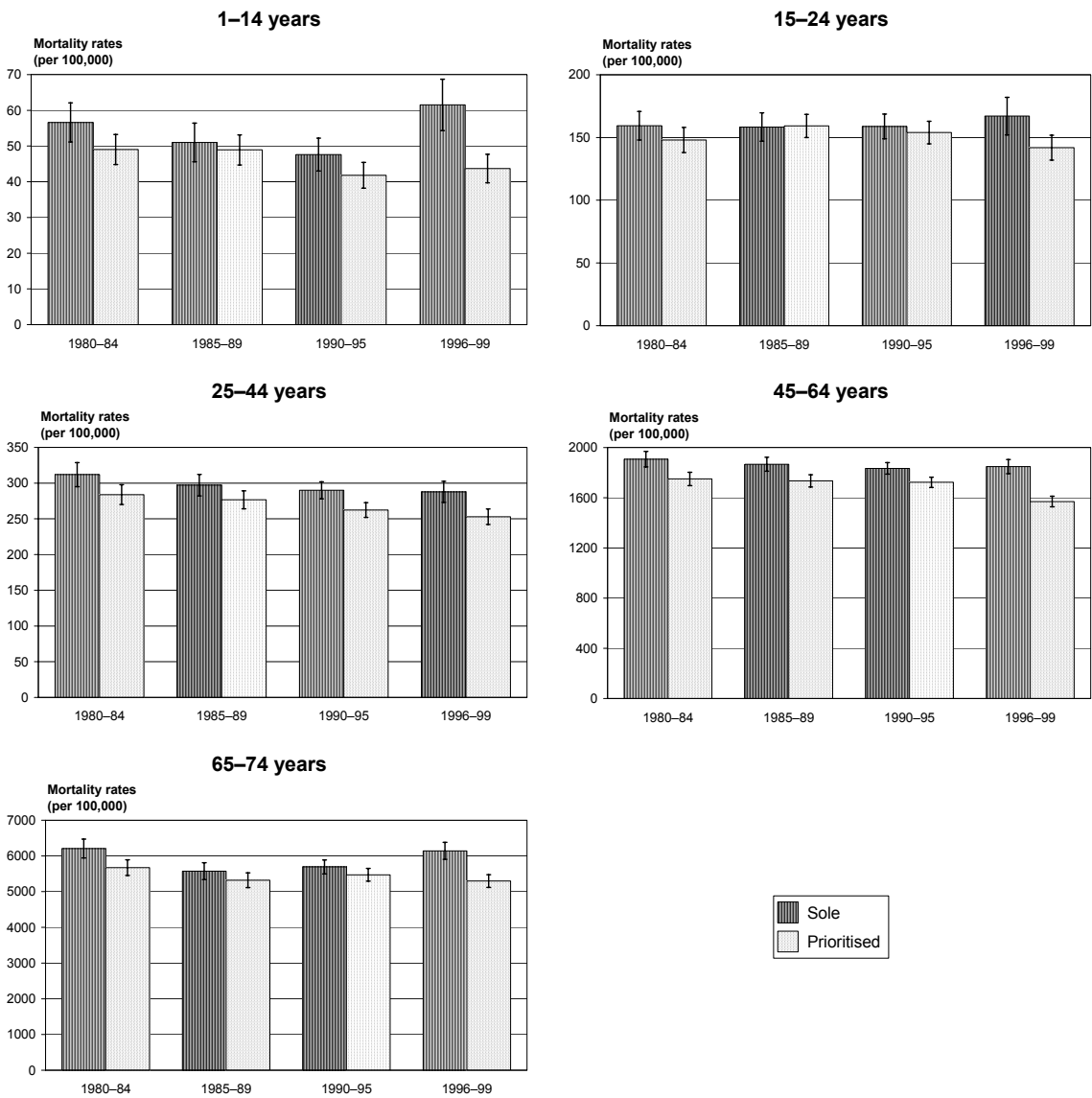
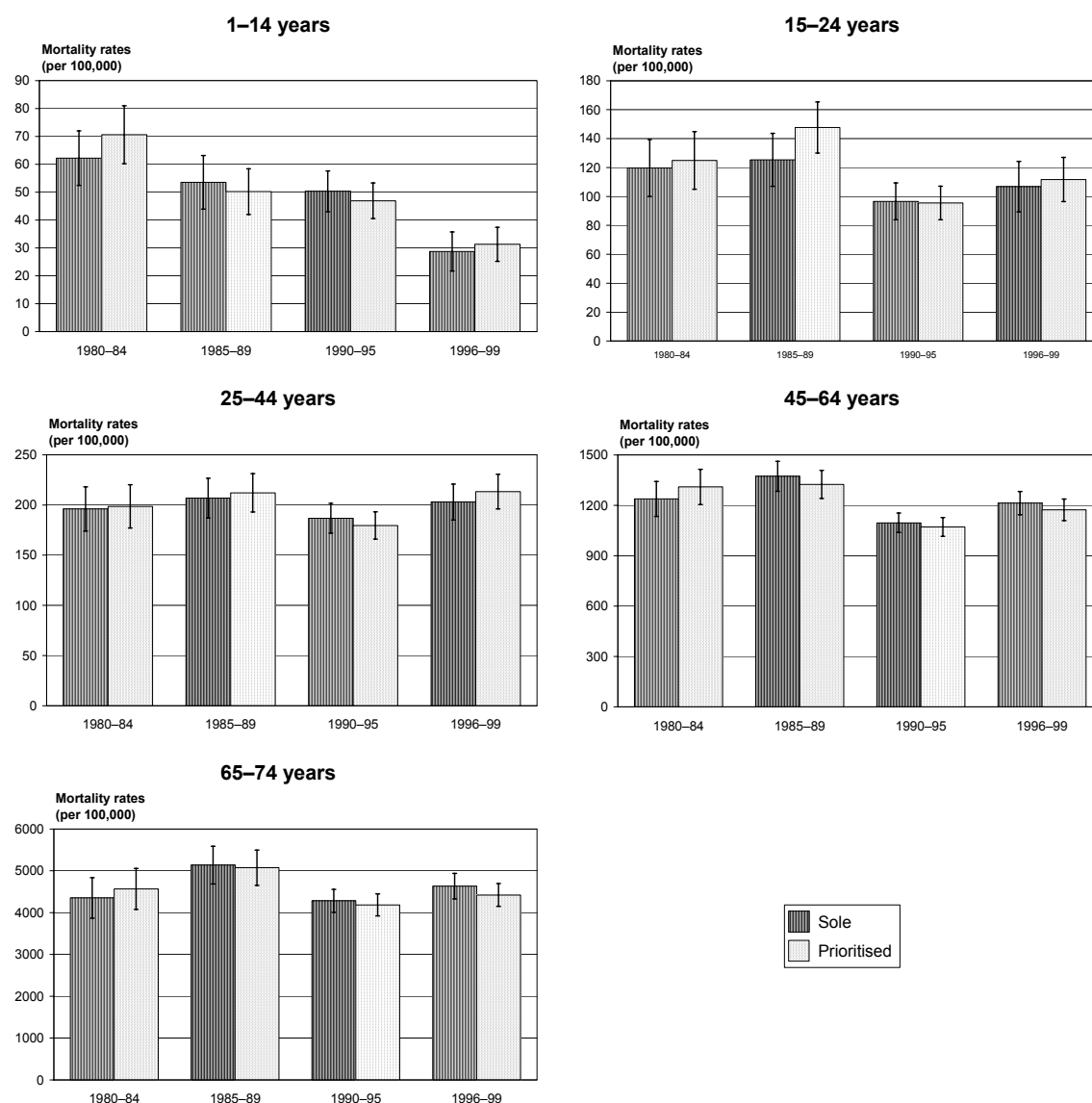


Figure 8: Sole and prioritised Pacific mortality rates, by age group, genders pooled



3.2 Life expectancy

Life expectancy by age

Life expectancy is a summary measure of the mortality rates experienced at all ages. As life expectancy is a positive measure of survival, if mortality rates decrease over time then life expectancy will increase.

Figures 9 and 10 show life expectancy at birth by ethnic group and gender for the prioritised and sole series respectively. (Actual data are shown in Appendix 3, electronic version of report.)

For non-Māori non-Pacific people there has been a steady increase in life expectancy at all ages. For males, life expectancy at birth has increased from 70.9 years in 1980–84 to 75.7 years in 1996–99 (prioritised series, absolute increase of 4.8 years). For non-Māori non-Pacific females the life expectancy at birth has increased from 77.2 to 80.8 years (prioritised series, absolute increase of 3.6 years). A similar pattern is observed for the sole non-Māori non-Pacific group.

For Māori (prioritised series), male life expectancy at birth over the same period has only increased from 64.6 to 65.8 years for males (1.2 years) and from 69.4 to 71.0 years for females (1.6 years). The gap in male life expectancy at birth between non-Māori non-Pacific and Māori ethnic groups (prioritised series) thus increased from 6.3 to 9.9 years over the study period – an increase of 57%. The corresponding gap for females increased from 7.8 to 9.8 years – an increase of 26%.

Due to a decline in sole Māori life expectancy at birth between the 1990–95 and the 1996–99 periods, little change in male (0.3 years) or female (0.7 years) life expectancy at birth is seen over the whole observation period (1980–84 to 1996–99).

For Pacific people (prioritised series), life expectancy at birth over the same period has only increased from 66.7 to 67.9 years for males (1.2 years difference) and is unchanged for females. For the sole series, Pacific male life expectancy at birth was little changed (0.3 years) and female life expectancy actually fell from 74.8 to 73.9 years (-0.9 years), though this probably reflects the contraction of the sole Pacific population in the 1996 census, at least in part.

Figure 9: Life expectancy, by age (prioritised series)

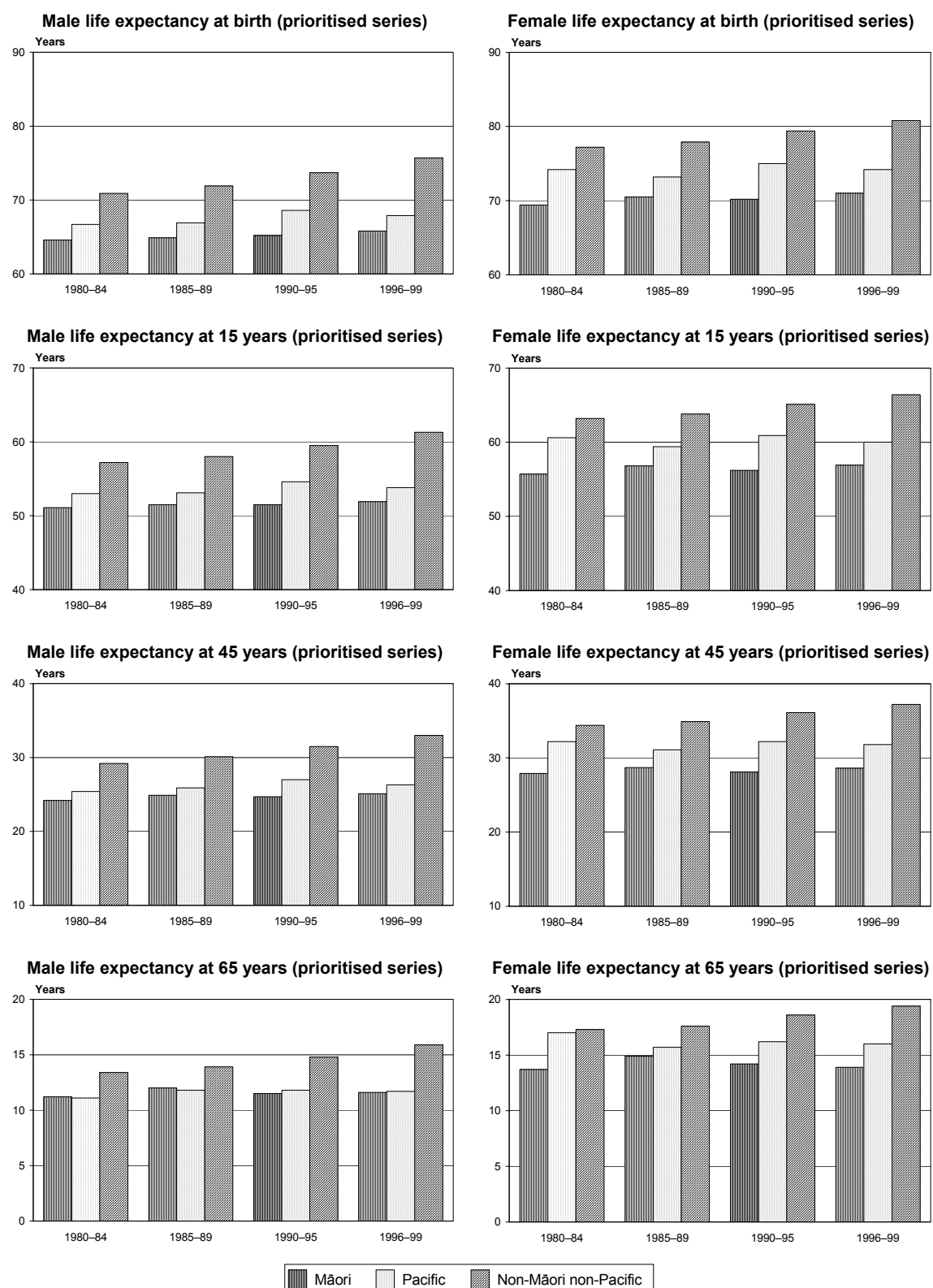
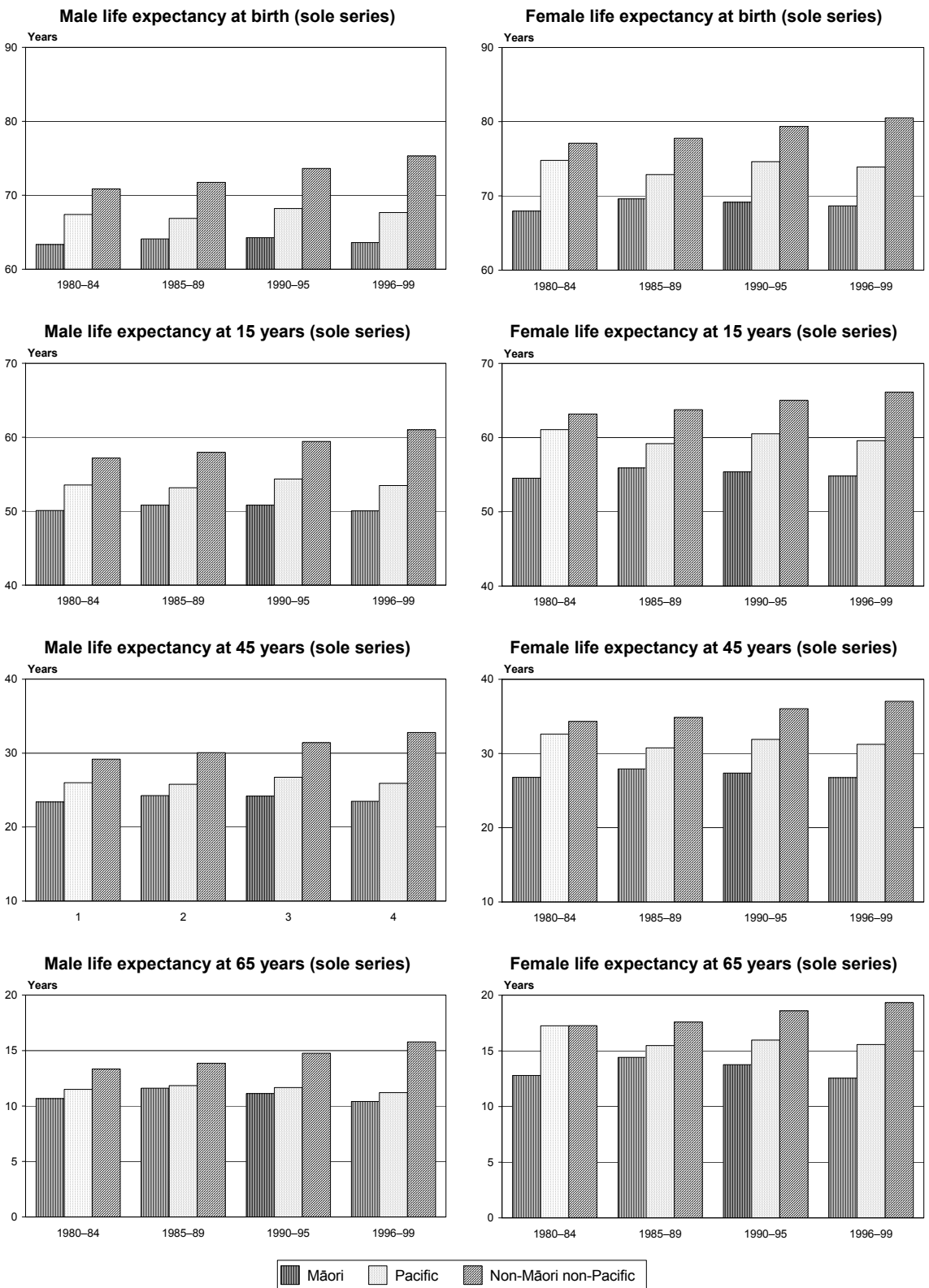


Figure 10: Life expectancy, by age (sole series)



Age-substituted life expectancy

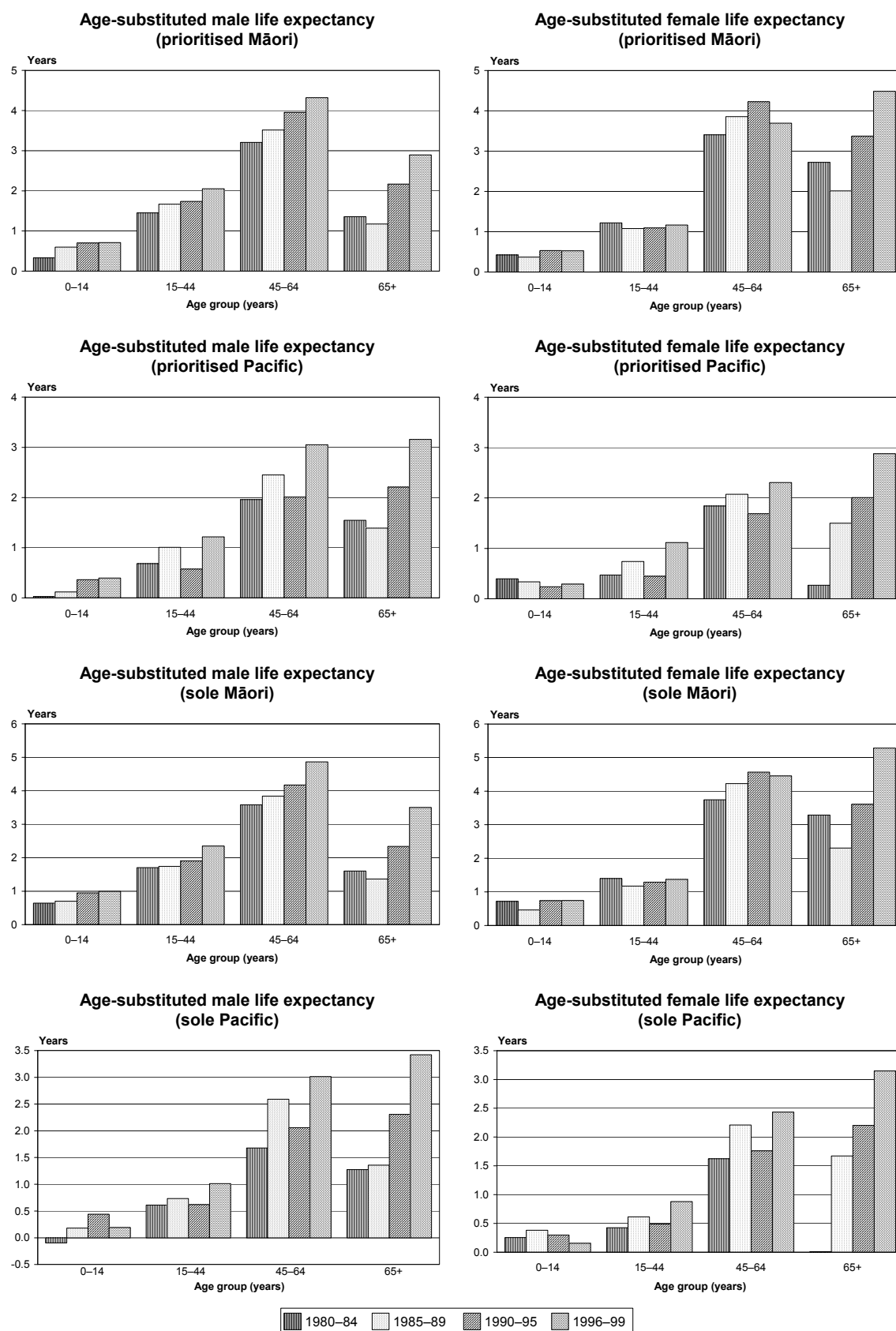
Māori and Pacific age-substituted life expectancies were calculated by substituting in the corresponding life-table the (lower) mortality rate of non-Māori non-Pacific people for the adjusted Māori or Pacific rate, one age group at a time. (Age groups used were 0–14 years, 15–44 years, 45–64 years and 65+ years.) For example, replacing the Māori mortality rates with the non-Māori non-Pacific rates for the 45–64 years group increased the Māori prioritised life expectancy by 3.5 years during 1990–95 and by 3.8 years during 1996–99 (Figure 11). Put another way, the higher mortality among 45–64-year-old Māori males (relative to 45–64-year-old non-Māori non-Pacific males) caused a loss of 3.8 years in Māori male life expectancy in 1996–99. By substituting at different ages, one can see how much each age group contributes to the overall difference in life expectancy between Māori (or Pacific) and non-Māori non-Pacific ethnic groups at each period for each gender (and series).

Figure 11 shows the increases in Māori and Pacific life expectancy that occur when non-Māori non-Pacific mortality is substituted for the four selected age groups. Among males (prioritised series), mortality among 45–64-year-olds contributes the most to the total life expectancy difference throughout the 20-year observation period. However, among females mortality among those aged 65 year and older and those aged 45–64 years contribute equally to the total life expectancy difference by 1996–99.

The pattern for the sole series is similar to that of the prioritised series.

For Pacific males and females, mortality in the 45–64 and 65+ age groups contribute most to the lower life expectancy of Pacific people relative to non-Māori non-Pacific people. As with Māori, the contribution of the 65+ age group has increased substantially over the study period, while that of the younger age groups has remained reasonably stable.

Figure 11: Life expectancy increases for Māori and Pacific people, by gender, following substitution of non-Māori non-Pacific mortality rates for selected age groups



Chapter 4: Cause-specific Mortality

4.1 Mortality rates

Global burden of disease categories (I, II, III)

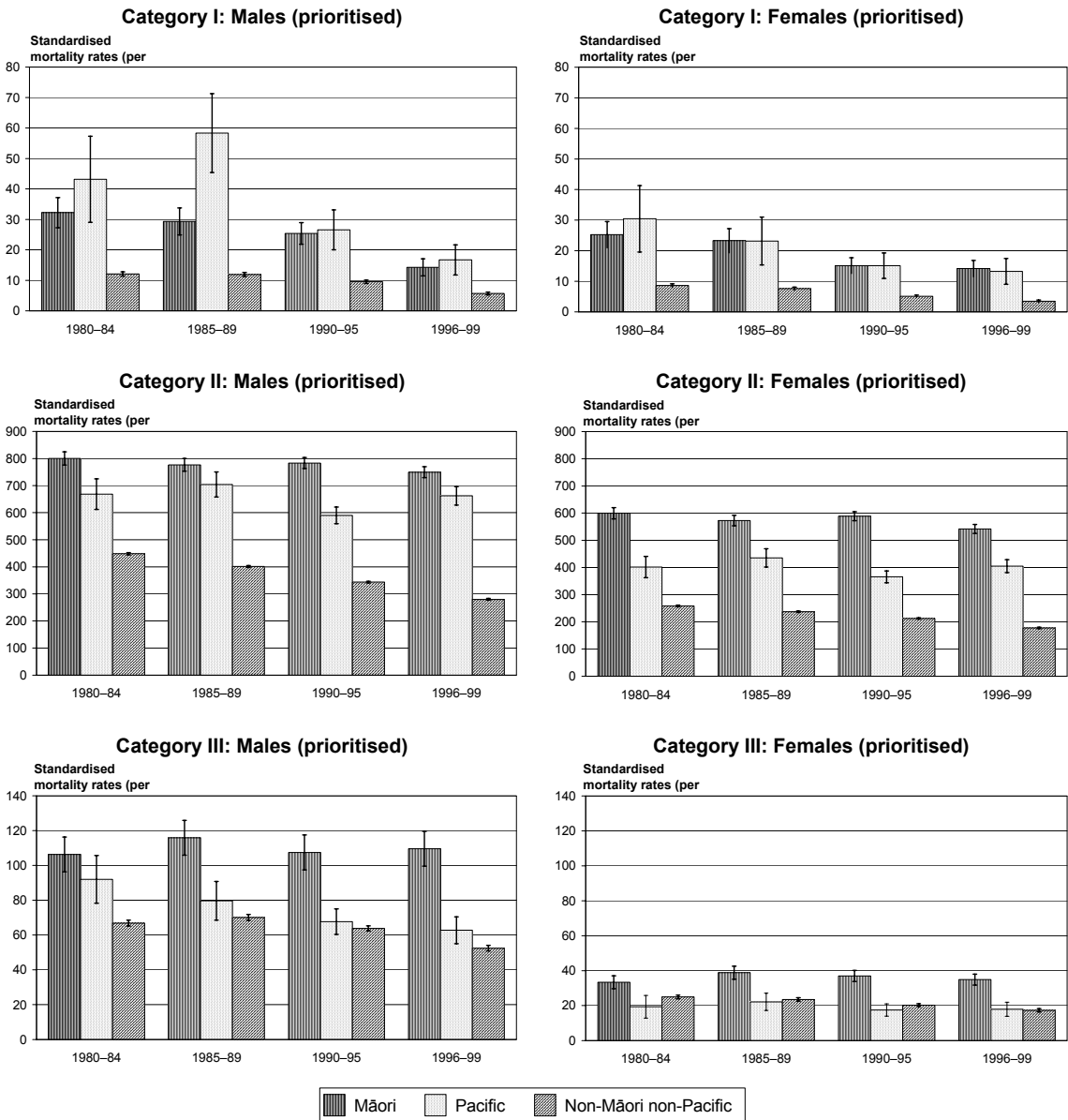
Causes of death may be grouped into three broad categories (WHO 2002):

- I: communicable, maternal, perinatal and nutritional diseases
- II: chronic diseases
- III: injuries.

Prioritised series

Ethnic mortality rates by these three broad cause categories are shown in Figure 12 for the prioritised series. For non-Māori non-Pacific people there has been a steady decline in mortality rates for all the three cause categories. For Māori, however, the decline is evident mainly for category I causes. For Pacific people rates have decreased for category I since the mid-1980s and there has also been a decline in injury mortality rates (category III) among males over time.

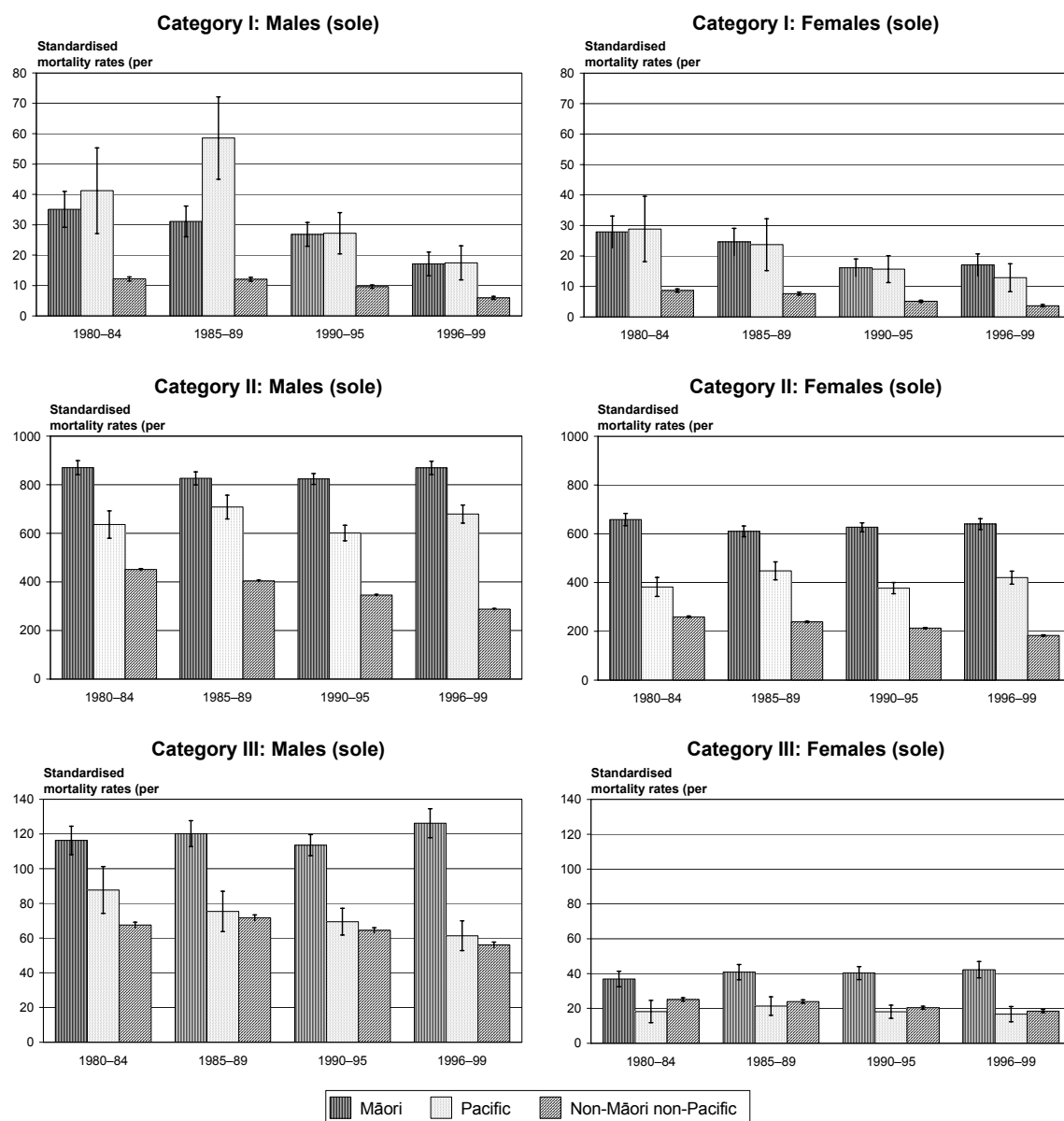
Figure 12: Cause-specific standardised mortality rates, ages 1–74 years, by gender (prioritised series)



Sole series

The pattern for the sole series is similar. Although there is evidence of decreasing mortality rates over time for cause category I for the sole Māori ethnic group, this is not the case for the other categories. This pattern is seen for both genders (Figure 13).

Figure 13: Cause-specific standardised mortality rates, ages 1–74 years, by gender (sole series)



Note: Category I: communicable disease, maternal, perinatal and nutritional conditions. Category II: chronic diseases. Category III: injuries.

Selected causes – age-standardised rates

Age-standardised mortality rates for selected diseases or disease groups are shown in Figure 14 for the prioritised series. The corresponding tabular data of rates and confidence intervals are provided in Appendix 3. The sole series showed a similar pattern, detailed in see Appendix 4 (Appendices 3 and 4 are included only in the electronic version of this report).

There are striking differences in trends over time in cause-specific mortality rates for the three ethnic groups (both series).

Overall **cancer** mortality rates tended to increase over time among Māori compared to a steady decrease among non-Māori non-Pacific people. For the prioritised series, age-standardised cancer mortality rates were 2.0 (male) and 2.1 (female) times greater for Māori than for non-Māori non-Pacific people during 1996–99. Pacific cancer mortality rates were similar to those for Māori among males, but intermediate between Māori and non-Māori non-Pacific rates for females. For specific cancers:

- There was a strong pattern of diverging Māori and non-Māori non-Pacific *lung cancer* mortality rates, such that by 1996–99 the relative risks were 3.50 (males) and 4.91 (females). Pacific lung cancer rates were similar to those for non-Māori non-Pacific females, but intermediate for males.
- *Prostate cancer* mortality rates increased over time among Māori, while remaining essentially stable among non-Māori non-Pacific people. By 1996–99 non-Māori non-Pacific prostate cancer rates were half those of Māori. Pacific prostate cancer rates appeared to decrease over time.
- *Breast cancer* mortality rates increased among both Māori and Pacific females, compared to decreases among non-Māori non-Pacific females. By 1996–99 non-Māori non-Pacific breast cancer mortality rates were 60% of those for Māori. Pacific breast cancer mortality rates appear to have become the highest of all three ethnic groups in the 20-year period (although 95% confidence intervals include the Māori female rate). At the beginning of the 20-year period, Pacific breast cancer mortality rates were clearly the lowest of the three ethnic groups.
- In the early 1980s Māori had *colorectal cancer* mortality rates only one-third (females) to two-thirds (males) of those for non-Māori non-Pacific people. Small decreases in age-standardised mortality rates among non-Māori non-Pacific people over the last 20 years, in contrast to increasing rates among Māori, have resulted in similar colorectal cancer mortality rates by the late 1990s. While rates are imprecise for Pacific people, it appears that there has been an even more substantial increase in colorectal cancer mortality among this group. By the end of the 20-year period all three ethnic groups had roughly comparable colorectal cancer mortality rates.

Cardiovascular mortality rates on the whole have steadily decreased over time, but to a lesser extent among Māori and Pacific ethnic groups. Consequently, by 1996–99 cardiovascular mortality rates were 3.0 times higher for Māori males and 2.5 times higher for Pacific males compared to non-Māori non-Pacific males. Among females the corresponding relative risks were 4.2 for Māori and 3.1 for Pacific people.

- *Ischaemic heart disease* mortality rates tended to decrease over time for all ethnic groups and both genders – although not much for Māori and Pacific males. The relative inequalities between ethnic groups at the end of the 1990s were larger for ischaemic heart disease than for cardiovascular diseases as a whole.
- *Stroke* mortality rates were clearly highest for Pacific people among males and (possibly) females. All ethnic groups had decreasing stroke mortality rates over time.

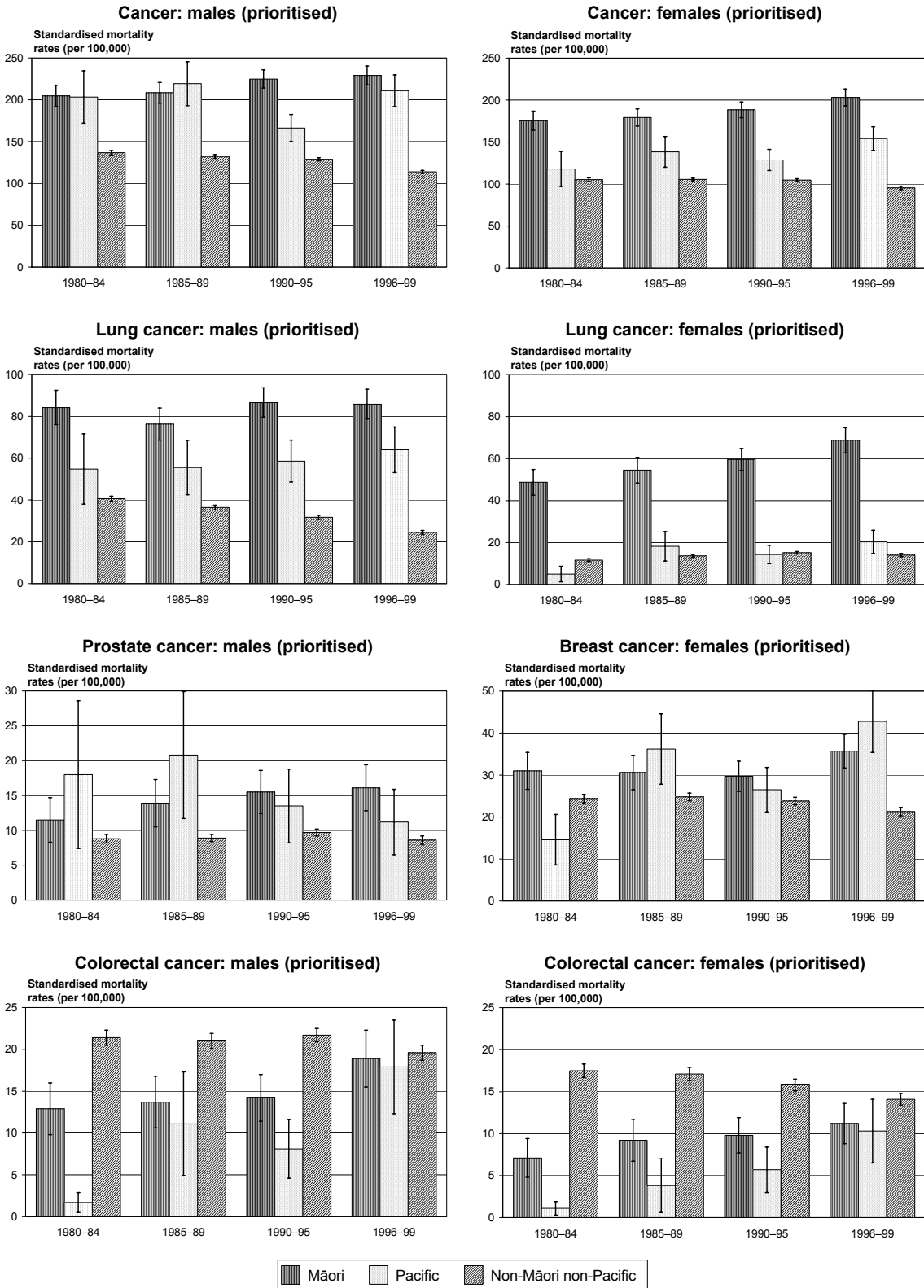
Respiratory disease mortality decreased for all three ethnic groups. However, Māori male and female respiratory mortality rates remain elevated compared to non-Māori non-Pacific people, and likewise for Pacific males. The major contributor to respiratory disease is chronic obstructive pulmonary disease, which is largely attributable to tobacco consumption.

Unintentional injury mortality rates decreased over time for all ethnic groups and both genders. This pattern was similar for road traffic crashes – a major contributor to unintentional injuries.

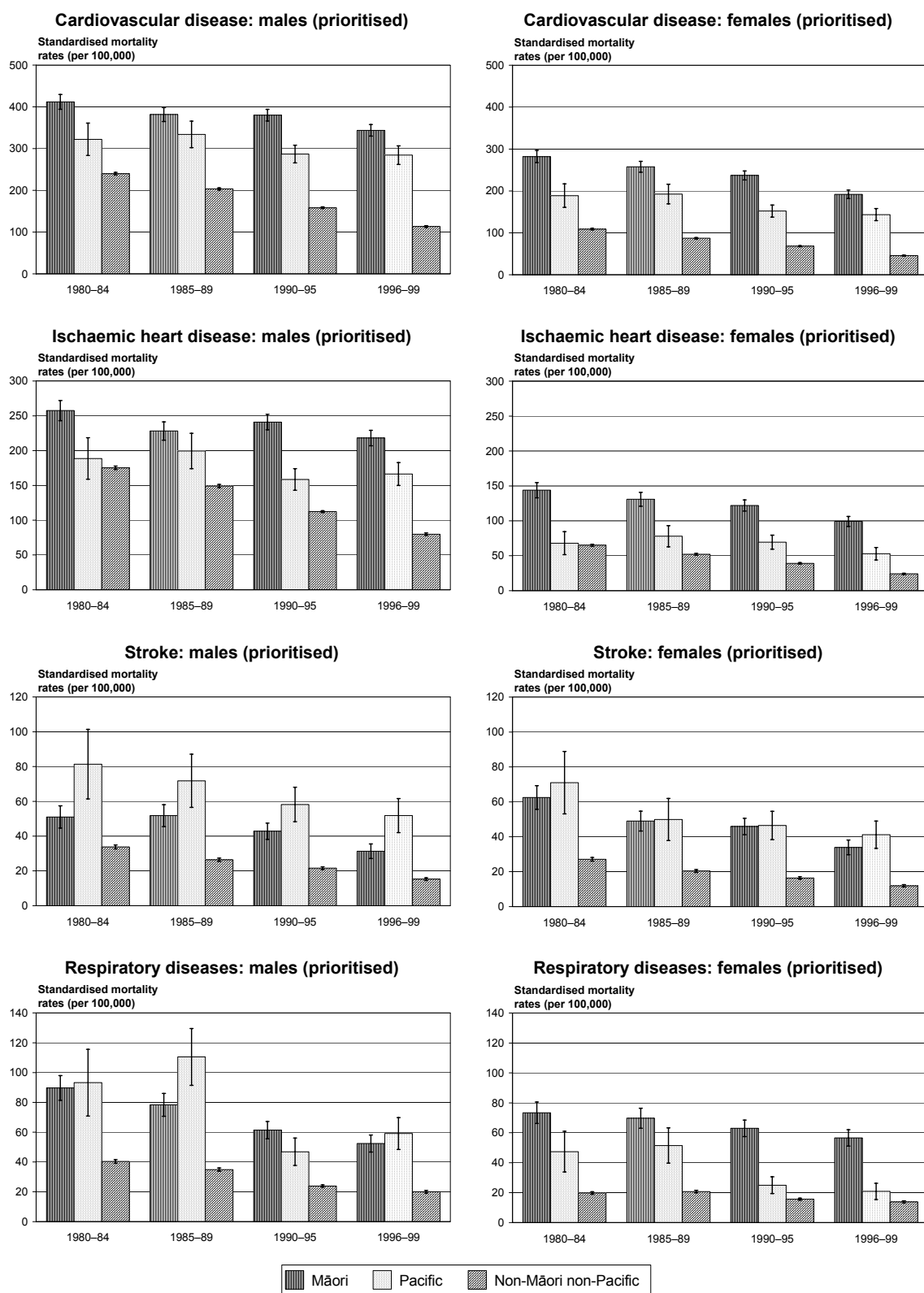
Suicide rates increased most notably among both Māori males and females over the 1980s and 1990s. Increasing suicide mortality for Pacific and non-Māori non-Pacific males was also evident – but the increases were not as marked as for Māori. The pattern varies by age, and is described in more detail in the next section.

In summary, Māori and Pacific people experienced decreasing rates of mortality from three major causes of death: cardiovascular disease, unintentional injury, and respiratory diseases. However, these gains have largely been offset by increasing cancer mortality (all major types). Further, even for those diseases with decreasing rates over time among all ethnic groups (eg, cardiovascular disease), the relative inequalities between ethnic groups have tended to increase over time. Māori males (and, to a lesser extent, females) have had large increases in suicide mortality over the 1980s and 1990s. By contrast, non-Māori non-Pacific people experienced declining mortality rates for all major causes except lung cancer among females and (until recently) suicide among youth.

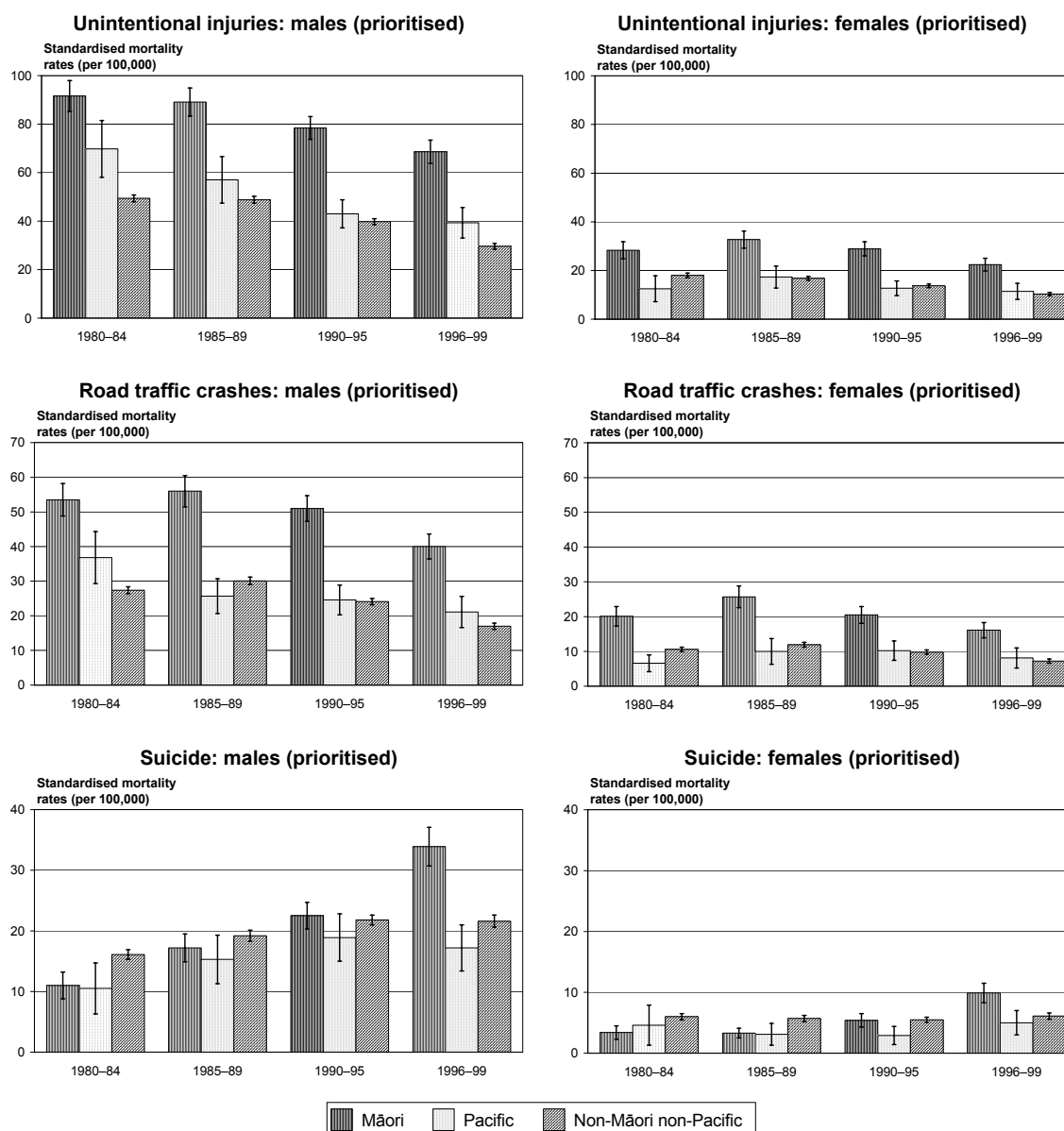
Figure 14: Standardised mortality rates, ages 1–74 years, by gender – specific causes (prioritised series)



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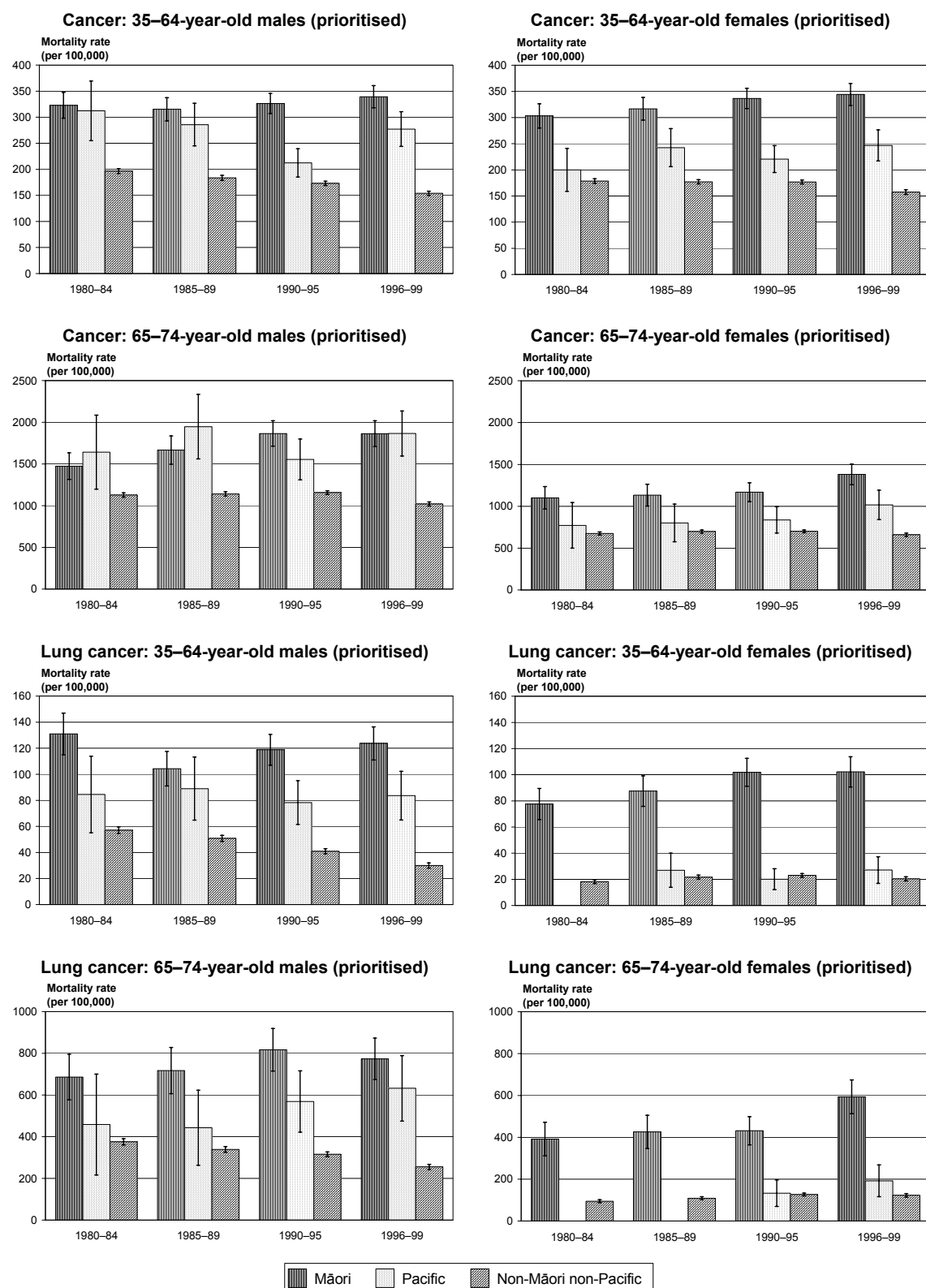


Selected causes – age-specific rates

Cancer and cardiovascular mortality are concentrated among middle and older age groups, whereas unintentional injury mortality is concentrated among younger age groups. Cause-specific mortality by selected age groups is presented in Figures 15, 16 and 17. Prioritised series results only are presented (sole series results can be found in Appendix 4, electronic version of report).

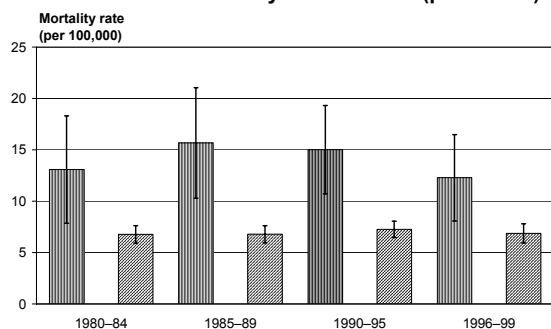
In general, similar patterns are seen for age-specific as for age-standardised rates. For example, the decline in overall cardiovascular disease mortality for all ethnic groups (albeit less so for Māori and Pacific males) was evident for 35–64 and 65–74-year-olds. However, the relative differences between ethnic groups in cardiovascular disease mortality were greater among 35–64-year-olds (Figure 15).

Figure 15: Mortality rate in 35–64 and 65–74-year-old males and females for cancers and cardiovascular diseases (prioritised series)

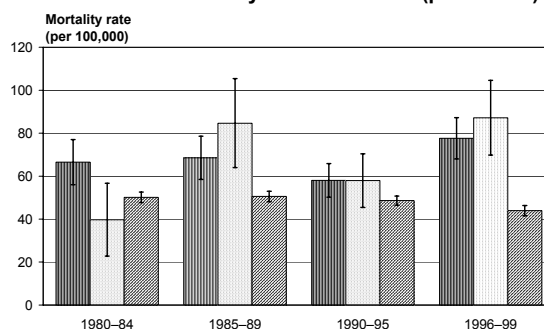


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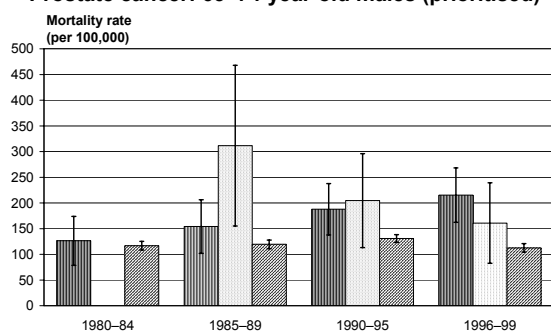
Prostate cancer: 35–64-year-old males (prioritised)



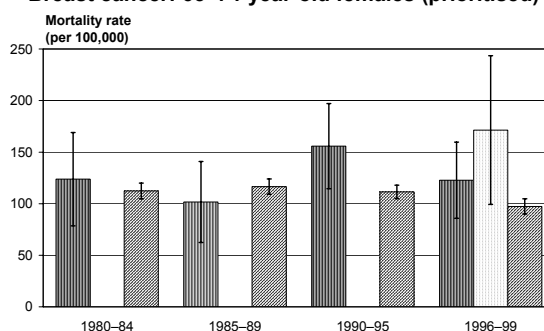
Breast cancer: 35–64-year-old females (prioritised)



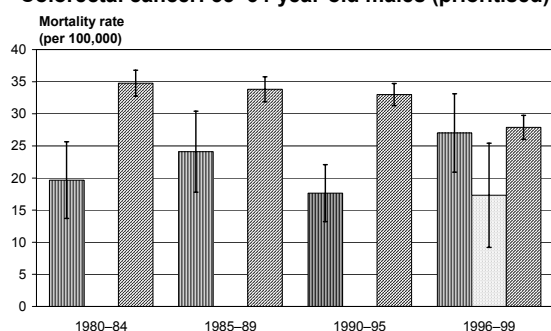
Prostate cancer: 65–74-year-old males (prioritised)



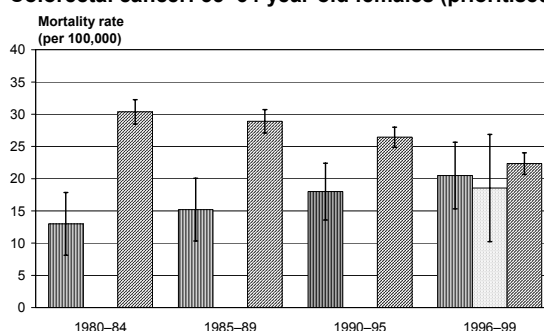
Breast cancer: 65–74-year-old females (prioritised)



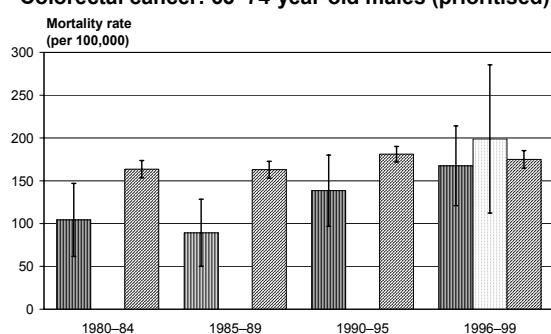
Colorectal cancer: 35–64-year-old males (prioritised)



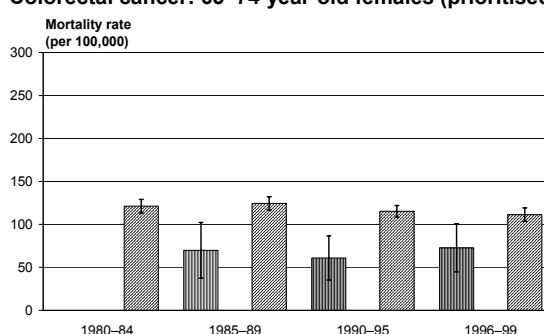
Colorectal cancer: 35–64-year-old females (prioritised)



Colorectal cancer: 65–74-year-old males (prioritised)

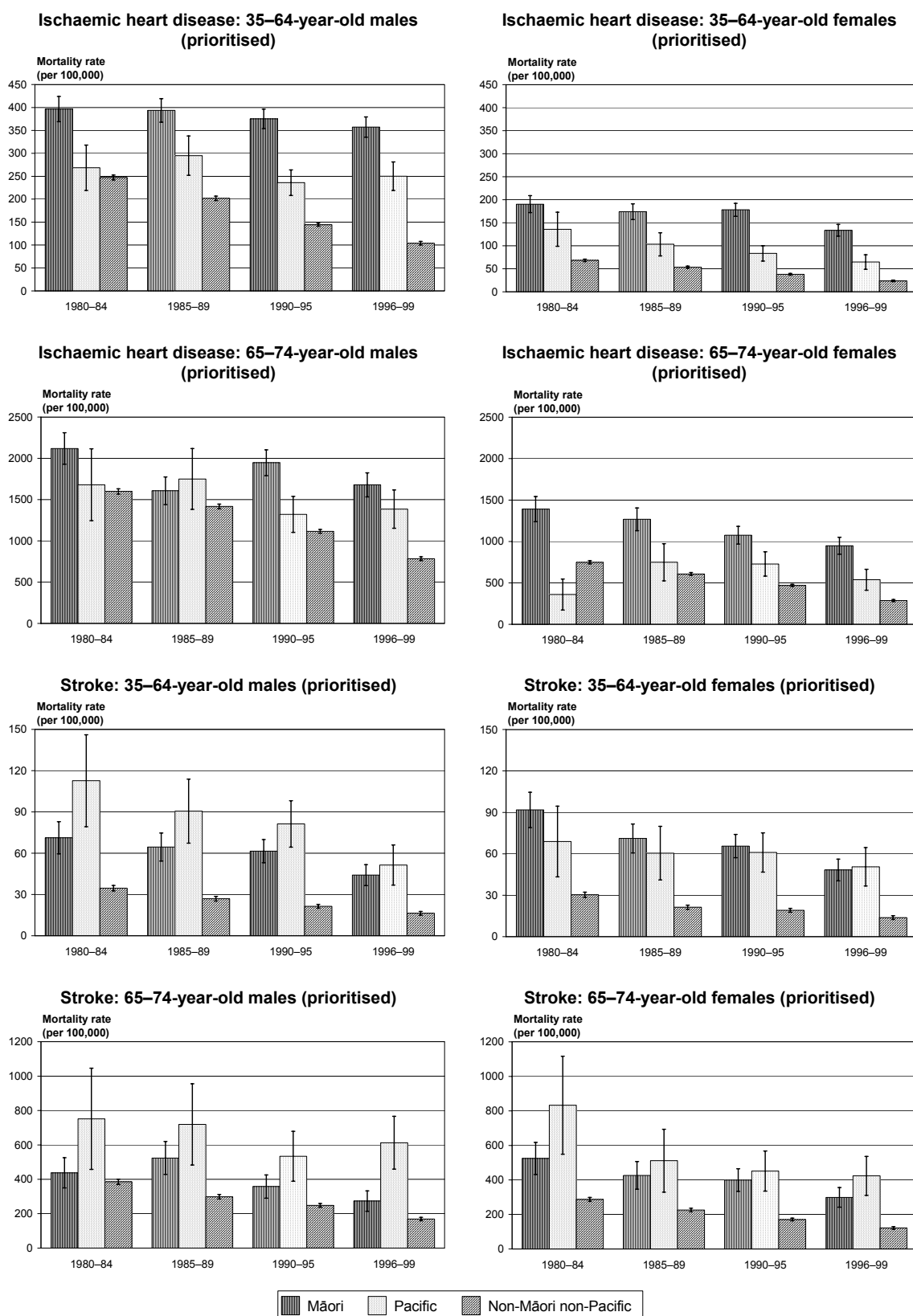


Colorectal cancer: 65–74-year-old females (prioritised)

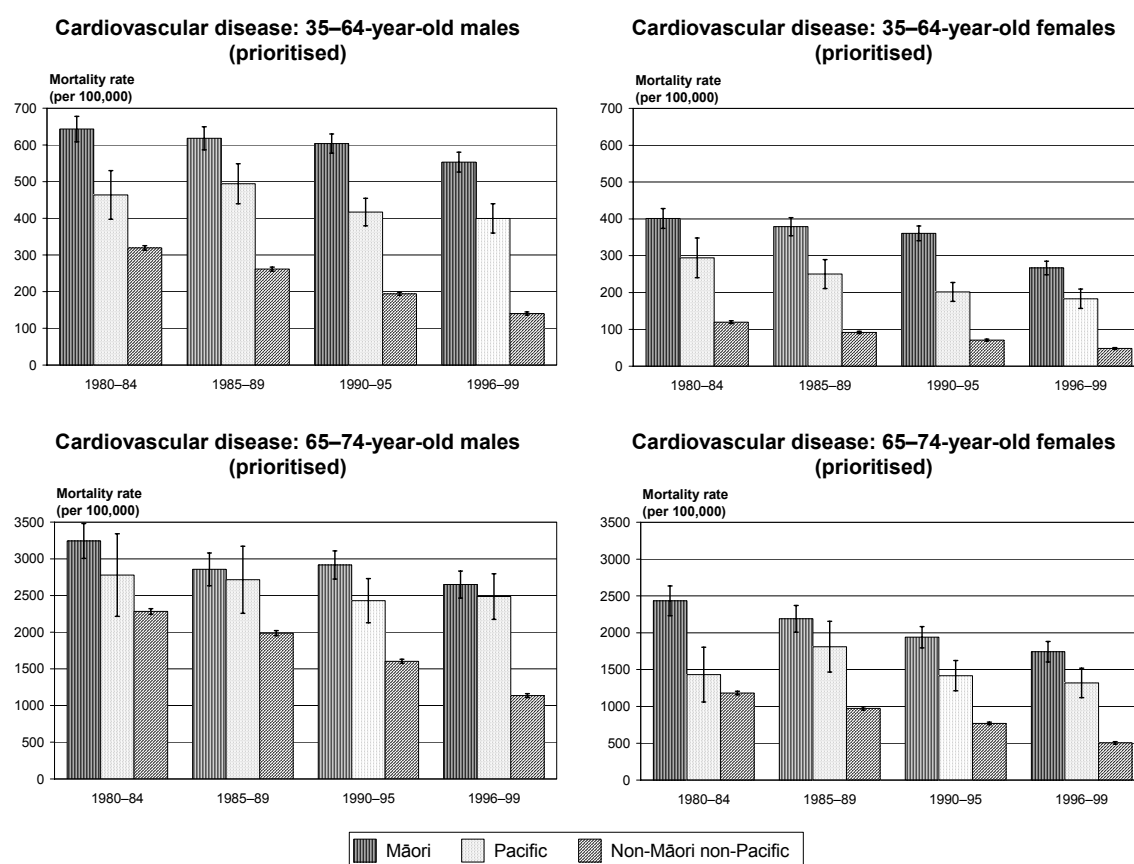


 Māori
  Pacific
  Non-Māori non-Pacific

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Note: Missing bars indicate insufficient data.

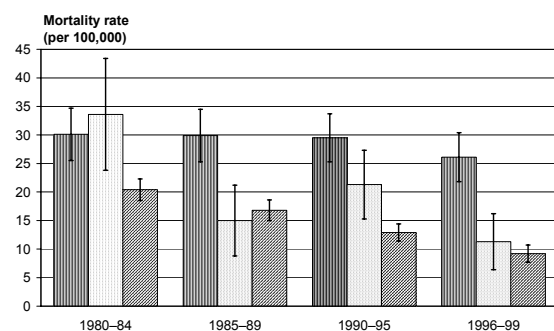
For unintentional injury deaths (Figure 16) there were notable differences between ethnic groups at all ages up to 25–44 years, but they were most marked in this latter age group. Road traffic crashes contributed to much of the unintentional injury deaths in these age groups.

Figure 17 shows that suicide rates among 45–74-year-olds were greatest among non-Māori non-Pacific people in all four time periods. The rapid increase in Māori suicide rates is most notable among 15–24-year-olds and 25–44-year-olds. For example, among 25–44-year-old males Māori had a suicide rate that was 22% less than that of non-Māori non-Pacific people in 1981–84, but by 1996–99 the rate was 70% greater. However, among 45–74-year-olds non-Māori non-Pacific people had the highest rates.

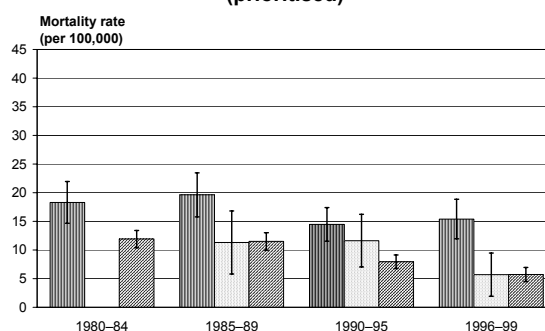
The suicide rates among 15–24 and 25–44-year-old Pacific people were similar to those among non-Māori non-Pacific people over time (allowing for statistical imprecision), but were lower for 45–74-year-olds.

Figure 16: Mortality rate in 1–14, 15–24 and 25–44-year-old males and females for unintentional injuries and road traffic crashes (prioritised series)

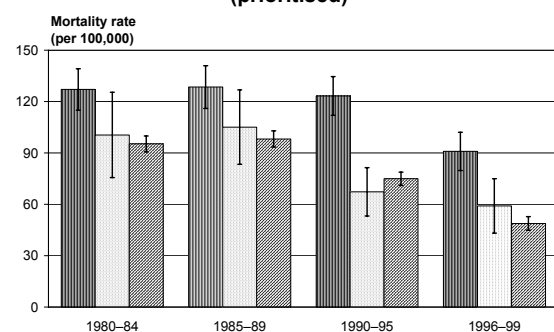
Unintentional injuries: 1–14-year-old males (prioritised)



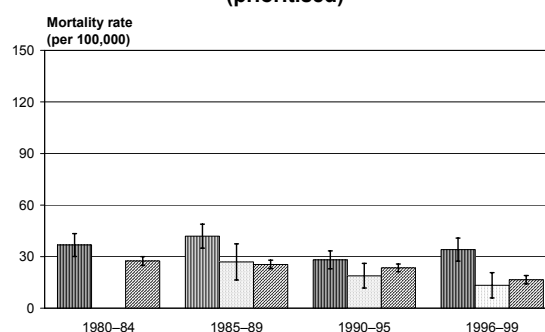
Unintentional injuries: 1–14-year-old females (prioritised)



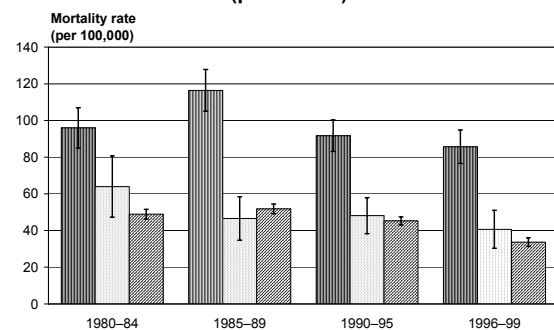
Unintentional injuries: 15–24-year-old males (prioritised)



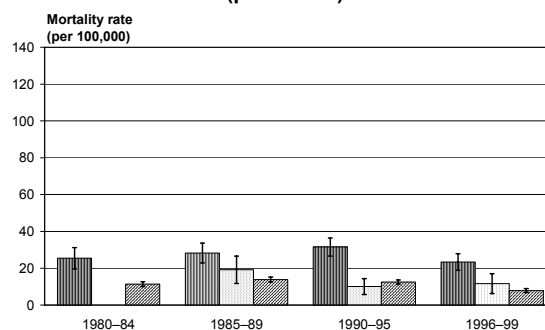
Unintentional injuries: 15–24-year-old females (prioritised)



Unintentional injuries: 25–44-year-old males (prioritised)



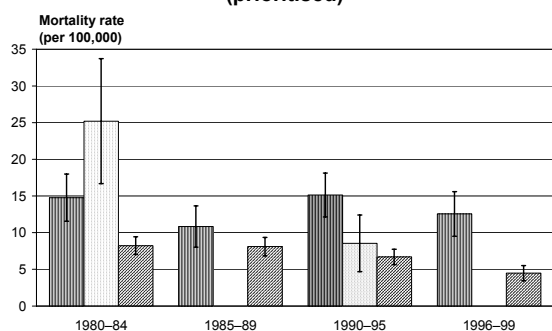
Unintentional injuries: 25–44-year-old females (prioritised)



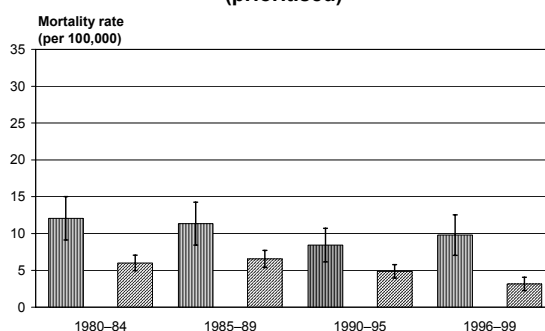
■ Māori □ Pacific ▨ Non-Māori non-Pacific

(Continued)

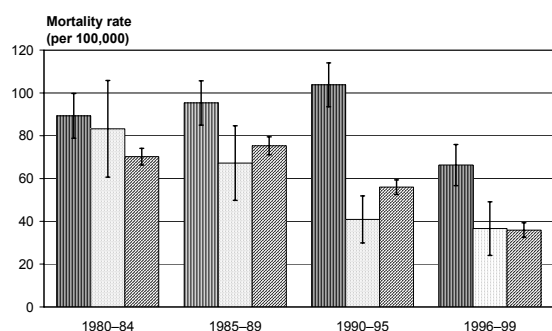
Road traffic crashes: 1–14-year-old males (prioritised)



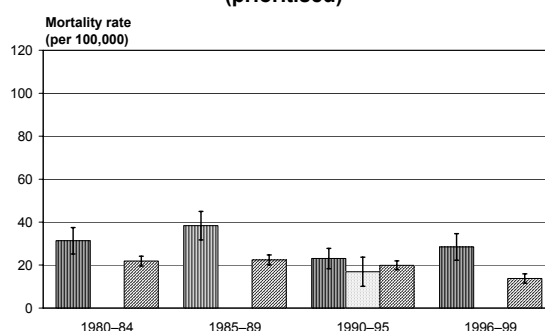
Road traffic crashes: 1–14-year-old females (prioritised)



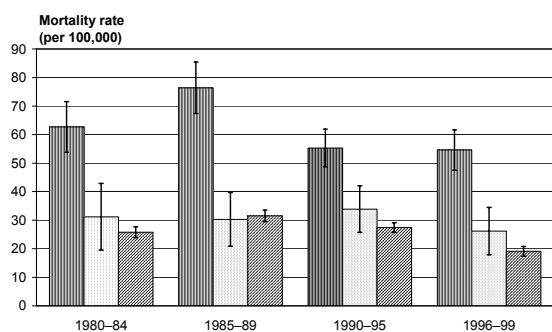
Road traffic crashes: 15–24-year-old males (prioritised)



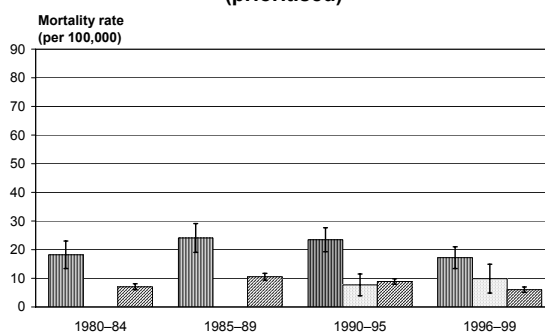
Road traffic crashes: 15–24-year-old females (prioritised)



Road traffic crashes: 25–44-year-old males (prioritised)

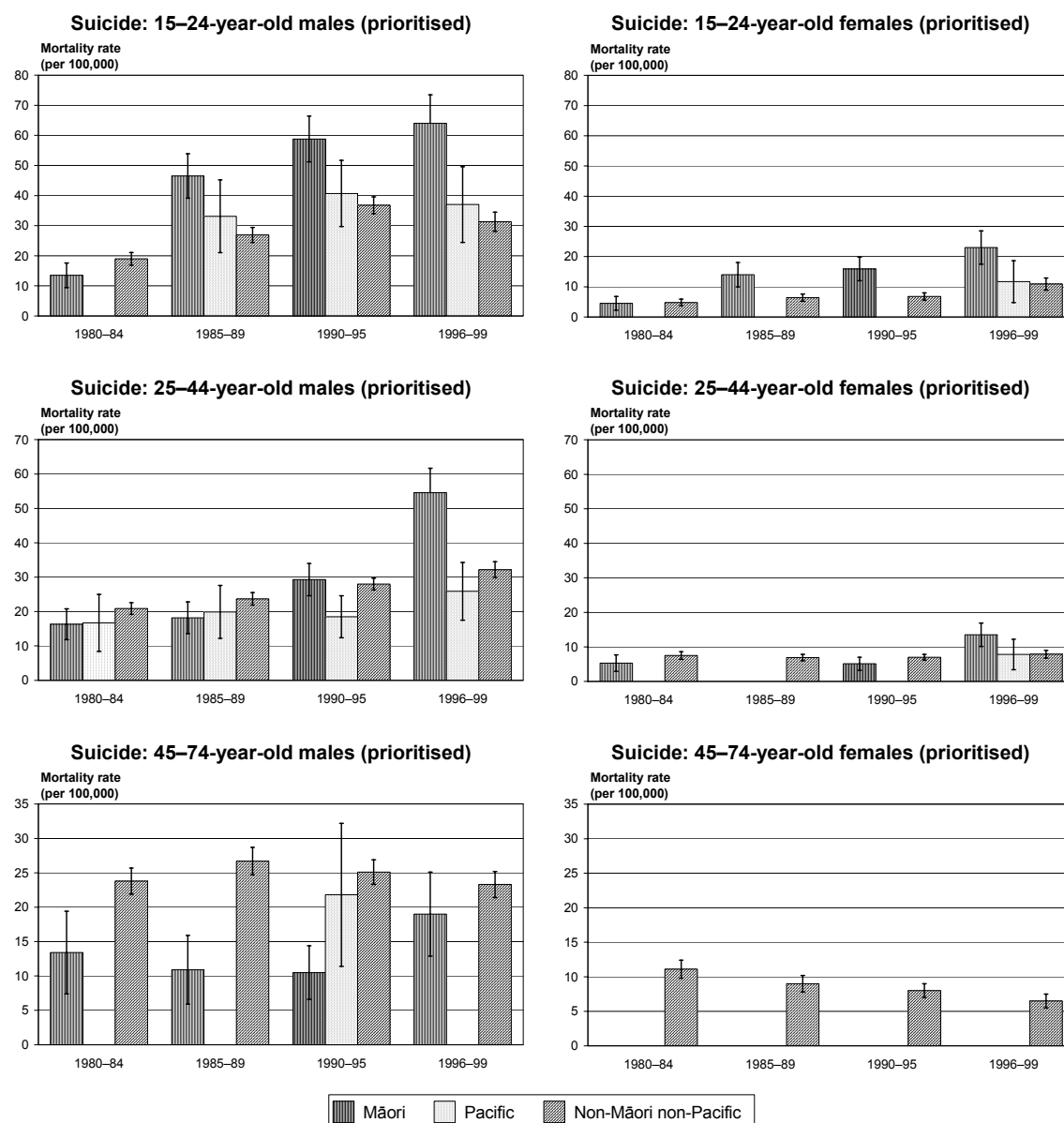


Road traffic crashes: 25–44-year-old females (prioritised)



Māori
 Pacific
 Non-Māori non-Pacific

Figure 17: Mortality rate in 15–24, 25–44 and 45–74-year-old males and females for suicide (prioritised series)



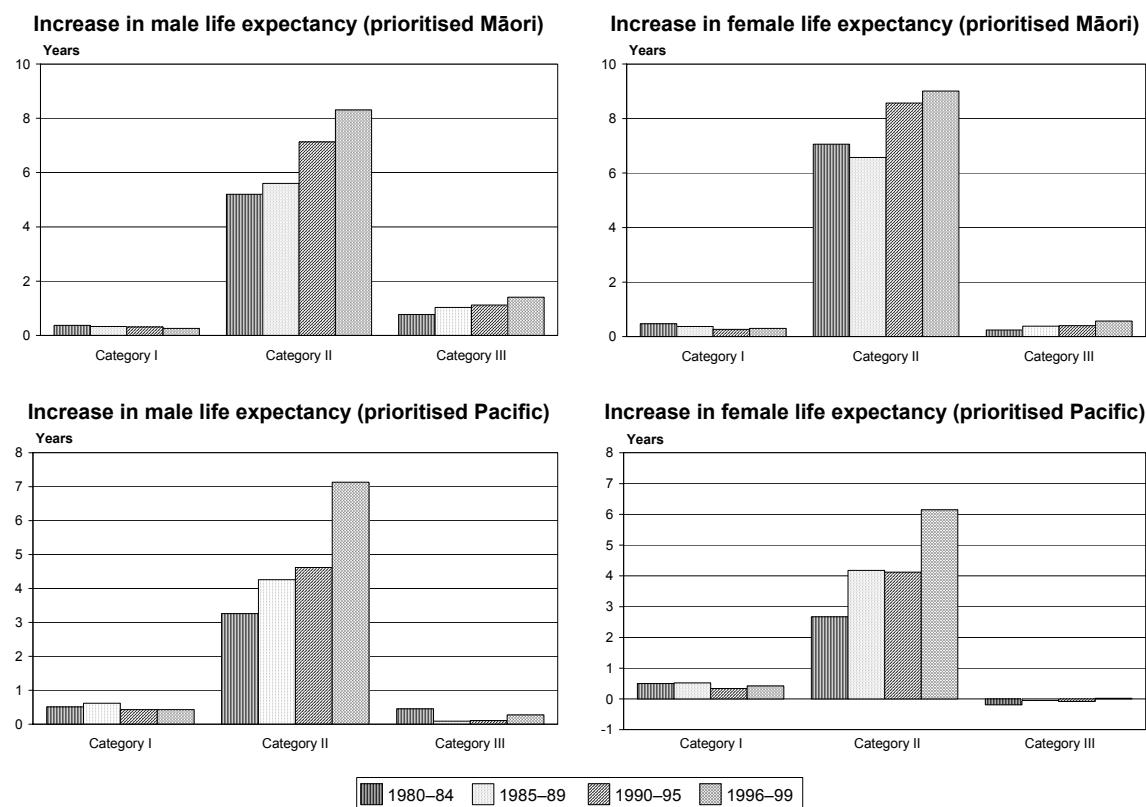
Note: Missing bars indicate insufficient data.

4.2 Cause-substituted life expectancy

Global burden of disease categories (I, II, III)

In the same way that we can substitute for various ages in the calculation of life expectancy, we can also do the same for various causes of death (using multi-decrement life-tables). Figure 18 shows the cause-substituted life expectancy for Māori and Pacific people, using non-Māori non-Pacific mortality rates for Global Burden of Disease cause categories, for the prioritised series. It can be seen that category II causes of death (chronic diseases) contribute the major share of the disparity in life expectancy between Māori (and Pacific) and non-Māori non-Pacific people. Moreover, the contribution of chronic disease to ethnic differences in life expectancy is increasing over time and is the major reason for diverging ethnic life expectancies.

Figure 18: Cause-substituted life expectancy at birth, by gender, categories I, II, and III (prioritised series)



Note: Increases and decreases are for life expectancy at birth. Category I: communicable, maternal, perinatal and nutritional diseases. Category II: chronic diseases. Category III: injuries.

Selected causes

Among the chronic diseases, cardiovascular disease (especially ischaemic heart disease) is the major contributing cause to the growth in life expectancy disparities between Māori and Pacific and non-Māori non-Pacific people (Figure 19).

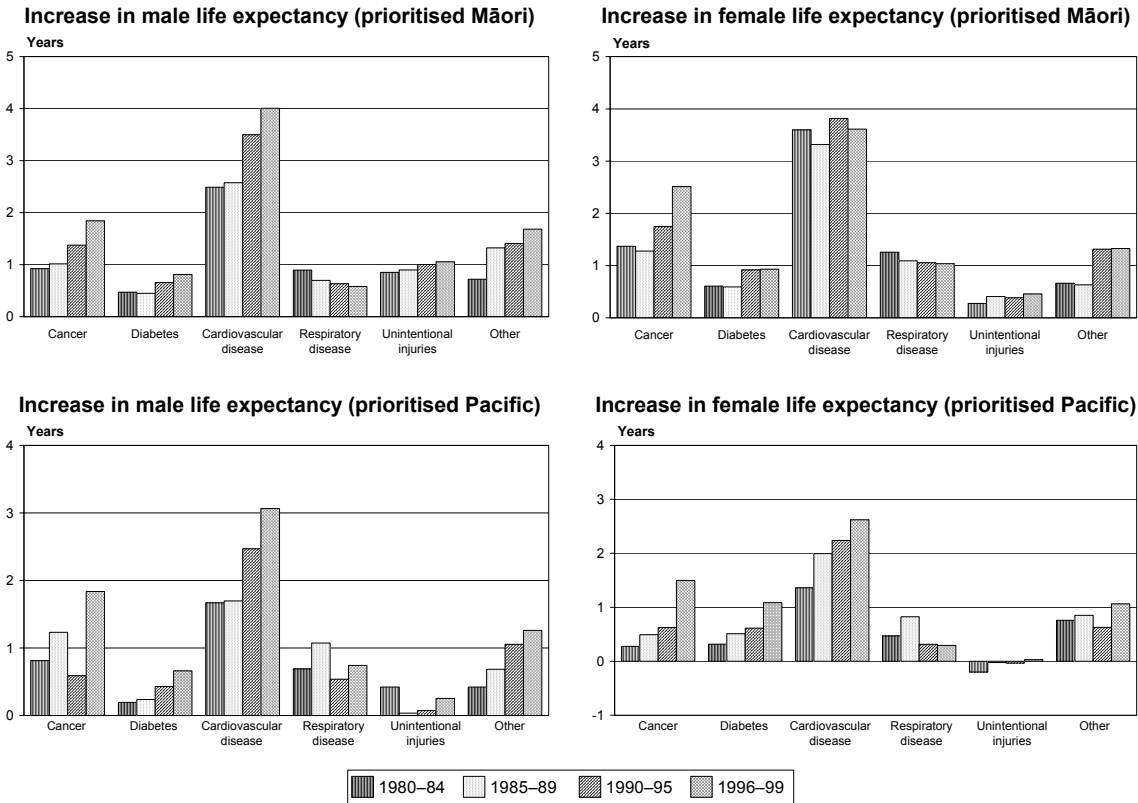
Diabetes also appears to make a sizeable contribution to ethnic disparities in life expectancy. It is important to note that causes of death attributed to diabetes in routine mortality data (as used in this report) underestimate the total contribution of diabetes to mortality – perhaps by about a half (Ministry of Health 2002d). Therefore, we might expect the contribution of diabetes to ethnic differences in life expectancy to be substantially greater than that shown in Figure 19. Conversely, some of the contribution of cardiovascular disease might actually be more appropriately attributed to diabetes as the underlying cause.

The contribution of cancer to ethnic differences in life expectancy has risen notably during the 1980s and 1990s, but still remains less than that of cardiovascular disease for both Māori and Pacific people (both genders).

Respiratory diseases also make a substantial (but stable) contribution among Māori and Pacific males. Injury deaths (unintentional, suicide and other intentional) are an important cause for disparity in life expectancy between Māori and non-Māori non-Pacific ethnic groups, but not so for Pacific compared to non-Māori non-Pacific ethnic groups.

Finally, there is still a sizeable contribution of ‘Other’ causes of death to ethnic disparities in life expectancy. No single other cause of death stands out as making a large contribution. Rather, this category is due to small contributions from many relatively minor causes of death.

Figure 19: Cause-substituted life expectancy at birth, by gender, specific causes (prioritised series)



Note: Increases and decreases shown are for life expectancy at birth.

Chapter 5: Discussion

5.1 Key findings

This report presents mortality rates and life expectancies by ethnicity for the 1980s and 1990s. Most importantly, the underlying mortality data have been corrected for numerator–denominator bias for the first time in New Zealand. There are clear and concerning patterns.

Most notably, there has been little (if any) decline in Māori and Pacific mortality rates over these two decades despite a steady decline in non-Māori non-Pacific rates. As a consequence, the gaps in life expectancy between Māori and Pacific and non-Māori non-Pacific ethnic groups increased markedly over the 1980s and 1990s.

By age, any decline in Māori and Pacific mortality rates has been apparent only for children and young people. The 45–64 and 65+ age groups now contribute substantially and about equally to the ethnic disparity in life expectancy at birth. By cause of death, decreasing mortality rates for cardiovascular disease and unintentional injury among Māori and Pacific people have been off-set by increasing cancer and (until recently) suicide mortality rates.

The *slow* decline in Māori and Pacific rates of cardiovascular mortality is in contrast to the *rapid* decline among non-Māori non-Pacific people. As a consequence, differential cardiovascular mortality (especially ischaemic heart disease mortality) among middle and older age groups still remains the major contributor to the (increasing) gaps in mortality and life expectancy between the ethnic groups. However, cancer is rapidly increasing in importance as a cause of these gaps.

5.2 Study limitations

This report presents accurate ethnic mortality rates adjusted for numerator–denominator bias for the first time in New Zealand. As such, the results in this report supersede all previous official mortality statistics by ethnicity for the 1980s and 1990s. However, there are still two important limitations to these results.

First, our adjustment for numerator–denominator bias is unlikely to be exact. To adjust for numerator–denominator bias we had to calculate correction factors from anonymously and probabilistically linked census and mortality data (Ajwani et al 2002). We were only able to use approximately two-thirds of the eligible mortality records to calculate the adjustment factors. However, extensive sensitivity analyses (Ajwani et al 2002; Blakely and Atkinson 2001) lead us to conclude that the results published in this report are accurate – certainly more so than any previous method of calculation has allowed. As a rough guide, we estimate that any all-cause mortality rates for all ages presented in this report are likely to be within a couple of percent of the ‘true’ rate. Our accuracy will be somewhat less for Pacific all-cause mortality, particularly in the early 1980s where the smaller population size and number of deaths also contribute to likely error.

Second, the best we could do was to adjust the ethnicity reported on mortality records to the self-identified ethnicity on the corresponding census. For example, we adjusted 1980–84 mortality data to represent the number of deaths equivalent to that which would have been recorded if the 1981 census question had been used when reporting ethnicity on mortality records in 1980–84. The concept and recording of census ethnicity has varied for each of the 1981, 1986, 1991 and 1996 censuses. Thus, the ethnic populations for which we calculate mortality rates over time are not exactly comparable. This instability of ethnic classifications is a major problem for the 1991 to 1996 census comparisons for Māori and Pacific ethnic groups. We have presented both sole and prioritised series in this report to ‘bracket’ the possible variations. That said, any change in the ethnic group composition over time is at the margin. The changing trends in mortality between the ethnic groups demonstrated in this report are far too large to be explained by changes in ethnic group composition over time.

5.3 Context

Māori and non-Māori life expectancy trends from 1950 to 2000

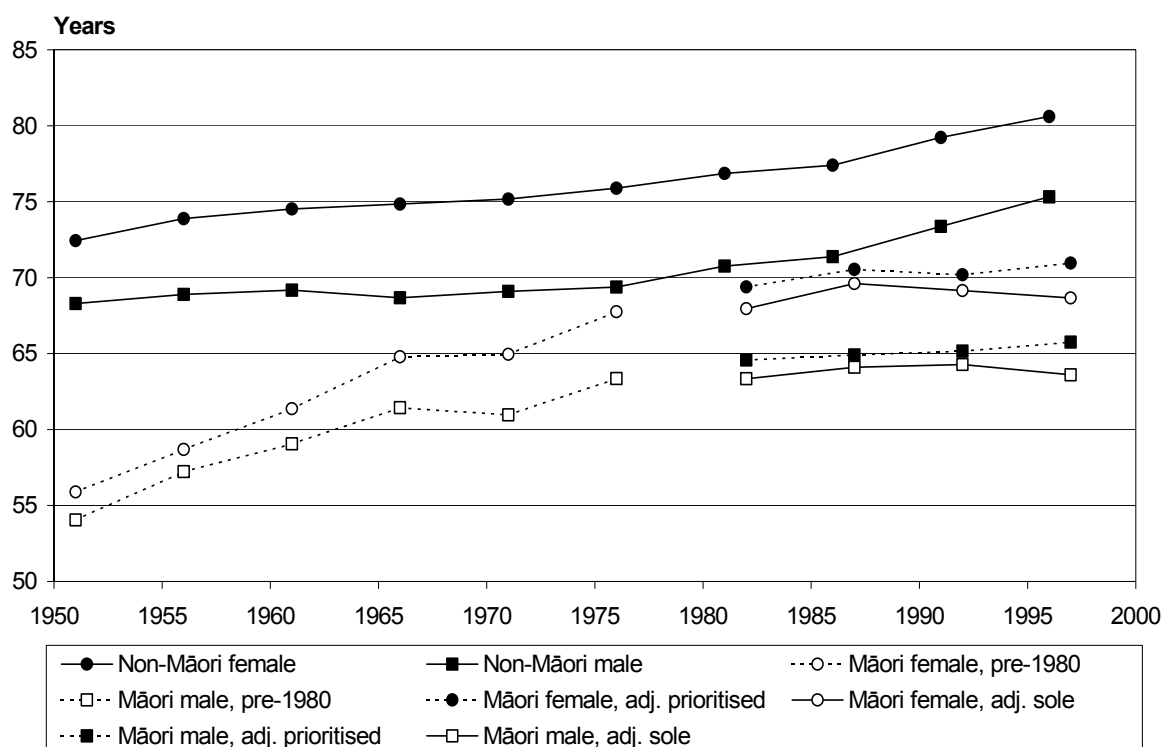
To put the results of this report in context we consider historical life expectancy trends over the long term. Figure 20 shows a number of Māori and non-Māori life expectancy series from 1950 to 2000. The non-Māori male and female series is that based on official Statistics New Zealand data, and is centred on census years (1951 to 1996 inclusive). It is not adjusted for numerator–denominator bias, but (as demonstrated in this report) numerator–denominator bias has little impact on the non-Māori rates. The life expectancy estimates for non-Māori non-Pacific people in this report are very similar to the non-Māori estimates in the graph for the last four periods (1981, 1986, 1991 and 1996 censuses), allowing for slightly different years and the exclusion of Pacific people.

Three different time series for Māori life expectancy are shown in Figure 20:

- the ‘official’ Statistics New Zealand series for 1951 to 1976 census years, using three years of mortality data bracketing each census, *without* adjustment for numerator–denominator bias
- the sole series adjusted for numerator–denominator bias from this report for the 1980s and 1990s
- the prioritised series adjusted for numerator–denominator bias from this report for the 1980s and 1990s.

The first series is not adjusted for numerator–denominator bias, so there is uncertainty regarding the exact point estimates. However, this uncertainty does not alter the conclusion that a dramatic improvement in life expectancy occurred among Māori during the 1950s, 1960s and 1970s.

Figure 20: Māori and non-Māori life expectancy, by gender, 1950–2000



Inspecting the patterns shown in Figure 20, it is clear that non-Māori have experienced a substantial increase in life expectancy during the past half century (a 7.0-year gain for males and 8.2-year gain for females). However, the pattern has not been one of consistent increase. Little improvement occurred in non-Māori life expectancy during the 1960s and 1970s. Indeed, male non-Māori life expectancy only changed from 69.2 to 69.4 between 1961 and 1976. Much of this stasis in non-Māori male life expectancy may be attributable to the peaking of the ischaemic heart disease epidemic at this time (Ministry of Health 1999a: 110).

The pattern for Māori life expectancy is dramatically different. Even though numerator–denominator bias is not adjusted for in the 1951 to 1976 series, the rapid increase in Māori life expectancy over this period is clear and, as described by one author, ‘spectacular’ (Pool 1985). Some authors have attributed most of this improvement to falling rates of tuberculosis and other infectious disease among Māori and falling infant mortality rates (Ministry of Health 1999a: 113; Pool 1985). The apparent period of stagnation in Māori life expectancy between 1965–67 and 1970–72 may reflect the peaking of the ischaemic heart disease epidemic among Māori at this time, but may also be an artefact of changes to the ethnicity question in the 1971 census. In the 1970s Māori life expectancy resumed its former upward trajectory.

When exactly did Māori life expectancy stop improving and flatten out? It seems unlikely that numerator–denominator bias (if any) during the late 1970s would have caused mortality rates to be underestimated and hence life expectancy to be overestimated. Far more likely is that the life expectancy estimate for 1975–77 is slightly overestimated, pointing to the early 1980s as the turning point (ie, life expectancy from the mid-1980s onwards is lower than that expected on the basis of past trends). On the other hand, if the 1975–77 life expectancy estimate is accurate, then the turning point might have occurred as early as the late 1970s.

Whichever was the case, the long-term picture is one of rapidly rising Māori life expectancy up to the late 1970s or early 1980s. As a result, until the early 1980s the gap between Māori and non-Māori life expectancies was closing. However, since then non-Māori life expectancy has continued to increase while Māori life expectancy has been (mostly) static, resulting in a widening of the gap.

There are insufficient data for a long time series of Pacific life expectancies, so we do not know the long-term picture for Pacific people. However, we do know from this study that, since the 1980s at least, there has also been stasis of Pacific mortality rates and a widening life expectancy gap for Pacific relative to non-Māori non-Pacific people.

5.4 Why are we observing these ethnic mortality trends?

Possible explanations for the observed trends may be considered to fall into three categories:

- epidemiological (ie, risk factors and diseases)
- social structural
- health services (access and quality).

Epidemiological explanations: risk factors and diseases

This report points to cardiovascular disease, diabetes and cancer as the major causes of death that must be tackled to reduce ethnic disparities in mortality. These causes of death have been the subject of extensive and continuing aetiological research. Much of that research has focused on ‘risk factors’ such as tobacco, cholesterol and high blood pressure.

The lung cancer and ischaemic heart disease trends in this report are consistent with what we know about tobacco consumption trends. Tobacco consumption is more prevalent, and has reduced less, among Māori and Pacific males during the last 20 years (Borman et al 1999). Cross-sectional survey data on risk factors such as obesity and high blood pressure are consistent with the ethnic disparities in mortality described in this report (Bullen et al 1996; Skeaff et al 2001; Wilson et al 2001). But there is insufficient *trend* data for risk factors over time by ethnicity (with the exception of tobacco described above).

The increasing colorectal cancer rates among Māori and Pacific people described in this report are something of a surprise; the prevailing public health view is that colorectal cancers are less common among Māori and Pacific people (Ferguson et al 1995). This historical pattern has been considered something of a paradox given the tendency to lower red meat and fat and higher fibre and cereal diets of non-Māori non-Pacific people in recent decades (Metcalf et al 1998; Russell et al 1999) and a (modest only) difference in physical activity between ethnic groups (Ministry of Health 1999b). It is plausible that different dietary patterns decades ago may explain this paradox given the lengthy time lag involved in colonic carcinogenesis. Of particular note, the very marked increase in Pacific colorectal cancer mortality may represent a late effect of migration to New Zealand. The Tokelau Island Migrant Study found substantial changes in diet, body mass index, diabetes incidence, cholesterol and other risk factors following migration (Wessen et al 1992). These risk factors and disease profiles probably overlap with a colorectal cancer risk profile. The exact role of energy and fat intake, and other aspects of nutrition, in the aetiology of colorectal cancer remains uncertain, although clearly there is something about western culture (and most likely diet) that affects colorectal cancer risk (Lawlor and Ness 2003).

A major criticism of ‘risk factor’ research is that it has tended to decontextualise behaviour, and can potentially lead to victim blaming (Krieger 1994; Pearce 1996; Susser 1973; Susser 1985; Susser 1989). Risk factors themselves must be understood as being structured by the distal social determinants of health. For example, smoking is strongly associated with increasing deprivation (Salmond and Crampton 2000), and negatively associated with increasing income (O’Dea and Howden-Chapman 2000). The Workforce Survey found gross annual household income to be inversely associated with relative risk for diabetes and impaired glucose tolerance (Scragg et al 1991). Those on low incomes are less able to afford nutritious or healthy food (Waldegrave et al 1999), and food security is a concern for some low income New Zealanders (Russell et al 1999).

Tackling socioeconomic inequalities is likely to have flow-on effects that will reduce inequalities in risk factor profiles between ethnic groups. Interventions to improve health risk profiles should be seen as a dual strategy involving both tackling the underlying determinants of risk factors, as well as directly addressing the risk factors themselves. Any discussion of risk factors and strategies for intervention must therefore take into account the social, political, economic and physical environment in which people live.

Structural explanations

Social and economic change in New Zealand society during the 1980s and 1990s

Between 1980 and 1999 New Zealand underwent major social and economic changes which form an influential backdrop to the mortality trends discussed in this report. The regulated economy of the late 1970s and early 1980s featured subsidies to control price and wage fluctuations, state housing and mortgage subsidies for low-income people, and an unemployment rate of 4% or less. 1984 is often seen as a turning point in New Zealand history, although it should be noted that the pressure for change, and indeed some of the change itself, had its roots in the prior decade (Belich 2001). However, starting apace from 1984 to at least 1993, successive governments implemented major reforms to the relationship of the state with the public by deregulating the financial sector, reorganising the state sector, and ending state support for industry (Belich 2001; Boston et al 1999; Cheyne et al 1997). Some results of these widespread reforms included a substantially flattened tax system, fully targeted income support, a regressive consumption tax (GST), market rentals for housing, privatised major utilities, user charges for health, education and other government services, and a restructured labour market designed to facilitate ‘flexibility’ (Mowbray 2001). These changes, in part at least, resulted in substantially widened income inequalities in New Zealand. Benefit cuts in 1990 resulted in the mean equivalent disposable income of households with a beneficiary dropping to below that of superannuitants, and to less than half that of households containing neither a superannuitant nor a beneficiary.

Health system restructuring was also a feature of this period. The early 1990s saw the introduction of a funder/provider split, a competitive model for provision, business objectives for hospitals, increased ‘efficiencies’ by the introduction of managerialism, capped budgets, increased ‘flexibility’ of the health workforce, withdrawal of services from public hospitals, restricted access to free emergency care, additional co-payments, and increasing use of contracts in primary care (Barnett and Barnett 1999). Māori health providers increased in number during this period (Cunningham and Durie 1999), but by 2000/01 were still only receiving \$180 million of the \$6.6 billion health budget.

These social and macroeconomic changes did not impact equally on Māori and non-Māori. Māori leaders warned at Hui Taumata in 1984 that such policies would make Māori the ‘shock absorbers in the economy’. Indeed, inequalities between Māori and non-Māori widened in employment status, education, income, and housing – key social determinants of health (Howden-Chapman and Tobias 2000). Unemployment rates for Māori rose from levels similar to those of non-Māori in the early 1980s to three times those of non-Māori in the late 1980s. Real incomes of Māori households dropped during this period and did not recover to the level they had reached in the early 1980s (Mowbray 2001; Statistics New Zealand 1999; Te Puni Kōkiri 2000). The 1990s also saw a significant drop in resources going to Māori communities following the ‘mainstreaming’ of Māori services (Cunningham and Durie 1999).

The education system plays a pivotal role in producing social inequalities between Māori and non-Māori, with disparities starting at primary-school level and increasing throughout secondary school. Since the mid-1970s, educational qualifications have increasingly determined access to jobs, and non-Māori 'advantage' in terms of gaining access to jobs and tertiary education has increased during the last decade (Te Puni Kōkiri 2000). Even with similar levels of education, however, and taking other factors into account (such as age, marital status, and length of time working), non-Māori have been found to be advantaged in the job market, both in terms of occupational status and wages. This has been attributed to discrimination against Māori in the job market (Alexander et al 2002; Sutherland and Alexander 2002). The wage and salary gap between Māori and non-Māori thus increases with age until the age of 65, with the biggest differences in the middle age group. The total income (ie, wage and other income) gap also increases through to middle age as Māori receive less income from investments and inherited wealth (Statistics New Zealand 1999). There is also some evidence of systematic discrimination against Māori in the welfare system (Hackwell and Howell 2002; Ministerial Advisory Committee 1986; MacDonald 1986).

As New Zealand's macroeconomic and social policies paralleled trends in other industrialised countries, we could expect the health outcomes of such policies to reflect those observed internationally. In the UK, for example, increasing social inequalities have been matched by increasing health inequalities (Drever and Whitehead 1997; Graham 2000). Although there has been an overall improvement in life expectancy in the UK during the past two decades, the improvement has mostly benefited the more advantaged socioeconomic classes. Life expectancy for men in social class 1 increased by 5.7 years while among men in social class 5 the gain was only 1.7 years. In the 1970s unskilled manual workers had death rates twice as high as those of professionals, but by the 1990s the rate was three times higher. Widening differentials were observed in major causes of premature death, including cardiovascular disease and lung cancer (Graham 2000). Similar trends of a decline in overall death rates but increasing inequalities were observed in the US: as socioeconomic differentials widened during the latter part of the 20th century (Feldman et al 1989), the mortality gap between people with low and higher incomes increased, as did black-white differences in mortality rates (Miller 1996).

In summary, there has been a major and rapid structural change in New Zealand society during the last 20 years that has adversely impacted on Māori and Pacific people. As socioeconomic factors are known to be the major determinant of health, it is highly plausible that the widening social inequalities between ethnic groups have in turn led to widening health inequalities. Ethnic disparities in health arise from differential access to the political, social, environmental, economic and behavioural determinants of health, resulting in differential incidence of disease. Differential incidence is then compounded by differential access to health care and differential quality of care (Jones 2001) leading to differential mortality.

This study has confirmed that Pacific people have lower mortality rates than Māori, both overall and for many specific causes – despite higher levels of deprivation. Possible reasons for this may include a 'healthy migrant' effect and the Māori experience of colonisation. Yet this study has also shown that trends in mortality over 1980–99 were similar among Māori and Pacific ethnic groups.

Health service explanations: access and quality

The New Zealand health system – with fee-for-service primary care, GPs acting as gatekeepers to secondary services, and specialists as gatekeepers to tertiary services – is more accessible to those with higher incomes, the group less likely to need medical attention. Higher rates of co-morbidities, multiple disabilities, more complex health needs, and lower incomes, make access to optimal health care a particularly important issue when considering mortality differentials between Māori and non-Māori (Baxter 2002; Ministry of Health 2002b).

US research has found that co-payments discourage visits for low-income people, irrespective of how medically necessary the visit was thought to be (including visits for preventive care (Miller 1996). There is evidence that this is also the case in New Zealand. An iwi general practice in Taranaki found the introduction of an \$8.00 part charge for community cardholders led to a dramatic decrease in attendance (30%) among a group with extremely high health needs, and the co-payment was subsequently dropped (Ruakere 1998). Recent surveys in New Zealand have found that adults with below-average income were more likely to report having gone without needed care because of the cost (Ministry of Health 1999b; Schoen et al 2002). The Commonwealth Fund 2001 Survey also found that Māori adults were twice as likely as non-Māori to have gone without needed care in the past year because of the cost – partly reflecting income differences. However, even when controlling for income, access was significantly lower for Māori (Schoen et al 2002).

Adults without private health insurance are twice as likely as those with private insurance to forgo needed care or to have difficulties paying medical bills (Schoen et al 2002). The likelihood of holding health insurance is higher among employed people, but Māori are less likely than non-Māori to have private insurance in all categories of labour force status (Te Puni Kōkiri 2000). The difference in the proportion of Māori and non-Māori with health insurance is greatest at age 45–64 years. In the absence of health insurance coverage, access to timely medical care (through specialist diagnostic services, for example) may be paid for privately, but many Māori lack the means to do so.

A significant body of research examining ethnic health disparities in the US has found that white Americans receive a higher quality of health services, and are more likely to receive even routine medical procedures, than other ethnic groups. Relative to white Americans, African Americans are less likely to receive appropriate cardiac medication or to undergo coronary artery bypass surgery, are less likely to receive haemodialysis and kidney transplantation, and are likely to receive a lower quality of basic clinical services such as intensive care even when variations in such factors as insurance status, income, age, co-morbid conditions, and symptom expression are taken into account. These differences were found to be associated with greater mortality among African-American patients (Smedley et al 2002).

The ratio of Māori to non-Māori mortality for all adult cancer is higher than the same ratio for disease incidence (Ministry of Health 2002a). This pattern indicates higher case fatality rates among Māori compared to non-Māori once they have cancer, suggesting an important role for health services to reduce ethnic inequalities. This pattern is consistent across sites which have a similar or lower incidence rate among Māori (eg, breast, prostate, colorectal), as well as across those that have a higher incidence (eg, lung, cervix and stomach). The mortality/incidence ratio also increases with increasing NZDep96 decile. Early and effective diagnosis and treatment are key to better survival outcomes for many cancers. Poorer five-year relative survival for Māori across a range of cancer sites has been directly demonstrated by analysis of New Zealand Cancer Registry data (V Stevanovic, personal communication, May 2003).

Despite higher mortality from cardiovascular disease, there is evidence that Māori and Pacific people receive fewer cardiac interventions than would be expected (Tukuaitonga and Bindman 2002). Westbrooke et al (2000) found that these differences remained even after controlling for gender, age and deprivation (NZDep96) (Westbrooke et al 2000).

In summary, there is some New Zealand evidence for ethnic differences in access to, and quality of, health care. While unlikely to account for all the inequality in survival chances between the ethnic groups demonstrated in this report, such health service explanations could make an important contribution to the observed disparities.

5.5 Where to from here?

Reducing socioeconomic disparities between ethnic groups will lead to reduction in health gaps – although the time lags for chronic disease mortality may be measured in decades rather than years. Therefore, the results of this report clearly support ongoing efforts outside of the health sector to reduce social and ethnic inequalities in health (Ministry of Health 2002). While traditional ‘risk factor profiles’ among Māori and Pacific people clearly need to improve more rapidly than those of non-Māori non-Pacific people to help close ethnic gaps in mortality, it is a moot point whether they should be tackled only indirectly via structural and health services approaches. Alternatively, risk factors such as tobacco consumption, diet and obesity might also be tackled head on. However, such programmes will have to be carefully implemented so as not to be victim blaming or unintentionally contribute to the widening of ethnic health gaps. Deficit model approaches, which aim to make Māori change to better fit current institutions, rather than changing institutions to better fit Māori, are unlikely to be effective. Clinicians, managers, policy makers and governance bodies in the health sector have a particular responsibility to examine how their policies and practices contribute to the higher risks of premature mortality among Māori and Pacific populations.

At a more fundamental level, we need to scrutinise the ideologies that support the ongoing reproduction of social inequalities between Māori and non-Māori, and determine how the circulation of these ideologies and stereotypes contributes to the maintenance of disparities. Some commentators, for example, have critiqued the often unspoken but influential labelling of the ‘deserving and the undeserving’ (Gans 1996: 92–93). In the context of ethnic health disparities, we need to consider whether ideologies of the ‘deserving’ (of jobs, education, good income, good housing, high-quality health care) are (whether consciously or unconsciously) being applied preferentially to non-Māori and to the better-off. The tenor of media discourse indicates this as a strong possibility.

A strengths-based approach (Ministry of Health 2002c) and an insistence that the health sector takes responsibility for the part it plays in maintaining or reducing inequalities is embedded in current health legislation and consequential policy settings. This policy direction is supported internationally by the World Health Organization, which now monitors the performance of countries in reducing health inequalities (World Health Organization 2002). In New Zealand the Treaty of Waitangi also provides a foundation for the Crown to address Māori/non-Māori disparities. The evidence on ethnic inequalities in survival chances in New Zealand presented in this report clearly demonstrates the imperative to take action.

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Appendix 1: Smoothed Adjustment Ratios by Five-Year Age Groups

The adjustment ratios available for analyses in this report were by five levels of age at death: (1–14, 15–24, 25–44, 45–64 and 65–77 years). For the purpose of calculating mortality rates by five-year age categories and over the age of 77, we estimated ‘smoothed’ adjustment ratios for each five-year age group. Briefly, the crude ratios were assigned to the appropriate five-year age group within the broader age category. The smoothed ratio for the remaining age groups was calculated mathematically as follows:

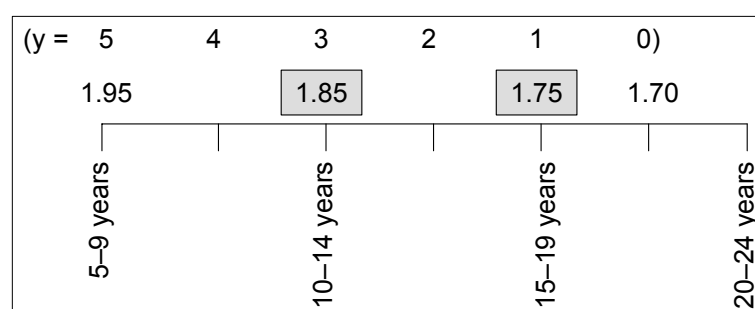
$$\text{SmoothRatio} = \{\text{RatioVal} * y\} / \text{numint} + \{\text{nexttrat} * (\text{numint} - y)\} / \text{numint} \text{ or}$$

$$\text{SmoothRatio} = \{\text{prevrat} * y\} / \text{numint} + \{\text{RatioVal} * (\text{numint} - y)\} / \text{numint},$$

Where:

- RatioVal = the crude ratio given to that broad age category
- nexttrat = the crude ratio given to the succeeding broad age category
- prevrat = the crude ratio given to the preceding broad age category
- numint = the total number of age intervals between the two crude ratios
- y = the age interval (in decreasing order) of that particular five-year age group between the two crude ratios.

Figure 21: Example of smoothing



For example, if the crude adjustment ratio for the 1–14 year category is 1.95 and for the 15–24 year category is 1.70, then the crude ratios are allotted to the ages shown in Figure 21. The smoothed ratio for the 10–14 year age group is:

$$\begin{aligned} \text{SmoothRatio} &= \{\text{RatioVal} * y\} / \text{numint} + \{\text{nexttrat} * (\text{numint} - y)\} / \text{numint} \\ &= 1.95 * 3 / 5 + \{1.70 * (5 - 3)\} / 5 \\ &= 1.85 \end{aligned}$$

and for the 15–19 year age group is:

$$\begin{aligned} \text{SmoothRatio} &= \{\text{prevrat} * y\} / \text{numint} + \{\text{RatioVal} * (\text{numint} - y)\} / \text{numint} \\ &= \{1.95 * 1\} / 5 + \{1.70 * (5 - 1)\} / 5 \\ &= 1.75 \end{aligned}$$

For the 1–4 year age group the ratios were calculated by extrapolating the 5–9 year age group ratios, whereas those over the age of 75 years were given the same ratio as the 75–79 year age group.

An additional weight was given to each of the five-year smoothed ratios based on the proportion of deaths in that five-year age group within the broader age category to produce adjustment ratios most accurate to that age group.

Table 2: Smoothed adjustment ratios used in this report

Age group	Ethnic group	Adjustment ratios (prioritised)				Adjustment ratios (sole)			
		1980–84	1985–89	1990–95	1996–99	1980–84	1985–89	1990–95	1996–99
Less than 1 year	Māori	1.42	1.62	1.62	0.94	1.11	1.09	1.24	0.75
	Pacific	1.00	0.84	0.95	0.83	0.89	0.67	0.84	0.67
	Non-Māori non-Pacific	0.90	0.84	0.83	0.98	0.98	0.98	0.95	1.13
	Non-Māori	0.90	0.86	0.86	0.96	0.97	0.96	0.94	1.07
1–4 years	Māori	2.14	2.61	2.65	1.09	1.68	1.68	1.97	0.91
	Pacific	2.78	1.74	1.88	1.01	2.37	1.50	1.66	0.79
	Non-Māori non-Pacific	0.79	0.74	0.70	0.95	0.86	0.88	0.81	1.07
	Non-Māori	0.85	0.80	0.79	0.95	0.92	0.92	0.88	1.05
5–9 years	Māori	2.04	2.47	2.49	1.11	1.60	1.66	1.87	0.87
	Pacific	2.45	2.04	1.92	1.05	2.13	1.63	1.69	0.84
	Non-Māori non-Pacific	0.81	0.77	0.74	0.94	0.88	0.89	0.83	1.07
	Non-Māori	0.87	0.82	0.81	0.95	0.93	0.92	0.89	1.05
10–14 years	Māori	1.94	2.34	2.33	1.13	1.53	1.64	1.77	0.84
	Pacific	2.13	2.34	1.96	1.08	1.89	1.76	1.71	0.89
	Non-Māori non-Pacific	0.84	0.79	0.78	0.94	0.90	0.89	0.86	1.07
	Non-Māori	0.88	0.84	0.84	0.95	0.94	0.92	0.90	1.06
15–19 years	Māori	1.76	2.10	2.11	1.13	1.38	1.54	1.60	0.78
	Pacific	1.56	2.47	1.84	1.10	1.44	1.73	1.58	0.92
	Non-Māori non-Pacific	0.87	0.83	0.82	0.93	0.93	0.92	0.90	1.07
	Non-Māori	0.89	0.87	0.86	0.95	0.95	0.93	0.92	1.06
20–24 years	Māori	1.67	1.99	1.96	1.14	1.32	1.52	1.52	0.77
	Pacific	1.44	2.54	1.87	1.11	1.36	1.79	1.62	0.94
	Non-Māori non-Pacific	0.89	0.85	0.85	0.93	0.94	0.92	0.91	1.07
	Non-Māori	0.91	0.88	0.88	0.95	0.95	0.94	0.93	1.07
25–29 years	Māori	1.49	1.82	1.65	1.11	1.24	1.50	1.41	0.78
	Pacific	1.61	2.13	1.92	1.08	1.53	1.75	1.81	0.92
	Non-Māori non-Pacific	0.91	0.86	0.87	0.95	0.95	0.91	0.91	1.08
	Non-Māori	0.92	0.89	0.90	0.96	0.96	0.94	0.94	1.06
30–34 years	Māori	1.45	1.77	1.58	1.10	1.22	1.49	1.38	0.79
	Pacific	1.63	2.06	1.93	1.08	1.56	1.75	1.85	0.92
	Non-Māori non-Pacific	0.91	0.87	0.87	0.95	0.95	0.91	0.91	1.08
	Non-Māori	0.93	0.90	0.91	0.96	0.97	0.94	0.94	1.06
35–39 years	Māori	1.36	1.68	1.45	1.09	1.17	1.47	1.32	0.79
	Pacific	1.67	1.92	1.95	1.06	1.61	1.75	1.92	0.92
	Non-Māori non-Pacific	0.92	0.88	0.89	0.96	0.96	0.91	0.91	1.08
	Non-Māori	0.94	0.91	0.92	0.97	0.97	0.94	0.94	1.06

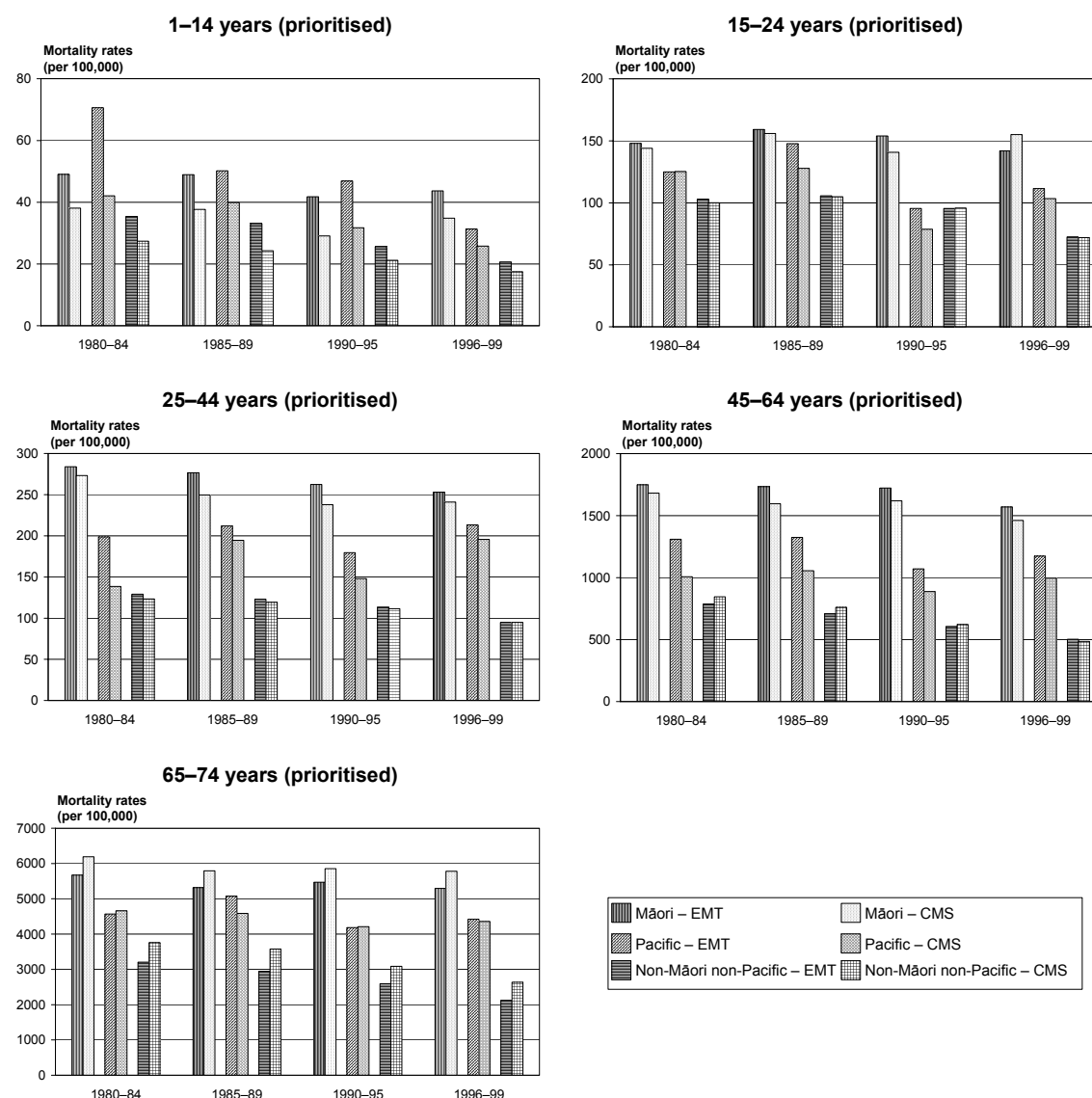
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Age group	Ethnic group	Adjustment ratios (prioritised)				Adjustment ratios (sole)			
		1980–84	1985–89	1990–95	1996–99	1980–84	1985–89	1990–95	1996–99
40–44 years	Māori	1.34	1.62	1.43	1.08	1.16	1.43	1.31	0.81
	Pacific	1.68	1.94	1.89	1.04	1.60	1.80	1.87	0.91
	Non-Māori non-Pacific	0.93	0.89	0.90	0.97	0.96	0.92	0.92	1.07
	Non-Māori	0.95	0.92	0.93	0.97	0.98	0.94	0.95	1.05
45–49 years	Māori	1.33	1.54	1.47	1.06	1.14	1.37	1.34	0.86
	Pacific	1.66	2.09	1.79	1.00	1.54	1.94	1.74	0.91
	Non-Māori non-Pacific	0.95	0.92	0.92	0.98	0.97	0.94	0.94	1.05
	Non-Māori	0.96	0.94	0.94	0.98	0.98	0.96	0.96	1.04
50–54 years	Māori	1.32	1.51	1.46	1.05	1.14	1.35	1.33	0.87
	Pacific	1.66	2.10	1.76	0.99	1.54	1.96	1.72	0.91
	Non-Māori non-Pacific	0.95	0.92	0.92	0.98	0.98	0.95	0.94	1.05
	Non-Māori	0.96	0.94	0.94	0.98	0.98	0.96	0.96	1.04
55–59 years	Māori	1.29	1.45	1.43	1.04	1.12	1.31	1.32	0.89
	Pacific	1.66	2.11	1.71	0.97	1.52	2.01	1.67	0.91
	Non-Māori non-Pacific	0.96	0.94	0.93	0.99	0.98	0.96	0.95	1.04
	Non-Māori	0.97	0.95	0.95	0.99	0.99	0.97	0.96	1.03
60–64 years	Māori	1.31	1.43	1.42	1.04	1.12	1.27	1.30	0.89
	Pacific	1.66	2.03	1.70	0.96	1.52	1.90	1.66	0.90
	Non-Māori non-Pacific	0.97	0.95	0.95	0.99	0.99	0.97	0.96	1.03
	Non-Māori	0.98	0.96	0.96	0.99	0.99	0.98	0.97	1.02
65–69 years	Māori	1.35	1.40	1.39	1.07	1.12	1.21	1.25	0.87
	Pacific	1.65	1.84	1.70	0.96	1.53	1.66	1.64	0.89
	Non-Māori non-Pacific	0.98	0.97	0.96	0.99	0.99	0.98	0.97	1.02
	Non-Māori	0.98	0.98	0.97	0.99	0.99	0.99	0.98	1.02
70–74 years	Māori	1.36	1.38	1.37	1.07	1.12	1.17	1.22	0.87
	Pacific	1.65	1.76	1.70	0.95	1.53	1.56	1.63	0.89
	Non-Māori non-Pacific	0.98	0.98	0.98	0.99	0.99	0.99	0.98	1.01
	Non-Māori	0.99	0.99	0.98	0.99	1.00	0.99	0.99	1.01
75–79 years	Māori	1.37	1.37	1.37	1.08	1.12	1.16	1.21	0.87
	Pacific	1.65	1.72	1.70	0.94	1.53	1.51	1.63	0.89
	Non-Māori non-Pacific	0.99	0.99	0.98	1.00	1.00	1.00	0.99	1.01
	Non-Māori	0.99	0.99	0.99	0.99	1.00	1.00	1.00	1.01
80–84 years	Māori	1.36	1.39	1.38	1.07	1.12	1.18	1.23	0.87
	Pacific	1.65	1.78	1.70	0.95	1.53	1.58	1.64	0.89
	Non-Māori non-Pacific	0.98	0.98	0.97	0.99	0.99	0.99	0.98	1.02
	Non-Māori	0.99	0.99	0.98	0.99	1.00	0.99	0.99	1.01
85+ years	Māori	1.36	1.39	1.38	1.07	1.12	1.18	1.23	0.87
	Pacific	1.65	1.78	1.70	0.95	1.53	1.58	1.64	0.89
	Non-Māori non-Pacific	0.98	0.98	0.97	0.99	0.99	0.99	0.98	1.02
	Non-Māori	0.99	0.99	0.98	0.99	1.00	0.99	0.99	1.01

Appendix 2: NZCMS Validation Study

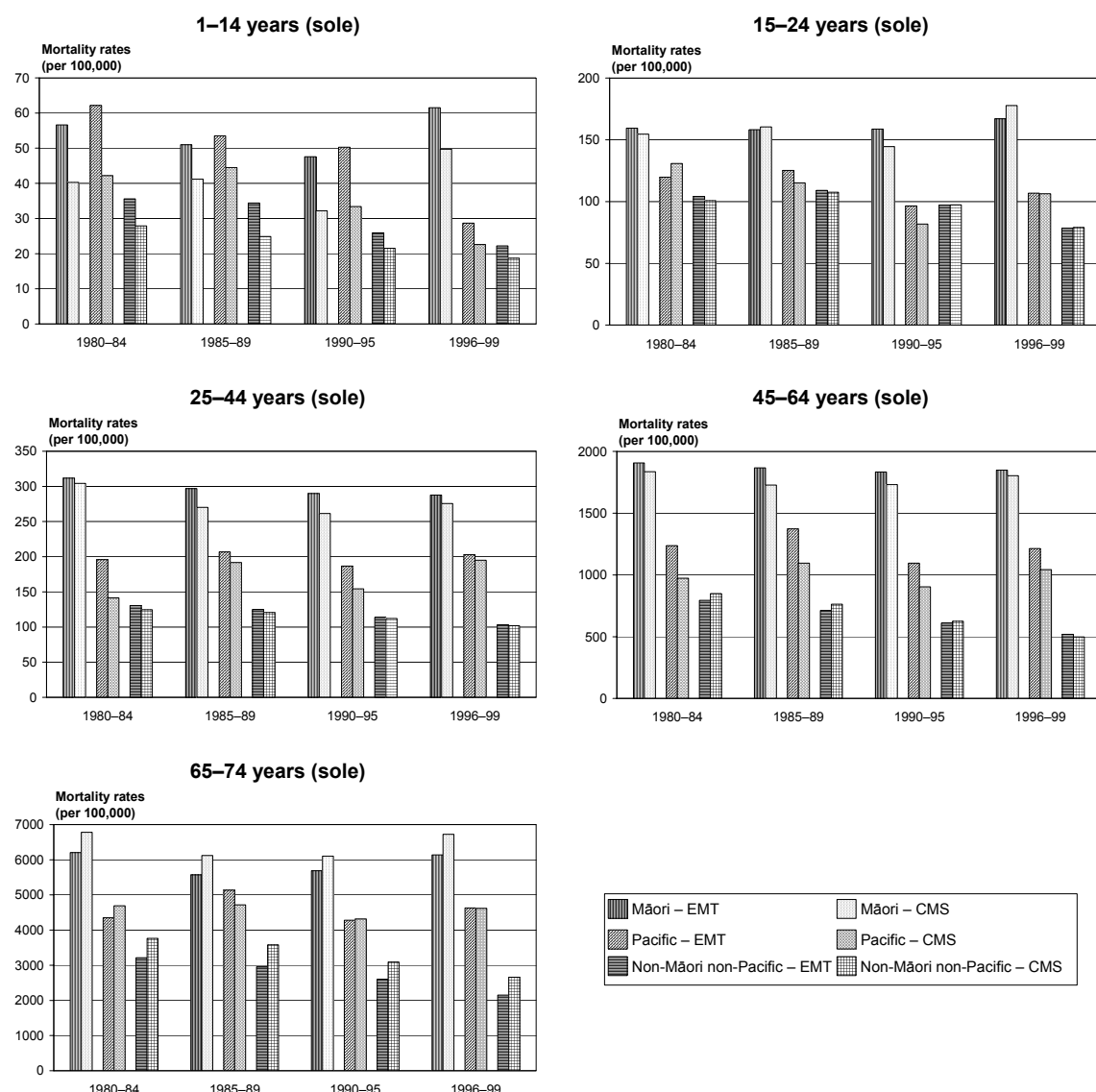
Results of directly calculating ethnic-specific mortality rates from the linked records of the NZCMS dataset are compared with those obtained by applying NZCMS-derived adjusters to routine Ministry of Health datasets (Figures 22 and 23) as a validation test.

Figure 22: Comparison of mortality rates, by age, EMT v. NZCMS, prioritised series



Corresponding table is Table 49.

Figure 23: Comparison of mortality rates, by age, EMT v. NZCMS, sole series



Corresponding table is Table 50.

While the patterns are similar for both methods, for both sole and prioritised series the NZCMS rates are consistently lower than the rates shown in this study for all age groups except 65–74 years, where the pattern is reversed.

The reason for the lower mortality rate is lower mortality numbers. This difference is about 600 for each cohort. There are two possible reasons for this finding. First, NZCMS excluded anyone who had the domicile code = 999 or missing to improve the linkage. Second, during the linkage records anyone who was not a New Zealand resident or whose status was not mentioned in either the census or mortality record ($n = 300$ approximately) was excluded.

Given these differences, the pattern of NZCMS rates agrees reasonably closely with that calculated using adjusters and routine mortality data, as presented in this report.

Appendix 3: Tables of Standardised Mortality Rates and Ratios

Note: In all tables, the numbers in parentheses are 95% confidence intervals.

Table 3: Overall standardised mortality rate, all ages (prioritised ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	851.5	1154.9	(1131–1179)	730.3	1063.8	(1043–1084)	769.4	1095.5	(1077–1114)	997.6	1061.8	(1043–1080)
Pacific	546.4	896.3	(843–950)	506.2	928.8	(888–969)	498.4	849.0	(820–878)	919.6	887.8	(859–917)
Non-Māori non-Pacific	734.5	710.5	(707–714)	698.9	666.9	(664–670)	615.1	584.2	(582–587)	513.9	508.3	(506–511)

Table 4: Male standardised mortality rate, all ages (prioritised ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	1002.9	1361.0	(1323–1399)	865.9	1264.7	(1232–1298)	907.8	1295.5	(1266–1326)	1181.2	1257.9	(1227–1289)
Pacific	769.3	1263.9	(1143–1384)	625.0	1155.1	(1083–1227)	657.4	1121.5	(1065–1178)	1185.7	1144.2	(1092–1196)
Non-Māori non-Pacific	949.0	918.5	(912–925)	890.2	849.8	(844–855)	783.7	744.6	(740–749)	648.0	640.8	(636–646)

Table 5: Female standardised mortality rate, all ages (prioritised ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	712.3	965.2	(935–995)	610.8	885.5	(860–911)	653.9	927.2	(905–950)	840.1	893.7	(871–917)
Pacific	410.4	672.2	(613–731)	407.0	737.8	(690–786)	387.0	657.7	(624–691)	720.7	695.5	(662–729)
Non-Māori non-Pacific	571.4	553.1	(549–557)	548.6	524.5	(521–528)	484.5	460.9	(458–464)	411.1	406.9	(404–410)

Table 6: Overall standardised mortality rate, all ages (sole ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	1118.7	1266.8	(1238–1295)	903.5	1127.6	(1104–1151)	911.2	1161.9	(1142–1182)	1458.5	1258.9	(1233–1285)
Pacific	557.8	846.2	(794–898)	579.7	944.4	(901–988)	536.6	877.3	(846–908)	1037.5	926.4	(893–959)
Non-Māori non-Pacific	724.4	713.9	(711–717)	688.4	671.3	(668–675)	607.1	587.0	(584–590)	508.6	522.0	(519–525)

Table 7: Male standardised mortality rate, all ages (sole ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	1294.7	1467.3	(1423–1511)	1067.8	1334.9	(1297–1373)	1071.6	1367.7	(1334–1401)	1731.5	1492.8	(1449–1537)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Pacific	781.6	1188.1	(1071–1305)	708.2	1162.5	(1085–1240)	713.8	1168.7	(1106–1231)	1339.4	1196.3	(1136–1257)
Non-Māori non-Pacific	936.2	922.8	(917–929)	877.3	855.4	(850–861)	773.9	748.4	(744–753)	641.2	657.9	(653–663)

Table 8: Female standardised mortality rate, all ages (sole ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	945.0	1068.8	(1032–1105)	757.4	941.9	(913–971)	776.3	987.6	(962–1013)	1230.6	1064.1	(1032–1096)
Pacific	426.1	645.2	(586–704)	470.9	757.3	(705–809)	416.4	679.0	(644–714)	810.9	723.6	(686–762)
Non-Māori non-Pacific	563.7	555.8	(552–560)	540.5	527.8	(524–531)	478.2	462.9	(460–466)	407.0	417.5	(414–421)

Table 9: Overall standardised rate ratios, all ages (prioritised ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	1.16	1.63	(1.59–1.66)	1.04	1.60	(1.56–1.63)	1.25	1.88	(1.84–1.91)	1.94	2.09	(2.05–2.13)
Pacific	0.74	1.26	(1.19–1.34)	0.72	1.39	(1.33–1.46)	0.81	1.45	(1.40–1.50)	1.79	1.75	(1.69–1.81)
Non-Māori non-Pacific	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)

Table 10: Male standardised rate ratios, all ages (prioritised ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	1.06	1.48	(1.44–1.52)	0.97	1.49	(1.45–1.53)	1.16	1.74	(1.70–1.78)	1.82	1.96	(1.91–2.01)
Pacific	0.81	1.38	(1.25–1.51)	0.70	1.36	(1.28–1.45)	0.84	1.51	(1.43–1.59)	1.83	1.79	(1.70–1.87)
Non-Māori non-Pacific	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)

Table 11: Female standardised rate ratios, all ages (prioritised ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	1.25	1.74	(1.69–1.80)	1.11	1.69	(1.64–1.74)	1.35	2.01	(1.96–2.06)	2.04	2.20	(2.14–2.26)
Pacific	0.72	1.22	(1.11–1.33)	0.74	1.41	(1.32–1.50)	0.80	1.43	(1.36–1.50)	1.75	1.71	(1.63–1.80)
Non-Māori non-Pacific	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)

Table 12: Overall standardised rate ratios, all ages (sole ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	1.54	1.77	(1.73–1.82)	1.31	1.68	(1.64–1.72)	1.50	1.98	(1.94–2.02)	2.87	2.41	(2.36–2.46)
Pacific	0.77	1.19	(1.11–1.26)	0.84	1.41	(1.34–1.47)	0.88	1.49	(1.44–1.55)	2.04	1.77	(1.71–1.84)
Non-Māori non-Pacific	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)

Table 13: Male standardised rate ratios, all ages (sole ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	1.38	1.59	(1.54–1.64)	1.22	1.56	(1.52–1.61)	1.38	1.83	(1.78–1.87)	2.70	2.27	(2.20–2.34)
Pacific	0.83	1.29	(1.17–1.42)	0.81	1.36	(1.27–1.45)	0.92	1.56	(1.48–1.65)	2.09	1.82	(1.73–1.91)
Non-Māori non-Pacific	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)

Table 14: Female standardised rate ratios, all ages (sole ethnic group)

Ethnic group	1980–84			1985–89			1990–95			1996–99		
	Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.		Unadj.	Adj.	
Māori	1.68	1.92	(1.86–1.99)	1.40	1.78	(1.73–1.84)	1.62	2.13	(2.08–2.19)	3.02	2.55	(2.47–2.63)
Pacific	0.76	1.16	(1.06–1.27)	0.87	1.43	(1.34–1.54)	0.87	1.47	(1.39–1.54)	1.99	1.73	(1.64–1.83)
Non-Māori non-Pacific	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)	1.00	1.00	(0.99–1.01)

Table 15: Overall age-specific mortality rate, by age group (prioritised series)

Age group	Ethnic group	1980–84		1985–89		1990–95		1996–99	
1–14 years	Māori	49.0	(44.8–53.2)	48.9	(44.7–53.1)	41.8	(38.2–45.3)	43.7	(39.7–47.8)
	Pacific	70.6	(60.2–81.0)	50.2	(42.0–58.3)	46.9	(40.5–53.3)	31.3	(25.2–37.4)
	Non-Māori non-Pacific	35.4	(33.6–37.2)	33.1	(31.3–34.9)	25.6	(24.1–27.1)	20.6	(19.0–22.2)
15–24 years	Māori	148.0	(138–157)	159.2	(150–169)	154.0	(145–163)	141.9	(132–152)
	Pacific	124.9	(105–144)	147.7	(130–166)	95.5	(83.9–107)	111.7	(96.4–127)
	Non-Māori non-Pacific	103.0	(99.5–106)	105.7	(102–109)	95.5	(92.4–98.7)	72.4	(68.9–75.9)
25–44 years	Māori	283.9	(270–298)	276.6	(264–290)	262.3	(252–273)	252.9	(242–264)
	Pacific	198.6	(177–220)	212.1	(193–231)	179.6	(166–193)	213.3	(196–230)
	Non-Māori non-Pacific	129.0	(126–132)	122.9	(120–126)	113.3	(111–116)	94.9	(92.3–97.6)
45–64 years	Māori	1749.7	(1697–1803)	1734.0	(1685–1783)	1723.0	(1682–1764)	1569.2	(1527–1612)
	Pacific	1309.5	(1204–1415)	1324.5	(1241–1408)	1071.0	(1015–1127)	1173.2	(1109–1237)
	Non-Māori non-Pacific	787.3	(779–796)	707.1	(699–715)	605.5	(599–612)	502.3	(495–510)
65–74 years	Māori	5671.7	(5452–5891)	5317.9	(5111–5525)	5469.3	(5291–5647)	5295.8	(5118–5473)
	Pacific	4567.4	(4078–5057)	5074.6	(4653–5496)	4184.9	(3922–4448)	4421.2	(4148–4695)
	Non-Māori non-Pacific	3205.0	(3175–3235)	2948.7	(2921–2977)	2592.3	(2569–2615)	2122.2	(2098–2147)

Table 16: Age-specific male mortality rate, by age group (prioritised series)

Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
1–14 years	Māori	55.4 (49.1–61.6)	61.8 (55.1–68.5)	50.5 (45.1–55.9)	50.6 (44.5–56.6)
	Pacific	66.7 (52.7–80.7)	55.2 (43.3–67.1)	56.7 (46.9–66.5)	32.8 (24.2–41.5)
	Non-Māori non-Pacific	41.9 (39.1–44.7)	37.7 (35.0–40.4)	29.7 (27.5–31.9)	22.8 (20.4–25.1)
15–24 years	Māori	202.3 (187–218)	226.9 (211–243)	237.5 (222–253)	199.9 (183–217)
	Pacific	169.0 (137–201)	208.8 (178–239)	134.6 (115–155)	165.9 (139–192)
	Non-Māori non-Pacific	145.2 (140–151)	156.1 (150–162)	139.0 (134–144)	101.9 (96.1–108)
25–44 years	Māori	339.7 (318–361)	355.9 (335–377)	327.6 (311–344)	337.1 (319–355)
	Pacific	253.7 (220–288)	270.6 (241–301)	235.8 (213–258)	245.6 (219–272)
	Non-Māori non-Pacific	162.7 (158–168)	157.7 (153–162)	149.3 (145–153)	127.3 (123–132)
45–64 years	Māori	2070.1 (1988–2152)	2011.8 (1936–2087)	1960.3 (1897–2023)	1874.8 (1809–1941)
	Pacific	1630.5 (1462–1799)	1644.0 (1512–1776)	1318.3 (1229–1408)	1464.2 (1362–1566)
	Non-Māori non-Pacific	1011.7 (998–1026)	890.6 (878–903)	736.9 (726–748)	607.2 (596–619)
65–74 years	Māori	6552.8 (6216–6890)	6282.3 (5951–6614)	6542.7 (6255–6830)	6146.3 (5865–6428)
	Pacific	6291.3 (5431–7152)	6788.4 (6066–7510)	5595.3 (5135–6056)	5994.1 (5510–6478)
	Non-Māori non-Pacific	4265.7 (4214–4317)	3939.8 (3892–3988)	3447.8 (3408–3487)	2756.8 (2716–2798)

Table 17: Age-specific female mortality rate, by age group (prioritised series)

Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
1–14 years	Māori	42.5 (36.9–48.0)	35.5 (30.3–40.6)	32.8 (28.4–37.2)	36.6 (31.3–41.9)
	Pacific	75.0 (59.6–90.4)	44.9 (33.9–55.9)	36.3 (28.2–44.5)	29.5 (20.9–38.1)
	Non-Māori non-Pacific	28.7 (26.3–31.0)	28.2 (25.8–30.6)	21.2 (19.3–23.2)	18.4 (16.2–20.5)
15–24 years	Māori	94.2 (83.5–105)	91.6 (81.4–102)	73.6 (65.2–82.0)	86.3 (75.6–97.0)
	Pacific	82.2 (60.1–104)	92.1 (72.6–112)	60.4 (47.5–73.2)	60.1 (44.4–75.7)
	Non-Māori non-Pacific	58.3 (54.6–62.0)	53.2 (49.6–56.8)	50.4 (47.2–53.7)	42.4 (38.6–46.2)
25–44 years	Māori	229.6 (212–247)	201.1 (185–217)	202.1 (189–215)	176.5 (164–189)
	Pacific	138.0 (112–163)	153.7 (131–176)	126.3 (110–143)	184.8 (163–207)
	Non-Māori non-Pacific	95.2 (91.3–99.0)	88.0 (84.5–91.4)	78.1 (75.3–81.0)	63.8 (60.7–66.8)
45–64 years	Māori	1440.1 (1373–1507)	1464.5 (1401–1528)	1496.5 (1443–1550)	1274.9 (1221–1328)
	Pacific	987.3 (859–1116)	1003.8 (901–1107)	837.8 (769–907)	897.8 (820–975)
	Non-Māori non-Pacific	571.1 (561–582)	524.0 (514–534)	472.6 (464–481)	397.6 (388–407)
65–74 years	Māori	4820.9 (4538–5104)	4495.8 (4236–4755)	4552.2 (4332–4773)	4563.7 (4339–4788)
	Pacific	3153.7 (2601–3706)	3655.1 (3170–4141)	3066.7 (2766–3367)	3208.3 (2899–3518)
	Non-Māori non-Pacific	2333.7 (2299–2368)	2144.8 (2113–2177)	1878.9 (1852–1906)	1557.1 (1528–1586)

Table 18: Overall age-specific mortality rate, by age group (sole series)

Age group	Ethnic group	1980–84		1985–89		1990–95		1996–99	
1–14 years	Māori	56.6	(51.1–62.0)	51.0	(45.6–56.4)	47.6	(43.0–52.2)	61.5	(54.3–68.7)
	Pacific	62.2	(52.4–72.0)	53.5	(43.9–63.1)	50.3	(43.0–57.7)	28.7	(21.7–35.8)
	Non-Māori non-Pacific	35.6	(33.8–37.3)	34.4	(32.6–36.1)	25.9	(24.5–27.3)	22.2	(20.7–23.7)
15–24 years	Māori	159.4	(148–171)	158.3	(147–169)	158.8	(149–169)	167.0	(152–182)
	Pacific	119.7	(100–139)	125.3	(107–143)	96.6	(83.9–109)	106.8	(89.3–124)
	Non-Māori non-Pacific	104.1	(101–107)	109.1	(106–113)	97.1	(94.0–100)	78.4	(75.1–81.8)
25–44 years	Māori	311.9	(295–328)	297.0	(282–312)	289.9	(278–302)	287.7	(273–303)
	Pacific	196.0	(174–218)	206.8	(187–226)	186.8	(172–201)	202.9	(185–221)
	Non-Māori non-Pacific	130.4	(127–134)	124.9	(122–128)	113.8	(111–116)	103.2	(101–106)
45–64 years	Māori	1906.7	(1845–1969)	1866.7	(1811–1923)	1833.6	(1788–1879)	1848.2	(1792–1905)
	Pacific	1238.0	(1134–1342)	1372.7	(1283–1463)	1095.9	(1038–1154)	1213.3	(1144–1283)
	Non-Māori non-Pacific	793.5	(785–802)	711.5	(703–720)	609.3	(603–616)	519.1	(512–526)
65–74 years	Māori	6205.5	(5941–6470)	5571.7	(5337–5806)	5691.8	(5496–5887)	6141.4	(5903–6380)
	Pacific	4350.8	(3866–4836)	5136.3	(4684–5589)	4281.8	(4007–4556)	4632.6	(4327–4938)
	Non-Māori non-Pacific	3213.3	(3183–3243)	2957.1	(2929–2985)	2600.1	(2577–2623)	2151.6	(2127–2176)

Table 19: Age-specific male mortality rate, by age group (sole series)

Age group	Ethnic group	1980–84		1985–89		1990–95		1996–99	
1–14 years	Māori	64.0	(55.8–72.1)	64.2	(55.7–72.7)	57.4	(50.3–64.5)	70.8	(60.1–81.5)
	Pacific	58.5	(45.3–71.7)	58.4	(44.4–72.5)	60.7	(49.5–71.8)	27.9	(18.3–37.5)
	Non-Māori non-Pacific	42.1	(39.5–44.8)	39.3	(36.6–41.9)	30.1	(28.0–32.2)	24.7	(22.5–27.0)
15–24 years	Māori	217.3	(198–236)	222.7	(204–241)	239.9	(222–258)	231.1	(206–256)
	Pacific	162.7	(130–195)	176.9	(146–208)	135.5	(114–157)	165.9	(135–197)
	Non-Māori non-Pacific	147.1	(141–153)	161.6	(156–167)	142.0	(137–147)	110.4	(105–116)
25–44 years	Māori	371.6	(346–397)	379.8	(356–404)	356.4	(337–376)	378.9	(354–404)
	Pacific	249.8	(215–284)	262.4	(231–293)	244.7	(221–268)	236.4	(208–265)
	Non-Māori non-Pacific	164.5	(160–169)	160.7	(156–165)	150.2	(146–154)	138.3	(134–143)
45–64 years	Māori	2251.4	(2155–2348)	2156.1	(2071–2242)	2063.8	(1995–2133)	2164.6	(2078–2251)
	Pacific	1537.1	(1371–1703)	1698.3	(1557–1840)	1345.8	(1253–1439)	1494.3	(1384–1605)
	Non-Māori non-Pacific	1019.9	(1006–1034)	896.5	(884–909)	742.4	(732–753)	629.7	(618–641)
65–74 years	Māori	7112.9	(6710–7515)	6623.8	(6246–7002)	6828.5	(6511–7145)	7165.2	(6782–7548)
	Pacific	6016.3	(5158–6875)	6715.6	(5957–7474)	5666.0	(5191–6141)	6252.1	(5715–6790)
	Non-Māori non-Pacific	4274.5	(4223–4326)	3950.4	(3902–3998)	3458.3	(3419–3498)	2794.4	(2754–2835)

Table 20: Age-specific female mortality rate, by age group (sole series)

Age group	Ethnic group	1980–84		1985–89		1990–95		1996–99	
1–14 years	Māori	49.0	(41.8–56.2)	37.1	(30.5–43.7)	37.5	(31.6–43.3)	51.4	(41.9–60.9)
	Pacific	66.3	(51.6–80.9)	48.3	(35.2–61.4)	39.1	(29.7–48.5)	29.6	(19.3–39.9)
	Non-Māori non-Pacific	28.7	(26.5–31.0)	29.3	(27.0–31.6)	21.5	(19.7–23.3)	19.5	(17.5–21.5)
15–24 years	Māori	101.9	(88.9–115)	92.3	(80.3–104)	77.7	(67.6–87.8)	103.0	(86.0–120)
	Pacific	78.4	(56.5–100)	78.5	(58.7–98.3)	61.4	(47.3–75.5)	51.1	(34.0–68.1)
	Non-Māori non-Pacific	58.8	(55.2–62.5)	54.7	(51.2–58.2)	51.0	(47.8–54.2)	46.3	(42.6–50.0)
25–44 years	Māori	251.9	(231–273)	217.1	(199–235)	226.9	(212–242)	202.7	(185–221)
	Pacific	136.3	(111–162)	150.7	(127–174)	131.5	(114–149)	173.3	(150–197)
	Non-Māori non-Pacific	96.2	(92.4–100.0)	89.3	(85.9–92.8)	78.2	(75.5–81.0)	69.8	(66.7–72.8)
45–64 years	Māori	1573.6	(1494–1653)	1583.6	(1511–1656)	1609.5	(1549–1670)	1537.0	(1465–1609)
	Pacific	939.1	(812–1067)	1044.2	(933–1155)	860.3	(789–932)	945.6	(860–1032)
	Non-Māori non-Pacific	575.4	(565–586)	526.9	(517–537)	475.1	(467–484)	409.2	(400–418)
65–74 years	Māori	5327.7	(4982–5673)	4690.4	(4398–4983)	4730.9	(4489–4973)	5285.7	(4987–5584)
	Pacific	2990.1	(2446–3535)	3777.1	(3245–4309)	3168.7	(2852–3485)	3376.8	(3030–3724)
	Non-Māori non-Pacific	2340.6	(2306–2375)	2151.3	(2119–2183)	1884.5	(1858–1911)	1579.2	(1550–1608)

Table 21: Age-specific mortality rate ratios, by gender (prioritised)

Ethnic group	Gender	Age group	1980–84		1985–89		1990–95		1996–99	
Māori	Males	1–14 years	1.32	(1.16–1.51)	1.64	(1.44–1.86)	1.70	(1.49–1.94)	2.22	(1.90–2.60)
		15–24 years	1.39	(1.28–1.52)	1.45	(1.34–1.58)	1.71	(1.58–1.84)	1.96	(1.77–2.17)
		25–44 years	2.09	(1.95–2.24)	2.26	(2.11–2.41)	2.19	(2.07–2.32)	2.65	(2.48–2.82)
		45–64 years	2.05	(1.96–2.13)	2.26	(2.17–2.35)	2.66	(2.57–2.76)	3.09	(2.97–3.21)
		65–74 years	1.54	(1.46–1.62)	1.59	(1.51–1.68)	1.90	(1.81–1.99)	2.23	(2.12–2.34)
	Females	1–14 years	1.48	(1.27–1.73)	1.26	(1.06–1.49)	1.54	(1.31–1.82)	1.99	(1.65–2.40)
		15–24 years	1.62	(1.42–1.84)	1.72	(1.51–1.96)	1.46	(1.28–1.66)	2.04	(1.75–2.37)
		25–44 years	2.41	(2.21–2.63)	2.29	(2.09–2.49)	2.59	(2.40–2.78)	2.77	(2.54–3.02)
		45–64 years	2.52	(2.40–2.65)	2.80	(2.67–2.93)	3.17	(3.04–3.30)	3.21	(3.06–3.36)
		65–74 years	2.07	(1.94–2.19)	2.10	(1.97–2.22)	2.42	(2.30–2.55)	2.93	(2.78–3.09)
Pacific	Males	1–14 years	1.59	(1.28–1.98)	1.46	(1.16–1.84)	1.91	(1.58–2.30)	1.44	(1.09–1.91)
		15–24 years	1.16	(0.96–1.41)	1.34	(1.15–1.56)	0.97	(0.83–1.13)	1.63	(1.37–1.93)
		25–44 years	1.56	(1.36–1.79)	1.72	(1.53–1.92)	1.58	(1.43–1.74)	1.93	(1.72–2.16)
		45–64 years	1.61	(1.45–1.79)	1.85	(1.70–2.00)	1.79	(1.67–1.92)	2.41	(2.24–2.59)
		65–74 years	1.47	(1.29–1.69)	1.72	(1.55–1.92)	1.62	(1.49–1.76)	2.17	(2.00–2.36)
	Females	1–14 years	2.62	(2.10–3.26)	1.59	(1.23–2.07)	1.71	(1.34–2.18)	1.61	(1.17–2.20)
		15–24 years	1.41	(1.07–1.86)	1.73	(1.39–2.16)	1.20	(0.96–1.50)	1.42	(1.08–1.86)
		25–44 years	1.45	(1.20–1.75)	1.75	(1.50–2.04)	1.62	(1.41–1.85)	2.90	(2.55–3.29)
		45–64 years	1.73	(1.52–1.97)	1.92	(1.73–2.13)	1.77	(1.63–1.93)	2.26	(2.06–2.47)
		65–74 years	1.35	(1.13–1.61)	1.70	(1.49–1.95)	1.63	(1.48–1.80)	2.06	(1.87–2.27)

Table 22: Age-specific mortality rate ratios, by gender (sole)

Ethnic group	Gender	Age group	1980–84		1985–89		1990–95		1996–99	
Māori	Males	1–14 years	1.52	(1.32–1.75)	1.64	(1.41–1.90)	1.91	(1.65–2.20)	2.86	(2.40–3.41)
		15–24 years	1.48	(1.34–1.63)	1.38	(1.26–1.51)	1.69	(1.56–1.83)	2.09	(1.86–2.36)
		25–44 years	2.26	(2.10–2.43)	2.36	(2.21–2.53)	2.37	(2.24–2.52)	2.74	(2.55–2.95)
		45–64 years	2.21	(2.11–2.31)	2.40	(2.31–2.51)	2.78	(2.68–2.88)	3.44	(3.29–3.59)
		65–74 years	1.66	(1.57–1.76)	1.68	(1.58–1.78)	1.97	(1.88–2.07)	2.56	(2.43–2.71)
	Females	1–14 years	1.70	(1.44–2.01)	1.27	(1.04–1.54)	1.74	(1.46–2.08)	2.64	(2.13–3.26)
		15–24 years	1.73	(1.50–2.00)	1.69	(1.46–1.95)	1.52	(1.32–1.76)	2.22	(1.85–2.67)
		25–44 years	2.62	(2.39–2.87)	2.43	(2.22–2.66)	2.90	(2.69–3.13)	2.91	(2.63–3.21)
		45–64 years	2.73	(2.59–2.89)	3.01	(2.86–3.16)	3.39	(3.25–3.53)	3.76	(3.57–3.96)
		65–74 years	2.28	(2.13–2.43)	2.18	(2.04–2.32)	2.51	(2.38–2.65)	3.35	(3.15–3.55)
Pacific	Males	1–14 years	1.39	(1.10–1.76)	1.49	(1.16–1.91)	2.02	(1.66–2.45)	1.13	(0.79–1.61)
		15–24 years	1.11	(0.90–1.35)	1.09	(0.92–1.31)	0.95	(0.81–1.12)	1.50	(1.24–1.83)
		25–44 years	1.52	(1.32–1.75)	1.63	(1.45–1.84)	1.63	(1.47–1.80)	1.71	(1.51–1.93)
		45–64 years	1.51	(1.35–1.68)	1.89	(1.74–2.06)	1.81	(1.69–1.95)	2.37	(2.20–2.56)
		65–74 years	1.41	(1.22–1.62)	1.70	(1.52–1.90)	1.64	(1.51–1.78)	2.24	(2.05–2.44)
	Females	1–14 years	2.31	(1.82–2.91)	1.65	(1.24–2.19)	1.82	(1.41–2.35)	1.52	(1.06–2.18)
		15–24 years	1.33	(1.00–1.77)	1.44	(1.11–1.86)	1.20	(0.95–1.53)	1.10	(0.78–1.55)
		25–44 years	1.42	(1.17–1.72)	1.69	(1.43–1.98)	1.68	(1.47–1.92)	2.48	(2.15–2.87)
		45–64 years	1.63	(1.42–1.87)	1.98	(1.78–2.21)	1.81	(1.66–1.97)	2.31	(2.10–2.54)
		65–74 years	1.28	(1.06–1.53)	1.76	(1.52–2.02)	1.68	(1.52–1.86)	2.14	(1.93–2.37)

Table 23: Sole and prioritised Māori mortality rates, by age group

Age group	Ethnic group	1980–84		1985–89		1990–95		1996–99	
1–14 years	Sole	56.6	(51.1–62.0)	51.0	(45.6–56.4)	47.6	(43.0–52.2)	61.5	(54.3–68.7)
	Prioritised	49.0	(44.8–53.2)	48.9	(44.7–53.1)	41.8	(38.2–45.3)	43.7	(39.7–47.8)
15–24 years	Sole	159.4	(148–171)	158.3	(147–169)	158.8	(149–169)	167.0	(152–182)
	Prioritised	148.0	(138–157)	159.2	(150–169)	154.0	(145–163)	141.9	(132–152)
25–44 years	Sole	311.9	(295–328)	297.0	(282–312)	289.9	(278–302)	287.7	(273–303)
	Prioritised	283.9	(270–298)	276.6	(264–290)	262.3	(252–273)	252.9	(242–264)
45–64 years	Sole	1906.7	(1845–1969)	1866.7	(1811–1923)	1833.6	(1788–1879)	1848.2	(1792–1905)
	Prioritised	1749.7	(1697–1803)	1734.0	(1685–1783)	1723.0	(1682–1764)	1569.2	(1527–1612)
65–74 years	Sole	6205.5	(5941–6470)	5571.7	(5337–5806)	5691.8	(5496–5887)	6141.4	(5903–6380)
	Prioritised	5671.7	(5452–5891)	5317.9	(5111–5525)	5469.3	(5291–5647)	5295.8	(5118–5473)

Table 24: Sole and prioritised Pacific mortality rates, by age group

Age group	Ethnic group	1980–84		1985–89		1990–95		1996–99	
1–14 years	Sole	62.2	(52.4–72.0)	53.5	(43.9–63.1)	50.3	(43.0–57.7)	28.7	(21.7–35.8)
	Prioritised	70.6	(60.2–81.0)	50.2	(42.0–58.3)	46.9	(40.5–53.3)	31.3	(25.2–37.4)
15–24 years	Sole	119.7	(100–139)	125.3	(107–143)	96.6	(83.9–109)	106.8	(89.3–124)
	Prioritised	124.9	(105–144)	147.7	(130–166)	95.5	(83.9–107)	111.7	(96.4–127)
25–44 years	Sole	196.0	(174–218)	206.8	(187–226)	186.8	(172–201)	202.9	(185–221)
	Prioritised	198.6	(177–220)	212.1	(193–231)	179.6	(166–193)	213.3	(196–230)
45–64 years	Sole	1238.0	(1134–1342)	1372.7	(1283–1463)	1095.9	(1038–1154)	1213.3	(1144–1283)
	Prioritised	1309.5	(1204–1415)	1324.5	(1241–1408)	1071.0	(1015–1127)	1173.2	(1109–1237)
65–74 years	Sole	4350.8	(3866–4836)	5136.3	(4684–5589)	4281.8	(4007–4556)	4632.6	(4327–4938)
	Prioritised	4567.4	(4078–5057)	5074.6	(4653–5496)	4184.9	(3922–4448)	4421.2	(4148–4695)

Table 25: Life expectancy, by age (prioritised series)

Gender	Age	Prioritised ethnic group	1980–84	1985–89	1990–95	1996–99
Males	At birth	Māori	64.6	64.9	65.2	65.8
		Pacific	66.7	66.9	68.6	67.9
		Non-Māori non-Pacific	70.9	71.9	73.7	75.7
	15 years	Māori	51.1	51.5	51.5	51.9
		Pacific	53.0	53.1	54.6	53.8
		Non-Māori non-Pacific	57.2	58.0	59.5	61.3
	45 years	Māori	24.2	24.9	24.7	25.1
		Pacific	25.4	25.9	27.0	26.3
		Non-Māori non-Pacific	29.2	30.1	31.5	33.0
	65 years	Māori	11.2	12.0	11.5	11.6
		Pacific	11.1	11.8	11.8	11.7
		Non-Māori non-Pacific	13.4	13.9	14.8	15.9
Females	At birth	Māori	69.4	70.5	70.2	71.0
		Pacific	74.2	73.2	75.0	74.2
		Non-Māori non-Pacific	77.2	77.9	79.4	80.8
	15 years	Māori	55.7	56.8	56.2	56.9
		Pacific	60.6	59.4	60.9	60.0
		Non-Māori non-Pacific	63.2	63.8	65.1	66.4
	45 years	Māori	27.9	28.7	28.1	28.6
		Pacific	32.2	31.1	32.2	31.8
		Non-Māori non-Pacific	34.4	34.9	36.1	37.2
	65 years	Māori	13.7	14.9	14.2	13.9
		Pacific	17.0	15.7	16.2	16.0
		Non-Māori non-Pacific	17.3	17.6	18.6	19.4

Table 26: Life expectancy, by age (sole series)

Gender	Age	Sole ethnic group	1980–84	1985–89	1990–95	1996–99
Males	At birth	Māori	63.34	64.10	64.27	63.60
		Pacific	67.40	66.88	68.21	67.67
		Non-Māori non-Pacific	70.86	71.75	73.64	75.31
	15 years	Māori	50.09	50.81	50.81	50.04
		Pacific	53.54	53.17	54.36	53.48
		Non-Māori non-Pacific	57.17	57.95	59.44	61.02
	45 years	Māori	23.40	24.27	24.20	23.49
		Pacific	25.99	25.78	26.73	25.91
		Non-Māori non-Pacific	29.18	30.06	31.43	32.80
	65 years	Māori	10.66	11.60	11.12	10.41
		Pacific	11.50	11.84	11.66	11.20
		Non-Māori non-Pacific	13.34	13.85	14.76	15.78
Females	At birth	Māori	67.95	69.60	69.15	68.66
		Pacific	74.79	72.88	74.61	73.89
		Non-Māori non-Pacific	77.10	77.76	79.36	80.51
	15 years	Māori	54.53	55.91	55.38	54.82
		Pacific	61.08	59.18	60.52	59.59
		Non-Māori non-Pacific	63.17	63.76	65.02	66.12
	45 years	Māori	26.78	27.92	27.36	26.75
		Pacific	32.63	30.77	31.91	31.23
		Non-Māori non-Pacific	34.33	34.86	36.03	37.04
	65 years	Māori	12.79	14.41	13.76	12.54
		Pacific	17.25	15.48	15.97	15.57
		Non-Māori non-Pacific	17.26	17.59	18.60	19.33

Table 27: Age-substituted life expectancy, by gender (prioritised series)

Gender	Prioritised ethnic group	Period	Age-substituted life expectancy			
			0–14 years	15–44 years	45–64 years	65+ years
Males	Māori	1980–84	0.33	1.45	3.21	1.36
		1985–89	0.60	1.67	3.51	1.18
		1990–95	0.70	1.74	3.96	2.17
		1996–99	0.71	2.05	4.32	2.89
	Pacific	1980–84	0.03	0.68	1.96	1.55
		1985–89	0.12	1.01	2.45	1.39
		1990–95	0.36	0.58	2.01	2.21
		1996–99	0.40	1.22	3.05	3.16
Females	Māori	1980–84	0.42	1.22	3.40	2.72
		1985–89	0.37	1.08	3.85	2.01
		1990–95	0.53	1.09	4.22	3.37
		1996–99	0.53	1.17	3.69	4.48
	Pacific	1980–84	0.40	0.47	1.84	0.27
		1985–89	0.34	0.74	2.07	1.50
		1990–95	0.24	0.45	1.69	2.01
		1996–99	0.29	1.12	2.31	2.88

Table 28: Age-substituted life expectancy, by gender (sole series)

Gender	Prioritised ethnic group	Period	Age-substituted life expectancy			
			0–14 years	15–44 years	45–64 years	65+ years
Males	Māori	1980–84	0.64	1.70	3.58	1.60
		1985–89	0.70	1.74	3.84	1.37
		1990–95	0.95	1.91	4.17	2.34
		1996–99	0.99	2.35	4.87	3.50
	Pacific	1980–84	-0.10	0.61	1.68	1.28
		1985–89	0.18	0.73	2.59	1.36
		1990–95	0.44	0.62	2.06	2.31
		1996–99	0.19	1.01	3.01	3.42
Females	Māori	1980–84	0.72	1.40	3.74	3.29
		1985–89	0.46	1.17	4.22	2.31
		1990–95	0.74	1.29	4.57	3.61
		1996–99	0.75	1.37	4.45	5.28
	Pacific	1980–84	0.25	0.43	1.62	0.01
		1985–89	0.38	0.61	2.21	1.67
		1990–95	0.30	0.49	1.76	2.20
		1996–99	0.15	0.88	2.43	3.15

Table 29: Cause-specific standardised mortality rates, ages 1–74 years (prioritised series)

Cause	Ethnic group	1980–84		1985–89		1990–95		1996–99	
Category I	Māori	28.7	(25.4–32.0)	26.3	(23.4–29.3)	20.0	(17.8–22.1)	14.2	(12.3–16.1)
	Pacific	36.4	(27.7–45.1)	40.0	(32.6–47.3)	20.3	(16.6–24.1)	14.9	(11.7–18.1)
	Non-Māori non-Pacific	10.3	(9.8–10.7)	9.6	(9.2–10.0)	7.3	(6.9–7.6)	4.5	(4.2–4.9)
Category II	Māori	698.0	(682–714)	670.0	(655–685)	680.7	(668–694)	641.3	(628–654)
	Pacific	527.2	(494–561)	562.9	(535–591)	469.2	(451–488)	522.2	(502–542)
	Non-Māori non-Pacific	347.5	(345–350)	314.3	(312–317)	274.5	(273–276)	226.8	(225–229)
Category III	Māori	69.5	(65.6–73.4)	76.7	(72.9–80.4)	71.3	(68.2–74.4)	70.9	(67.6–74.2)
	Pacific	56.2	(48.6–63.8)	50.1	(44.2–56.0)	41.7	(37.8–45.7)	39.5	(35.3–43.8)
	Non-Māori non-Pacific	46.1	(45.1–47.0)	46.9	(45.9–47.9)	42.0	(41.2–42.9)	34.7	(33.8–35.7)

Table 30: Cause-specific standardised mortality rates, ages 1–74 years, by gender (prioritised series)

Gender	Cause	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Category I	Māori	32.2 (27.3–37.2)	29.3 (24.9–33.8)	25.4 (21.9–29)	14.3 (11.5–17.1)
		Pacific	43.2 (29–57.3)	58.4 (45.4–71.3)	26.6 (20–33.1)	16.7 (11.7–21.7)
		Non-Māori non-Pacific	12.1 (11.4–12.8)	11.9 (11.3–12.6)	9.5 (9–10.1)	5.7 (5.2–6.2)
	Category II	Māori	800.2 (775.6–824.9)	776.6 (752.9–800.2)	783.2 (763–803.5)	749.6 (729–770.1)
		Pacific	668.4 (611.9–725)	703.9 (657.7–750.1)	590.2 (559.5–620.8)	662.1 (628.2–696.1)
		Non-Māori non-Pacific	448.5 (444.4–452.5)	401.2 (397.5–405)	343.6 (340.5–346.7)	279.8 (276.5–283.1)
	Category III	Māori	106.3 (99.5–113.2)	115.9 (109.3–122.4)	107.5 (102.1–112.8)	109.6 (103.6–115.5)
		Pacific	92.0 (78.3–105.7)	79.7 (68.6–90.8)	67.7 (60.4–75)	62.8 (55–70.5)
		Non-Māori non-Pacific	66.9 (65.2–68.6)	70.1 (68.4–71.8)	63.8 (62.3–65.2)	52.5 (50.8–54.1)
Females	Category I	Māori	25.2 (20.9–29.6)	23.3 (19.3–27.2)	15.1 (12.6–17.7)	14.1 (11.5–16.8)
		Pacific	30.4 (19.6–41.3)	23.1 (15.3–31)	15.1 (10.9–19.3)	13.2 (9–17.4)
		Non-Māori non-Pacific	8.6 (8.1–9.2)	7.6 (7.1–8.1)	5.1 (4.7–5.5)	3.5 (3.1–3.9)
	Category II	Māori	599.5 (578.7–620.4)	572.6 (553.4–591.8)	588.6 (572.1–605)	541.9 (525.3–558.5)
		Pacific	401.6 (362.2–441)	435.4 (401.7–469.2)	365.6 (343.7–387.4)	404.9 (381–428.7)
		Non-Māori non-Pacific	258.1 (255.1–261.1)	237.2 (234.4–240.1)	212.5 (210.1–214.9)	177.6 (175–180.2)
	Category III	Māori	33.4 (29.7–37.1)	38.8 (35.1–42.6)	37.0 (33.8–40.2)	34.9 (31.8–38.1)
		Pacific	19.3 (12.9–25.8)	22.1 (17.2–27.1)	17.5 (13.9–21)	17.9 (13.9–22)
		Non-Māori non-Pacific	25.0 (24–26)	23.5 (22.5–24.5)	20.3 (19.5–21.1)	17.3 (16.4–18.3)

Table 31: Standardised mortality rates, ages 1–74 years – specific causes (prioritised series)

Causes	Ethnic group	1980–84		1985–89		1990–95		1996–99	
Cancer	Māori	189.7	(181–198)	192.6	(185–201)	205.2	(198–212)	215.2	(208–223)
	Pacific	155.6	(138–174)	175.8	(160–191)	144.7	(135–155)	179.3	(168–191)
	Non-Māori non-Pacific	119.4	(118–121)	117.5	(116–119)	115.6	(114–117)	104.0	(103–105)
Lung cancer	Māori	66.1	(61.0–71.2)	64.7	(59.9–69.5)	72.1	(67.8–76.4)	76.8	(72.2–81.4)
	Pacific	28.0	(20.2–35.8)	35.9	(28.8–43.1)	34.8	(29.6–39.9)	40.3	(34.5–46.1)
	Non-Māori non-Pacific	25.2	(24.6–25.9)	24.4	(23.7–25.0)	22.9	(22.4–23.5)	19.0	(18.4–19.6)
Colorectal cancer	Māori	10.0	(8.0–11.9)	11.4	(9.4–13.3)	11.8	(10.1–13.5)	14.8	(12.8–16.8)
	Pacific	1.4	(0.1–2.7)	7.3	(3.9–10.7)	6.8	(4.6–9.0)	13.6	(10.4–16.9)
	Non-Māori non-Pacific	19.4	(18.8–20.0)	18.9	(18.3–19.5)	18.6	(18.1–19.1)	16.8	(16.2–17.3)
Cardiovascular disease	Māori	345.8	(334.4–357.3)	317.5	(307.0–328.0)	305.5	(296.8–314.1)	264.9	(256.5–273.4)
	Pacific	255.3	(231.8–278.9)	261.1	(241.7–280.6)	215.8	(203.3–228.3)	208.9	(196.1–221.7)
	Non-Māori non-Pacific	171.1	(169.4–172.8)	142.3	(140.8–143.8)	111.4	(110.2–112.6)	78.5	(77.2–79.7)
Ischaemic heart disease	Māori	199.8	(191–209)	178.2	(170–186)	179.0	(172–186)	156.4	(150–163)
	Pacific	127.4	(111–144)	135.9	(122–150)	112.2	(103–121)	105.9	(96.7–115)
	Non-Māori non-Pacific	117.6	(116–119)	98.4	(97.1–99.6)	74.3	(73.3–75.3)	51.2	(50.2–52.2)
Stroke	Māori	56.8	(52.1–61.5)	50.2	(45.9–54.4)	44.4	(41.1–47.8)	32.7	(29.7–35.6)
	Pacific	76.6	(63.2–90.1)	60.4	(50.8–70.0)	52.0	(45.7–58.3)	45.9	(39.7–52.1)
	Non-Māori non-Pacific	30.2	(29.4–30.9)	23.2	(22.5–23.8)	18.8	(18.3–19.3)	13.5	(13.0–14.0)
Respiratory diseases	Māori	81.4	(75.9–86.8)	73.7	(68.6–78.7)	62.1	(58.1–66.1)	54.5	(50.5–58.4)
	Pacific	68.5	(56.0–81.0)	79.1	(68.2–89.9)	34.5	(29.4–39.6)	37.6	(32.0–43.1)
	Non-Māori non-Pacific	29.3	(28.6–30.0)	27.1	(26.5–27.8)	19.4	(18.9–19.9)	16.7	(16.2–17.3)
Unintentional injuries	Māori	59.7	(56.1–63.3)	60.4	(57.1–63.7)	53.0	(50.3–55.8)	44.7	(42.1–47.4)
	Pacific	41.5	(35.0–47.9)	36.6	(31.5–41.7)	27.3	(24.1–30.5)	24.8	(21.3–28.3)
	Non-Māori non-Pacific	33.9	(33.0–34.7)	32.9	(32.1–33.7)	26.8	(26.1–27.4)	19.9	(19.2–20.6)
Road traffic crash	Māori	36.7	(34.0–39.4)	40.5	(37.8–43.2)	35.4	(33.2–37.5)	27.6	(25.6–29.6)
	Pacific	21.9	(17.9–25.9)	17.7	(14.6–20.8)	17.1	(14.6–19.6)	14.3	(11.7–16.9)
	Non-Māori non-Pacific	19.1	(18.5–19.8)	21.1	(20.4–21.7)	17.0	(16.5–17.5)	12.1	(11.5–12.6)
Suicide	Māori	7.2	(5.9–8.4)	10.2	(9.0–11.4)	13.7	(12.5–14.9)	21.4	(19.7–23.2)
	Pacific	7.7	(5.0–10.4)	9.1	(6.9–11.2)	10.6	(8.6–12.6)	10.9	(8.8–13.0)
	Non-Māori non-Pacific	11.1	(10.6–11.5)	12.4	(11.9–12.9)	13.6	(13.2–14.1)	13.8	(13.2–14.4)

Note: ICD9 codes used: Cancer 140–208, Lung cancer 162, Colorectal cancer 153–154, Cardiovascular diseases 390–459, Ischaemic heart disease 410–414, Stroke 430–438, Respiratory diseases 460–519, Unintentional injuries 800–949, Road traffic crash 810–825, Suicide: 950–959.

Table 32: Standardised mortality rates, ages 1–74 years, by gender – specific causes
(prioritised series)

Gender	Cause	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Cancer	Māori	204.7 (192–217)	208.4 (196–221)	224.9 (214–236)	229.2 (218–241)
		Pacific	203.3 (172–235)	219.3 (193–245)	166.2 (150–183)	210.9 (192–230)
		Non-Māori non-Pacific	136.6 (134–139)	132.2 (130–134)	128.8 (127–131)	113.8 (112–116)
	Lung cancer	Māori	84.2 (76.0–92.3)	76.3 (68.6–83.9)	86.6 (79.6–93.6)	85.8 (78.7–92.9)
		Pacific	54.8 (38.0–71.5)	55.5 (42.5–68.5)	58.6 (48.6–68.6)	64.0 (53.1–74.8)
		Non-Māori non-Pacific	40.6 (39.4–41.9)	36.4 (35.3–37.6)	31.7 (30.7–32.6)	24.5 (23.6–25.5)
	Prostate cancer	Māori	11.5 (8.3–14.7)	13.9 (10.5–17.4)	15.5 (12.4–18.7)	16.1 (12.8–19.3)
		Pacific	18.0 (7.4–28.6)	20.8 (11.7–29.8)	13.5 (8.2–18.7)	11.2 (6.5–15.9)
		Non-Māori non-Pacific	8.8 (8.2–9.3)	8.9 (8.4–9.5)	9.7 (9.2–10.2)	8.6 (8.0–9.1)
	Colorectal cancer	Māori	12.9 (9.8–16.1)	13.7 (10.6–16.8)	14.2 (11.4–16.9)	18.9 (15.5–22.2)
		Pacific	1.7 (0.5–3.8)	11.1 (4.9–17.2)	8.1 (4.6–11.5)	17.9 (12.3–23.5)
		Non-Māori non-Pacific	21.4 (20.5–22.3)	21.0 (20.1–21.8)	21.7 (20.9–22.5)	19.6 (18.7–20.5)
	Cardiovascular disease	Māori	411.9 (394.1–429.7)	381.6 (365.0–398.2)	380.1 (66.0–394.1)	343.8 (29.9–357.8)
		Pacific	322.3 (283.5–361.1)	334.0 (302.3–365.6)	286.9 (65.7–308.0)	284.4 (62.2–306.6)
		Non-Māori non-Pacific	240.0 (237.0–243.0)	203.3 (200.6–205.9)	158.4 (56.3–160.5)	113.2 (11.1–115.3)
	Ischaemic heart disease	Māori	257.5 (243–272)	228.2 (215–241)	241.1 (230–252)	218.1 (207–229)
		Pacific	188.7 (159–218)	199.4 (174–225)	158.5 (143–174)	166.4 (150–183)
		Non-Māori non-Pacific	175.4 (173–178)	149.2 (147–151)	112.3 (111–114)	79.9 (78.1–81.6)
	Stroke	Māori	51.0 (44.6–57.3)	51.8 (45.5–58.2)	42.8 (38.1–47.6)	31.3 (27.1–35.6)
		Pacific	81.4 (61.4–101)	71.8 (56.5–87.1)	58.2 (48.3–68.1)	51.8 (42.0–61.7)
		Non-Māori non-Pacific	33.8 (32.7–34.9)	26.4 (25.4–27.3)	21.6 (20.8–22.3)	15.3 (14.5–16.0)
	Respiratory diseases	Māori	89.7 (81.4–97.9)	78.3 (70.6–85.9)	61.4 (55.6–67.3)	52.4 (46.7–58.1)
		Pacific	93.2 (70.8–116)	110.5 (91.4–130)	46.9 (37.7–56.1)	59.1 (48.4–69.7)
		Non-Māori non-Pacific	40.4 (39.2–41.6)	34.9 (33.8–35.9)	23.9 (23.1–24.7)	20.0 (19.1–20.8)
	Unintentional injuries	Māori	91.6 (85.2–98.0)	89.1 (83.3–94.9)	78.4 (73.7–83.0)	68.6 (63.8–73.4)
		Pacific	69.8 (58.1–81.6)	57.0 (47.4–66.5)	43.0 (37.2–48.9)	39.3 (33.0–45.5)
		Non-Māori non-Pacific	49.4 (48.0–50.9)	48.8 (47.4–50.2)	39.8 (38.6–41.0)	29.6 (28.4–30.8)
	Road traffic crashes	Māori	53.5 (48.8–58.2)	56.0 (51.5–60.5)	51.0 (47.3–54.6)	40.0 (36.4–43.5)
		Pacific	36.8 (29.3–44.4)	25.7 (20.7–30.7)	24.6 (20.3–29.0)	21.1 (16.6–25.6)
		Non-Māori non-Pacific	27.4 (26.4–28.5)	30.1 (29.0–31.2)	24.1 (23.2–25.0)	17.0 (16.1–18.0)
	Suicide	Māori	11.0 (8.8–13.3)	17.2 (14.9–19.6)	22.5 (20.3–24.8)	33.9 (30.7–37.1)
		Pacific	10.5 (6.3–14.8)	15.3 (11.3–19.3)	18.9 (15.0–22.7)	17.2 (13.4–21.1)
		Non-Māori non-Pacific	16.1 (15.3–16.9)	19.2 (18.3–20.1)	21.8 (21.0–22.7)	21.6 (20.6–22.6)

(Continued)

Gender	Cause	Ethnic group	1980–84	1985–89	1990–95	1996–99
Females	Cancer	Māori	175.4 (164–186)	179.3 (169–190)	188.4 (179–198)	203.1 (193–213)
		Pacific	118.0 (97.2–139)	138.3 (120–156)	128.6 (116–141)	154.1 (140–169)
		Non-Māori non-Pacific	105.2 (103–107)	105.5 (104–107)	104.7 (103–106)	95.4 (93.4–97.3)
	Lung cancer	Māori	48.7 (42.6–54.8)	54.5 (48.4–60.5)	59.6 (54.4–64.9)	68.7 (62.7–74.7)
		Pacific	5.0 (1.3–8.7)	18.2 (11.2–25.2)	14.3 (9.9–18.8)	20.3 (14.8–25.8)
		Non-Māori non-Pacific	11.6 (10.9–12.2)	13.6 (12.9–14.3)	15.1 (14.5–15.8)	14.0 (13.2–14.7)
	Breast cancer	Māori	31.0 (26.6–35.5)	30.6 (26.5–34.8)	29.7 (26.1–33.3)	35.7 (31.7–39.7)
		Pacific	14.6 (8.6–20.7)	36.2 (27.8–44.6)	26.5 (21.2–31.8)	42.8 (35.4–50.2)
		Non-Māori non-Pacific	24.4 (23.4–25.3)	24.8 (23.9–25.8)	23.8 (22.9–24.6)	21.3 (20.3–22.2)
	Colorectal cancer	Māori	7.1 (4.8–9.3)	9.2 (6.7–11.6)	9.8 (7.7–11.9)	11.2 (8.8–13.6)
		Pacific	1.1 (0.3–2.6)	3.8 (0.6–6.9)	5.7 (3.0–8.4)	10.3 (6.5–14.0)
		Non-Māori non-Pacific	17.5 (16.7–18.3)	17.1 (16.3–17.8)	15.8 (15.1–16.4)	14.1 (13.4–14.8)
	Cardiovascular disease	Māori	282.0 (267.4–296.6)	257.7 (244.6–270.9)	237.0 (226.4–247.6)	191.9 (181.8–201.9)
		Pacific	188.9 (160.9–216.8)	192.6 (169.2–216.1)	152.0 (137.6–166.5)	143.5 (129.1–157.9)
		Non-Māori non-Pacific	108.9 (107.0–110.8)	87.0 (85.4–88.6)	68.3 (67.0–69.6)	45.7 (44.5–47.0)
	Ischaemic heart disease	Māori	143.9 (133–155)	130.9 (121–140)	122.0 (114–130)	99.2 (92.0–107)
		Pacific	68.0 (51.5–84.6)	77.9 (62.8–93.0)	69.5 (59.5–79.4)	52.9 (44.0–61.8)
		Non-Māori non-Pacific	65.1 (63.7–66.5)	52.1 (50.8–53.3)	39.2 (38.2–40.2)	24.1 (23.2–25.0)
	Stroke	Māori	62.5 (55.7–69.4)	49.0 (43.3–54.8)	45.9 (41.2–50.5)	33.9 (29.7–38.1)
		Pacific	71.0 (53.1–89.0)	49.9 (37.8–62.0)	46.5 (38.4–54.5)	41.2 (33.4–49.1)
		Non-Māori non-Pacific	27.1 (26.1–28.0)	20.4 (19.6–21.2)	16.4 (15.7–17.0)	11.9 (11.2–12.5)
	Respiratory diseases	Māori	73.4 (66.2–80.6)	69.7 (63.0–76.4)	63.0 (57.5–68.5)	56.6 (51.1–62.1)
		Pacific	47.4 (33.8–61.0)	51.5 (39.7–63.2)	25.0 (19.4–30.6)	20.8 (15.4–26.1)
		Non-Māori non-Pacific	19.8 (19.0–20.6)	20.7 (19.9–21.5)	15.6 (14.9–16.2)	13.8 (13.1–14.5)
	Unintentional injuries	Māori	28.3 (24.8–31.7)	32.7 (29.2–36.3)	28.9 (26.0–31.9)	22.4 (19.8–24.9)
		Pacific	12.5 (7.2–17.7)	17.3 (12.8–21.8)	12.7 (9.7–15.7)	11.4 (8.1–14.7)
		Non-Māori non-Pacific	18.0 (17.1–18.9)	16.8 (16.0–17.6)	13.7 (13.0–14.4)	10.3 (9.6–11.1)
	Road traffic crashes	Māori	20.1 (17.3–22.9)	25.7 (22.6–28.8)	20.5 (18.1–22.9)	16.1 (13.9–18.2)
		Pacific	6.6 (4.2–9.0)	10.0 (6.3–13.8)	10.2 (7.4–13.0)	8.1 (5.2–10.9)
		Non-Māori non-Pacific	10.6 (10.0–11.3)	11.9 (11.2–12.6)	9.8 (9.2–10.4)	7.2 (6.6–7.8)
	Suicide	Māori	3.4 (2.3–4.5)	3.3 (2.5–4.2)	5.4 (4.3–6.4)	9.9 (8.3–11.6)
		Pacific	4.6 (1.3–7.9)	3.1 (1.3–4.9)	2.9 (1.4–4.4)	5.0 (3.0–7.0)
		Non-Māori non-Pacific	6.0 (5.5–6.6)	5.7 (5.2–6.1)	5.5 (5.1–5.9)	6.1 (5.6–6.7)

Table 33: Cause-specific standardised mortality rates, by age group (prioritised series)

Cause	Age group	Ethnic group	1980–84		1985–89		1990–95		1996–99	
Category I	1–14 years	Māori	4.8	(3.5–6.1)	4.8	(3.5–6.1)	4.0	(2.9–5.0)	3.0	(2.0–4.0)
		Pacific	9.9	(5.9–13.8)	10.7	(7.0–14.5)	6.4	(4.1–8.6)	4.6	(2.4–6.9)
		Non-Māori non-Pacific	3.0	(2.5–3.5)	2.6	(2.1–3.2)	2.6	(2.1–3.1)	1.5	(1.1–1.9)
	15–24 years	Māori	3.8	(2.3–5.3)	2.2	(1.1–3.4)	4.1	(2.6–5.5)	2.0	(0.8–3.1)
		Pacific	1.7	(0.5–4.0)	6.0	(2.4–9.6)	1.9	(0.3–3.6)	5.9	(2.4–9.4)
		Non-Māori non-Pacific	2.1	(1.6–2.6)	2.0	(1.6–2.5)	1.5	(1.1–1.8)	1.1	(0.6–1.5)
	25–44 years	Māori	6.8	(4.6–9.0)	6.6	(4.6–8.5)	7.4	(5.6–9.1)	5.2	(3.7–6.8)
		Pacific	15.1	(9.4–20.8)	7.3	(3.8–10.8)	11.8	(8.3–15.4)	5.0	(2.5–7.6)
		Non-Māori non-Pacific	3.0	(2.5–3.5)	3.8	(3.3–4.3)	5.3	(4.7–5.8)	3.0	(2.5–3.4)
	45–64 years	Māori	52.1	(43.0–61.2)	53.6	(45.0–62.2)	38.7	(32.5–44.8)	21.2	(16.4–26.1)
		Pacific	52.6	(32.0–73.1)	73.3	(53.9–92.7)	22.6	(14.4–30.8)	31.4	(20.9–41.9)
		Non-Māori non-Pacific	15.5	(14.2–16.7)	13.8	(12.7–15.0)	9.9	(9.0–10.8)	6.5	(5.6–7.3)
	65–74 years	Māori	255.3	(208–302)	212.5	(171–254)	146.4	(117–176)	129.9	(102–158)
		Pacific	330.1	(196–464)	343.4	(235–452)	184.2	(128–241)	84.3	(46.4–122)
		Non-Māori non-Pacific	91.6	(86.5–96.6)	83.9	(79.2–88.6)	49.1	(46.0–52.3)	31.7	(28.7–34.7)
Category II	1–14 years	Māori	17.5	(15.0–20.0)	16.2	(13.8–18.7)	12.4	(10.5–14.4)	13.9	(11.7–16.2)
		Pacific	33.8	(26.6–41.0)	23.0	(17.5–28.5)	20.7	(16.4–25.0)	16.3	(11.9–20.8)
		Non-Māori non-Pacific	15.1	(13.9–16.3)	14.6	(13.4–15.8)	10.7	(9.8–11.7)	10.2	(9.0–11.3)
	15–24 years	Māori	47.5	(42.1–52.9)	29.3	(25.2–33.4)	29.0	(25.2–32.7)	27.5	(23.2–31.8)
		Pacific	45.5	(33.7–57.2)	53.5	(42.9–64.2)	25.4	(19.4–31.4)	41.9	(32.5–51.2)
		Non-Māori non-Pacific	24.0	(22.4–25.7)	20.5	(19.0–22.1)	18.7	(17.3–20.1)	15.6	(14.0–17.2)
	25–44 years	Māori	199.7	(188–211)	179.4	(169–190)	171.4	(163–180)	152.9	(144–162)
		Pacific	128.1	(110–146)	156.9	(140–173)	123.1	(112–135)	157.3	(143–172)
		Non-Māori non-Pacific	79.0	(76.6–81.5)	67.5	(65.4–69.7)	58.5	(56.7–60.2)	49.0	(47.2–50.9)
	45–64 years	Māori	1616.3	(1565–1667)	1604.6	(1557–1652)	1611.8	(1572–1652)	1483.4	(1442–1525)
		Pacific	1181.4	(1081–1282)	1188.5	(1109–1268)	996.9	(943–1051)	1095.2	(1034–1157)
		Non-Māori non-Pacific	722.5	(714–731)	644.9	(637–653)	553.3	(547–560)	458.7	(452–466)
	65–74 years	Māori	5296.1	(5084–5508)	5006.0	(4805–5207)	5239.2	(5065–5413)	5106.3	(4932–5281)
		Pacific	4149.3	(3683–4616)	4639.1	(4236–5043)	3941.8	(3686–4197)	4313.6	(4043–4584)
		Non-Māori non-Pacific	3031.1	(3002–3060)	2796.8	(2770–2824)	2488.8	(2466–2511)	2041.1	(2017–2065)

(Continued)

Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Category III	1–14 years	Māori	26.4 (23.4–29.5)	27.5 (24.3–30.7)	25.3 (22.6–28.1)	26.1 (23.0–29.3)
		Pacific	26.9 (20.6–33.3)	16.4 (11.8–21.1)	19.2 (15.1–23.3)	10.3 (6.8–13.8)
		Non-Māori non-Pacific	17.0 (15.7–18.2)	15.3 (14.1–16.6)	11.8 (10.8–12.8)	8.6 (7.5–9.6)
	15–24 years	Māori	95.1 (87.5–103)	125.4 (117–134)	119.2 (112–127)	110.9 (102–120)
		Pacific	72.7 (57.8–87.5)	88.2 (74.5–102)	66.3 (56.6–75.9)	62.2 (50.8–73.5)
		Non-Māori non-Pacific	75.8 (72.8–78.8)	82.0 (78.9–85.1)	73.8 (71.0–76.6)	55.1 (52.0–58.1)
	25–44 years	Māori	75.3 (68.4–82.1)	89.5 (82.6–96.4)	82.6 (77.0–88.2)	92.8 (86.4–99.2)
		Pacific	52.6 (41.8–63.4)	47.9 (39.3–56.4)	42.5 (36.2–48.9)	49.0 (41.1–56.9)
		Non-Māori non-Pacific	46.2 (44.3–48.0)	50.3 (48.4–52.1)	48.2 (46.6–49.8)	41.8 (40.0–43.6)
	45–64 years	Māori	79.0 (68.2–89.9)	73.0 (63.1–83.0)	69.0 (60.9–77.0)	62.5 (54.2–70.8)
		Pacific	75.6 (51.6–99.6)	51.5 (35.4–67.7)	46.0 (34.5–57.6)	46.6 (34.3–58.9)
		Non-Māori non-Pacific	47.9 (45.7–50.1)	46.5 (44.4–48.7)	40.9 (39.1–42.7)	35.9 (33.9–37.8)
	65–74 years	Māori	120.3 (88.2–152)	91.0 (64.0–118)	77.8 (56.4–99.3)	59.6 (41.0–78.2)
		Pacific	88.0 (23.2–153)	92.1 (35.5–149)	47.5 (20.8–74.3)	23.2 (3.7–42.8)
		Non-Māori non-Pacific	79.0 (74.3–83.7)	64.5 (60.4–68.6)	50.7 (47.5–53.9)	47.7 (43.9–51.4)

Table 34: Mortality rate in 35–64 and 65–74-year-old males and females for cancers and cardiovascular diseases (prioritised series)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Cancer	35–64 years	Māori	322.8 (298–348)	315.3 (293–338)	326.3 (307–346)	339.3 (318–361)
			Pacific	312.2 (255–369)	285.8 (245–327)	212.3 (185–239)	277.3 (244–311)
			Non-Māori non-Pacific	196.6 (192–201)	183.7 (179–188)	173.1 (169–177)	154.0 (150–158)
		65–74 years	Māori	1474.7 (1315–1634)	1667.3 (1497–1838)	1865.9 (1713–2019)	1863.9 (1709–2019)
			Pacific	1641.9 (1198–2086)	1947.4 (1560–2335)	1554.8 (1310–1799)	1866.3 (1596–2136)
			Non-Māori non-Pacific	1127.4 (1101–1154)	1140.7 (1115–1167)	1156.7 (1134–1180)	1020.5 (996–1045)
	Lung cancer	35–64 years	Māori	131.0 (115–147)	104.3 (91.1–117)	118.8 (107–131)	123.7 (111–137)
			Pacific	84.5 (55.1–114)	89.0 (64.8–113)	78.3 (61.5–95.0)	83.6 (64.9–102)
			Non-Māori non-Pacific	57.1 (54.6–59.7)	50.8 (48.5–53.1)	40.9 (39.0–42.8)	30.0 (28.0–31.9)
		65–74 years	Māori	686.0 (577–795)	717.2 (606–829)	816.9 (715–919)	773.5 (674–873)
			Pacific	458.3 (216–700)	443.0 (263–623)	568.8 (422–716)	632.1 (475–789)
			Non-Māori non-Pacific	375.4 (360–391)	338.9 (325–353)	315.6 (304–328)	255.1 (243–268)
	Prostate cancer	35–64 years	Māori	13.1 (7.9–18.3)	15.7 (10.3–21.1)	15.0 (10.7–19.3)	12.3 (8.1–16.5)
			Pacific	– –	– –	– –	– –
			Non-Māori non-Pacific	6.8 (5.9–7.6)	6.8 (6.0–7.6)	7.3 (6.5–8.1)	6.9 (5.9–7.8)
		65–74 years	Māori	126.3 (78.7–174.0)	154.1 (102–206)	187.7 (138–238)	215.4 (162–268)
			Pacific	– –	311.7 (155–468)	204.6 (113–296)	161.0 (83–239)
			Non-Māori non-Pacific	116.8 (108–125)	119.4 (111–128)	130.8 (123–138)	112.4 (104–121)
	Colorectal cancer	35–64 years	Māori	19.7 (13.7–25.7)	24.1 (17.8–30.4)	17.6 (13.2–22.1)	27.0 (20.9–33.1)
			Pacific	– –	– –	– –	17.3 (9.2–25.4)
			Non-Māori non-Pacific	34.8 (32.8–36.8)	33.8 (31.9–35.8)	33.0 (31.3–34.7)	27.9 (26.0–29.8)
		65–74 years	Māori	104.3 (61.7–146.9)	89.2 (50.0–128.5)	138.5 (96.8–180.1)	167.5 (121–214)
			Pacific	– –	– –	– –	198.9 (112–285)
			Non-Māori non-Pacific	163.5 (153–174)	163.0 (153–173)	181.1 (172–190)	174.9 (165–185)
	Cardiovascular disease	35–64 years	Māori	643.2 (608–677)	618.2 (586–649)	603.6 (577–629)	553.2 (526–580)
			Pacific	463.6 (397–530)	494.1 (439–548)	417.0 (379–454)	399.8 (359–439)
			Non-Māori non-Pacific	319.3 (313–325)	261.6 (256–267)	194.3 (190–198)	140.6 (136–144)
		65–74 years	Māori	3243.0 (3005–3480)	2856.4 (2632–3079)	2915.4 (2723–3107)	2648.6 (2464–2833)
			Pacific	2778.4 (2215–3341)	2714.4 (2256–3172)	2429.9 (2129–2730)	2484.8 (2174–2795)
			Non-Māori non-Pacific	2282.8 (2245–2320)	1986.9 (1952–2021)	1603.3 (1576–1630)	1136.4 (1110–1162)
	Ischaemic heart disease	35–64 years	Māori	396.5 (369–424)	393.6 (368–419)	375.1 (354–396)	357.1 (335–379)
			Pacific	268.5 (219–318)	294.9 (252–338)	236.0 (208–264)	250.1 (219–282)
			Non-Māori non-Pacific	247.3 (242–253)	201.8 (197–206)	144.4 (141–148)	103.9 (100–108)
		65–74 years	Māori	2119.4 (1928–2311)	1606.8 (1439–1774)	1946.5 (1790–2103)	1679.0 (1533–1825)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
			Pacific	1679.9 (1244–2116)	1749.9 (1381–2118)	1320.9 (1103–1539)	1384.8 (1152–1617)
			Non-Māori non-Pacific	1598.9 (1567–1630)	1417.5 (1389–1446)	1115.5 (1093–1138)	784.3 (762–806)

(Continued)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Stroke	35–64 years	Māori	71.2 (59.5–82.8)	64.5 (54.3–74.7)	61.5 (53.1–69.9)	44.1 (36.5–51.7)
			Pacific	112.7 (79.3–146)	90.6 (67.3–114)	81.3 (64.4–98.3)	51.4 (36.8–65.9)
			Non-Māori non-Pacific	34.6 (32.6–36.6)	26.9 (25.2–28.6)	21.4 (20.0–22.8)	16.3 (14.9–17.8)
		65–74 years	Māori	437.7 (350–525)	523.9 (428–620)	357.9 (290–425)	273.5 (214–333)
			Pacific	751.9 (458–1046)	719.1 (483–955)	533.8 (389–678)	612.6 (459–767)
			Non-Māori non-Pacific	385.6 (370–401)	298.8 (286–312)	248.6 (238–259)	168.8 (159–179)
Females	Cancer	35–64 years	Māori	303.1 (280–326)	316.7 (295–339)	336.4 (317–355)	344.1 (323–365)
			Pacific	200.0 (159–241)	242.4 (206–279)	220.6 (195–246)	246.7 (217–277)
			Non-Māori non-Pacific	178.5 (174–183)	177.1 (173–182)	176.8 (173–181)	157.4 (153–162)
		65–74 years	Māori	1100.5 (966–1235)	1133.2 (1003–1263)	1167.9 (1056–1279)	1380.3 (1257–1503)
			Pacific	772.1 (499–1045)	800.8 (575–1027)	837.5 (680–995)	1017.2 (842–1192)
			Non-Māori non-Pacific	674.7 (656–693)	698.8 (680–717)	701.3 (685–718)	660.7 (642–680)
	Lung cancer	35–64 years	Māori	77.6 (65.6–89.6)	87.5 (75.8–99.2)	101.9 (91.2–112.5)	102.2 (90.6–113.8)
			Pacific	– –	27.0 (13.9–40.0)	20.1 (12.1–28.1)	27.1 (16.9–37.2)
			Non-Māori non-Pacific	18.2 (16.7–19.6)	21.7 (20.2–23.3)	23.0 (21.6–24.5)	20.4 (18.8–22.0)
		65–74 years	Māori	391.8 (312–472)	425.9 (346–506)	431.2 (364–498)	593.5 (513–674)
			Pacific	– –	– –	132.9 (69.7–196.2)	191.8 (116–268)
			Non-Māori non-Pacific	94.6 (87.6–101.6)	108.8 (1026–116)	126.5 (120–133)	122.7 (114–131)
	Breast cancer	35–64 years	Māori	66.5 (56.0–77.0)	68.5 (58.5–78.6)	58.0 (50.2–65.9)	77.6 (68.0–87.2)
			Pacific	39.7 (22.8–56.7)	84.7 (64.0–105.4)	57.9 (45.4–70.4)	87.2 (69.8–104.6)
			Non-Māori non-Pacific	50.1 (47.7–52.6)	50.6 (48.1–53.0)	48.6 (46.5–50.8)	43.9 (41.6–46.3)
		65–74 years	Māori	123.8 (78.6–169.1)	101.6 (62.4–140.9)	155.8 (114–197)	122.7 (85.8–159.6)
			Pacific	– –	– –	– –	171.4 (99.3–243.5)
			Non-Māori non-Pacific	112.3 (105–120)	116.5 (109–124)	111.5 (105–118)	97.4 (90.0–104.7)
	Colorectal cancer	35–64 years	Māori	13.0 (8.1–17.9)	15.2 (10.3–20.1)	18.0 (13.6–22.4)	20.5 (15.3–25.7)
			Pacific	– –	– –	– –	18.6 (10.2–26.9)
			Non-Māori non-Pacific	30.4 (28.5–32.3)	28.9 (27.1–30.7)	26.4 (24.9–28.0)	22.3 (20.7–24.0)
		65–74 years	Māori	– –	69.9 (37.5–102.2)	60.9 (35.1–86.7)	72.6 (44.6–100.7)
			Pacific	– –	– –	– –	– –
			Non-Māori non-Pacific	121.2 (113–129)	124.5 (117–132)	115.3 (109–122)	111.4 (103–119)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
	Cardiovascular disease	35–64 years	Māori	401.0 (374–427)	378.8 (354–403)	360.6 (340–380)	266.6 (248–285)
			Pacific	294.2 (240–348)	250.2 (210–289)	201.7 (176–227)	183.2 (156–209)
			Non-Māori non-Pacific	119.7 (116–123)	91.6 (88.5–94.8)	70.9 (68.3–73.4)	48.0 (45.6–50.4)
		65–74 years	Māori	2433.2 (2231–2635)	2189.3 (2008–2370)	1939.8 (1795–2084)	1743.0 (1604–1882)
			Pacific	1431.6 (1058–1804)	1810.0 (1465–2154)	1417.6 (1212–1622)	1318.9 (1120–1517)
			Non-Māori non-Pacific	1182.3 (1157–1206)	973.4 (952–994)	768.5 (751–785)	505.1 (488–521)

(Continued)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Females	Ischaemic heart disease	35–64 years	Māori	190.4 (172–209)	174.0 (157–191)	178.1 (164–192)	133.7 (121–147)
			Pacific	135.8 (98.8–173)	103.2 (78.1–128)	83.4 (66.7–100)	64.6 (48.8–80.4)
			Non-Māori non-Pacific	68.3 (65.6–71.1)	53.3 (50.9–55.7)	38.0 (36.1–39.8)	23.7 (22.0–25.4)
		65–74 years	Māori	1390.8 (1238–1543)	1267.1 (1129–1405)	1076.2 (969–1184)	947.7 (845–1050)
			Pacific	360.1 (173–548)	749.4 (525–974)	728.4 (582–875)	537.8 (411–664)
			Non-Māori non-Pacific	748.6 (729–768)	607.2 (590–624)	469.9 (457–483)	286.7 (274–299)
	Stroke	35–64 years	Māori	91.8 (79.0–105)	71.1 (60.6–81.7)	65.6 (57.2–73.9)	48.3 (40.4–56.1)
			Pacific	68.9 (43.3–94.5)	60.5 (41.1–79.9)	61.0 (46.8–75.3)	50.6 (36.7–64.5)
			Non-Māori non-Pacific	30.3 (28.4–32.2)	21.3 (19.8–22.9)	19.1 (17.7–20.4)	13.8 (12.4–15.1)
		65–74 years	Māori	524.0 (431–617)	426.1 (346–506)	399.4 (334–465)	299.0 (242–356)
			Pacific	832.9 (549–1117)	511.3 (329–693)	451.3 (335–567)	423.6 (311–536)
			Non-Māori non-Pacific	287.6 (276–300)	225.4 (215–236)	170.6 (163–179)	121.7 (114–130)

Note: '–' indicates insufficient data.

Table 35: Mortality rate in 1–14, 15–24 and 25–44-year-old males and females for unintentional injuries and motor vehicle accidents (prioritised series)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Unintentional injuries	1–14 years	Māori	30.1 (25.5–34.7)	29.9 (25.3–34.6)	29.5 (25.3–33.6)	26.1 (21.8–30.5)
			Pacific	33.6 (23.8–43.4)	15.0 (8.8–21.2)	21.3 (15.3–27.4)	11.3 (6.4–16.3)
			Non-Māori non-Pacific	20.4 (18.5–22.3)	16.8 (15.0–18.6)	12.9 (11.4–14.3)	9.2 (7.7–10.7)
		15–24 years	Māori	127.1 (115–140)	128.5 (116–141)	123.3 (112–134)	90.9 (79.7–102)
			Pacific	100.5 (75.6–125)	105.1 (83.4–127)	67.3 (53.2–81.4)	59.1 (43.2–74.9)
			Non-Māori non-Pacific	95.3 (90.7–100.0)	98.2 (93.5–103)	74.9 (71.0–78.8)	48.8 (44.8–52.9)
		25–44 years	Māori	96.0 (85.0–107)	116.4 (105–128)	91.7 (83.1–100)	85.7 (76.6–94.7)
			Pacific	64.0 (47.3–80.6)	46.6 (34.7–58.5)	48.1 (38.3–57.9)	40.7 (30.4–51.1)
			Non-Māori non-Pacific	48.9 (46.2–51.5)	51.8 (49.2–54.4)	45.3 (43.1–47.5)	33.7 (31.4–36.0)
	Road traffic crashes	1–14 years	Māori	14.8 (11.6–18.0)	10.8 (8.0–13.6)	15.1 (12.1–18.1)	12.6 (9.5–15.6)
			Pacific	25.2 (16.7–33.7)	– –	8.6 (4.7–12.4)	– –
			Non-Māori non-Pacific	8.2 (7.0–9.4)	8.1 (6.9–9.4)	6.7 (5.6–7.8)	4.5 (3.5–5.5)
		15–24 years	Māori	89.3 (78.8–99.7)	95.3 (84.9–106)	103.8 (93.6–114)	66.3 (56.7–75.8)
			Pacific	83.2 (60.6–106)	67.2 (49.8–84.5)	40.9 (29.9–51.9)	36.6 (24.1–49.0)
			Non-Māori non-Pacific	70.2 (66.3–74.2)	75.3 (71.1–79.4)	56.0 (52.6–59.3)	35.9 (32.5–39.4)
		25–44 years	Māori	62.7 (53.8–71.6)	76.4 (67.4–85.5)	55.3 (48.7–61.9)	54.6 (47.5–61.8)
			Pacific	31.2 (19.5–42.9)	30.3 (20.9–39.7)	33.9 (25.7–42.1)	26.2 (17.9–34.5)
			Non-Māori non-Pacific	25.8 (23.9–27.8)	31.5 (29.5–33.6)	27.4 (25.7–29.1)	19.1 (17.4–20.8)
Females	Unintentional injuries	1–14 years	Māori	18.3 (14.7–21.9)	19.6 (15.8–23.5)	14.5 (11.5–17.4)	15.4 (12.0–18.8)
			Pacific	– –	11.3 (5.8–16.8)	11.6 (7.0–16.2)	5.7 (1.9–9.5)
			Non-Māori non-Pacific	11.9 (10.4–13.4)	11.5 (10.0–13.0)	8.0 (6.8–9.1)	5.7 (4.5–6.9)
		15–24 years	Māori	36.8 (30.1–43.4)	41.9 (34.9–48.8)	28.1 (22.9–33.3)	34.1 (27.4–40.8)
			Pacific	– –	26.9 (16.4–37.5)	18.9 (11.7–26.1)	13.3 (6.0–20.6)
			Non-Māori non-Pacific	27.4 (24.9–30.0)	25.5 (23.0–27.9)	23.5 (21.2–25.7)	16.6 (14.2–19.0)
		25–44 years	Māori	25.4 (19.6–31.2)	28.2 (22.8–33.6)	31.5 (26.6–36.4)	23.4 (18.9–27.9)
			Pacific	– –	19.2 (11.7–26.6)	10.0 (5.8–14.3)	11.7 (6.3–17.1)
			Non-Māori non-Pacific	11.4 (10.1–12.7)	13.8 (12.5–15.2)	12.5 (11.3–13.6)	7.8 (6.8–8.9)
	Road traffic crashes	1–14 years	Māori	12.1 (9.1–15.0)	11.3 (8.4–14.3)	8.4 (6.2–10.7)	9.8 (7.0–12.5)
			Pacific	– –	– –	– –	– –
			Non-Māori non-Pacific	6.0 (4.9–7.1)	6.6 (5.4–7.7)	4.9 (4.0–5.8)	3.2 (2.3–4.1)
		15–24 years	Māori	31.3 (25.2–37.5)	38.4 (31.8–45.0)	23.1 (18.4–27.8)	28.5 (22.3–34.6)
			Pacific	– –	– –	16.9 (10.1–23.7)	– –
			Non-Māori non-Pacific	21.9 (19.6–24.1)	22.4 (20.1–24.7)	19.9 (17.8–22.0)	13.8 (11.6–16.0)
		25–44 years	Māori	18.2 (13.4–23.0)	24.1 (19.1–29.1)	23.5 (19.3–27.6)	17.2 (13.4–21.0)
			Pacific	– –	– –	7.7 (3.9–11.5)	9.9 (4.9–14.9)
			Non-Māori non-Pacific	7.1 (6.0–8.1)	10.6 (9.4–11.7)	8.9 (7.9–9.8)	6.0 (5.1–7.0)

Note: '–' indicates insufficient data.

Table 36: Mortality rate in 15–24, 25–44 and 45–74-year-old males and females for suicide (prioritised series)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Suicide	15–24 years	Māori	13.5 (9.4–17.6)	46.5 (39.1–53.8)	58.8 (51.2–66.5)	64.0 (54.5–73.4)
			Pacific	– –	33.1 (21.0–45.3)	40.7 (29.7–51.7)	37.0 (24.4–49.6)
			Non-Māori non-Pacific	19.0 (16.9–21.1)	26.9 (24.4–29.4)	36.8 (34.0–39.5)	31.3 (28.1–34.5)
		25–44 years	Māori	16.3 (11.8–20.9)	18.2 (13.6–22.9)	29.3 (24.6–34.0)	54.6 (47.5–61.6)
			Pacific	16.7 (8.4–24.9)	19.9 (12.2–27.6)	18.5 (12.4–24.5)	25.9 (17.5–34.3)
			Non-Māori non-Pacific	20.9 (19.2–22.7)	23.7 (21.9–25.5)	28.0 (26.3–29.7)	32.2 (29.9–34.4)
		45–74 years	Māori	13.4 (7.4–19.4)	10.9 (5.9–15.9)	10.5 (6.6–14.5)	19.0 (12.9–25.0)
			Pacific	– –	– –	21.8 (11.4–32.1)	– –
			Non-Māori non-Pacific	23.8 (21.9–25.7)	26.7 (24.7–28.7)	25.1 (23.3–26.8)	23.3 (21.4–25.3)
Females	Suicide	15–24 years	Māori	4.5 (2.2–6.8)	14.0 (10.0–18.0)	15.9 (12.0–19.7)	23.0 (17.5–28.5)
			Pacific	– –	– –	– –	11.7 (4.8–18.6)
			Non-Māori non-Pacific	4.8 (3.7–5.9)	6.4 (5.2–7.6)	6.8 (5.6–8.0)	10.9 (8.9–12.8)
		25–44 years	Māori	5.3 (2.9–7.8)	– –	5.1 (3.2–7.0)	13.5 (10.1–17.0)
			Pacific	– –	– –	– –	7.8 (3.4–12.2)
			Non-Māori non-Pacific	7.5 (6.4–8.5)	6.9 (6.0–7.9)	7.0 (6.2–7.9)	7.9 (6.8–9.0)
		45–74 years	Māori	– –	– –	– –	– –
			Pacific	– –	– –	– –	– –
			Non-Māori non-Pacific	11.1 (9.8–12.4)	9.0 (7.8–10.1)	8.0 (7.0–9.0)	6.5 (5.5–7.5)

Note: ‘–’ indicates insufficient data.

Table 37: Cause-specific standardised mortality rates (sole series)

Cause	Ethnic group	1980–84	1985–89	1990–95	1996–99
Category I	Māori	31.5 (27.6–35.4)	27.9 (24.5–31.3)	21.2 (18.8–23.6)	17.1 (14.4–19.7)
	Pacific	34.6 (26.0–43.3)	40.7 (32.8–48.6)	21.0 (17.1–24.9)	15.0 (11.5–18.6)
	Non-Māori non-Pacific	10.3 (9.9–10.7)	9.7 (9.3–10.1)	7.3 (7.0–7.6)	4.8 (4.5–5.1)
Category II	Māori	762.5 (743–782)	712.9 (696–730)	720.1 (706–734)	749.7 (732–767)
	Pacific	501.1 (468–534)	573.0 (543–603)	480.9 (462–500)	538.6 (516–561)
	Non-Māori non-Pacific	349.4 (347–352)	316.2 (314–318)	275.7 (274–278)	233.3 (231–235)
Category III	Māori	76.3 (71.7–81.0)	80.1 (75.8–84.3)	76.5 (72.9–80.0)	83.2 (78.5–88.0)
	Pacific	53.6 (46.1–61.1)	47.8 (41.6–54.1)	43.0 (38.8–47.2)	38.2 (33.5–43.0)
	Non-Māori non-Pacific	46.5 (45.5–47.4)	47.9 (46.9–48.9)	42.4 (41.6–43.2)	37.0 (36.1–38.0)

Table 38: Cause-specific standardised mortality rates, ages 1–74 years, by gender (sole series)

Gender	Cause	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Category I	Māori	35.1 (29.2–41)	31.1 (26–36.2)	26.8 (22.9–30.8)	17.1 (13.2–21)
		Pacific	41.2 (27.1–55.3)	58.6 (45–72.2)	27.2 (20.4–34)	17.5 (11.9–23.1)
		Non-Māori non-Pacific	12.2 (11.5–12.8)	12.0 (11.4–12.7)	9.6 (9.1–10.1)	5.9 (5.5–6.4)
	Category II	Māori	870.0 (840.8–899.3)	826.1 (799.2–853)	823.7 (801.4–846)	869.4 (841.9–897)
		Pacific	636.0 (579.9–692.1)	707.9 (659.1–756.7)	601.1 (569.4–632.8)	679.2 (641.9–716.5)
		Non-Māori non-Pacific	450.8 (446.8–454.9)	403.6 (399.8–407.4)	345.4 (342.3–348.5)	287.8 (284.5–291.1)
	Category III	Māori	116.3 (108.1–124.5)	120.2 (112.7–127.7)	113.6 (107.5–119.6)	126.2 (117.9–134.6)
		Pacific	87.7 (74.2–101.2)	75.4 (63.7–87)	69.5 (61.8–77.2)	61.4 (52.8–70)
		Non-Māori non-Pacific	67.5 (65.9–69.2)	71.7 (70–73.4)	64.5 (63.1–66)	56.1 (54.5–57.7)
Females	Category I	Māori	27.9 (22.7–33.1)	24.6 (20.2–29.1)	16.1 (13.3–19)	17.0 (13.4–20.7)
		Pacific	28.9 (18.1–39.6)	23.7 (15.2–32.2)	15.7 (11.3–20.1)	12.9 (8.3–17.5)
		Non-Māori non-Pacific	8.7 (8.1–9.2)	7.6 (7.1–8.2)	5.1 (4.8–5.5)	3.7 (3.3–4)
	Category II	Māori	658.4 (633.4–683.4)	610.0 (588.1–631.8)	626.8 (608.5–645.1)	640.0 (617.6–662.3)
		Pacific	382.0 (343.1–420.9)	448.2 (411.6–484.8)	377.0 (354.1–399.9)	420.4 (393.9–447)
		Non-Māori non-Pacific	259.6 (256.6–262.5)	238.6 (235.8–241.4)	213.3 (210.9–215.7)	182.7 (180.2–185.3)
	Category III	Māori	36.9 (32.4–41.3)	40.8 (36.5–45.2)	40.3 (36.6–44)	42.3 (37.6–46.9)
		Pacific	18.2 (11.9–24.6)	21.4 (16.1–26.7)	18.1 (14.3–21.9)	16.7 (12.3–21.1)
		Non-Māori non-Pacific	25.2 (24.2–26.2)	23.9 (23–24.9)	20.4 (19.6–21.2)	18.4 (17.5–19.3)

Table 39: Standardised mortality rates, ages 1–74 years – specific causes (sole series)

Cause	Ethnic group	1980–84	1985–89	1990–95	1996–99
Cancer	Māori	207.1 (197–217)	205.1 (196–214)	217.3 (210–225)	249.5 (239–260)
	Pacific	148.1 (130–166)	179.0 (163–196)	148.3 (138–159)	181.1 (168–194)
	Non-Māori non-Pacific	120.1 (119–122)	118.3 (117–120)	116.2 (115–117)	106.8 (105–108)
Lung cancer	Māori	72.2 (66.1–78.2)	68.8 (63.3–74.2)	76.0 (71.3–80.7)	90.0 (83.8–96.2)
	Pacific	26.6 (18.9–34.4)	36.9 (29.3–44.6)	35.6 (30.2–40.9)	41.9 (35.5–48.2)
	Non-Māori non-Pacific	25.4 (24.7–26.0)	24.5 (23.8–25.1)	23.0 (22.5–23.6)	19.6 (19.0–20.2)
Colorectal cancer	Māori	10.9 (8.6–13.2)	12.1 (9.9–14.4)	12.5 (10.6–14.4)	15.9 (13.3–18.5)
	Pacific	1.4 (0.1–2.7)	7.5 (3.9–11.2)	7.0 (4.7–9.3)	14.1 (10.5–17.7)
	Non-Māori non-Pacific	19.5 (18.9–20.1)	19.0 (18.4–19.6)	18.7 (18.1–19.2)	17.1 (16.5–17.6)
Cardiovascular disease	Māori	377.84 (364.1–391.5)	337.83 (325.9–349.7)	323 (313.4–332.6)	310.21 (298.9–321.6)
	Pacific	242.67 (219.3–265.9)	266.2 (245.3–287.0)	221.09 (208.1–234.1)	218.47 (204.2–232.7)
	Non-Māori non-Pacific	171.96 (170.2–173.6)	142.98 (141.4–144.5)	111.9 (110.7–113.1)	80.65 (79.4–81.8)
Ischaemic heart disease	Māori	218.3 (208–229)	189.6 (181–199)	189.0 (182–196)	180.6 (172–189)
	Pacific	121.1 (105–137)	139.1 (124–154)	114.9 (106–124)	110.7 (101–121)
	Non-Māori non-Pacific	118.2 (117–120)	98.8 (97.5–100)	74.6 (73.6–75.6)	52.6 (51.6–53.6)
Stroke	Māori	62.1 (56.5–67.6)	53.3 (48.5–58.1)	47.0 (43.3–50.7)	38.8 (34.8–42.8)
	Pacific	72.9 (59.6–86.1)	61.7 (51.4–72.0)	53.2 (46.7–59.8)	46.9 (40.1–53.7)
	Non-Māori non-Pacific	30.3 (29.6–31.0)	23.3 (22.7–23.9)	18.9 (18.4–19.4)	13.8 (13.3–14.3)
Respiratory diseases	Māori	89.0 (82.5–95.6)	78.2 (72.4–83.9)	65.5 (61.1–69.9)	64.0 (58.7–69.3)
	Pacific	65.3 (52.9–77.6)	80.5 (68.8–92.1)	35.4 (30.1–40.7)	39.9 (33.7–46.2)
	Non-Māori non-Pacific	29.4 (28.7–30.1)	27.3 (26.6–28.0)	19.4 (18.9–19.9)	17.1 (16.6–17.7)
Unintentional injuries	Māori	65.5 (61.2–69.9)	63.3 (59.4–67.1)	57.0 (53.9–60.2)	53.4 (49.6–57.2)
	Pacific	39.3 (33.0–45.7)	35.0 (29.6–40.4)	28.2 (24.8–31.6)	24.6 (20.7–28.5)
	Non-Māori non-Pacific	34.2 (33.3–35.0)	33.6 (32.8–34.4)	27.0 (26.4–27.7)	21.1 (20.4–21.8)
Motor vehicle accident	Māori	40.2 (37.0–43.5)	42.3 (39.2–45.4)	37.9 (35.4–40.4)	33.3 (30.3–36.2)
	Pacific	20.7 (16.7–24.6)	16.5 (13.2–19.8)	17.6 (14.9–20.3)	13.8 (11.0–16.7)
	Non-Māori non-Pacific	19.3 (18.7–19.9)	21.5 (20.9–22.2)	17.2 (16.6–17.7)	12.8 (12.3–13.4)
Suicide	Māori	7.9 (6.4–9.3)	10.5 (9.1–11.9)	14.5 (13.1–16.0)	24.4 (21.9–26.9)
	Pacific	7.4 (4.7–10.0)	8.5 (6.3–10.8)	10.8 (8.7–13.0)	9.7 (7.4–11.9)
	Non-Māori non-Pacific	11.2 (10.7–11.6)	12.6 (12.1–13.1)	13.7 (13.3–14.2)	14.7 (14.2–15.3)

Table 40: Standardised mortality rates, ages 1–74 years, by gender – specific causes (sole series)

Gender	Cause	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Cancer	Māori	222.9 (208–238)	221.7 (208–236)	236.4 (224–248)	262.3 (247–278)
		Pacific	193.4 (162–225)	220.7 (193–248)	169.3 (152–186)	207.7 (187–228)
		Non-Māori non-Pacific	137.3 (135–140)	133.0 (131–135)	129.5 (128–131)	116.9 (115–119)
	Lung cancer	Māori	91.5 (81.8–101)	81.1 (72.3–89.8)	90.7 (83.0–98.3)	99.6 (90.1–109)
		Pacific	52.2 (35.5–68.9)	56.2 (42.5–69.9)	59.7 (49.4–70.0)	66.0 (54.1–77.9)
		Non-Māori non-Pacific	40.8 (39.6–42.1)	36.6 (35.5–37.7)	31.8 (30.9–32.8)	25.2 (24.3–26.2)
	Prostate cancer	Māori	12.6 (8.8–16.4)	14.8 (10.9–18.7)	16.2 (12.8–19.7)	18.1 (13.8–22.4)
		Pacific	17.2 (6.6–27.8)	20.8 (11.2–30.4)	13.7 (8.2–19.1)	11.5 (6.3–16.7)
		Non-Māori non-Pacific	8.8 (8.3–9.4)	8.9 (8.4–9.5)	9.8 (9.2–10.3)	8.7 (8.2–9.3)
	Colorectal cancer	Māori	14.1 (10.3–17.8)	14.6 (11.1–18.2)	14.9 (11.8–18.0)	19.7 (15.5–24.0)
		Pacific	1.6 (0.5–3.7)	11.3 (4.7–17.9)	8.2 (4.6–11.7)	18.6 (12.3–24.8)
		Non-Māori non-Pacific	21.6 (20.7–22.5)	21.1 (20.2–22.0)	21.8 (21.0–22.6)	20.0 (19.1–20.9)
	Cardiovascular disease	Māori	447.5 (426.3–468.6)	406.1 (387.3–425.0)	400.0 (384.5–415.5)	398.0 (379.4–416.6)
		Pacific	306.3 (268.0–344.7)	336.5 (303.0–370.0)	292.1 (270.2–313.9)	298.0 (273.4–322.6)
		Non-Māori non-Pacific	241.3 (238.3–244.2)	204.3 (201.6–207.0)	159.2 (157.1–161.3)	116.4 (114.3–118.5)
	Ischaemic heart disease	Māori	279.7 (263–296)	243.0 (228–258)	253.6 (241–266)	249.0 (234–264)
		Pacific	179.3 (150–209)	201.9 (175–229)	161.3 (145–177)	174.0 (155–193)
		Non-Māori non-Pacific	176.3 (174–179)	149.9 (148–152)	112.9 (111–115)	82.1 (80.4–83.9)
	Stroke	Māori	55.5 (48.0–63.1)	55.1 (47.9–62.3)	45.1 (39.8–50.3)	36.0 (30.4–41.7)
		Pacific	77.4 (57.6–97.1)	72.4 (56.2–88.6)	59.3 (49.0–69.5)	53.5 (42.6–64.4)
		Non-Māori non-Pacific	33.9 (32.8–35.0)	26.5 (25.5–27.4)	21.7 (20.9–22.4)	15.6 (14.9–16.4)
	Respiratory diseases	Māori	97.6 (87.8–107)	83.1 (74.4–91.7)	64.5 (58.0–70.9)	62.0 (54.3–69.8)
		Pacific	89.4 (67.0–112)	111.1 (90.9–131)	47.8 (38.2–57.3)	62.9 (51.0–74.9)
		Non-Māori non-Pacific	40.6 (39.4–41.8)	35.0 (34.0–36.1)	24.0 (23.2–24.8)	20.4 (19.5–21.2)
	Unintentional injuries	Māori	100.3 (92.6–108)	92.7 (86.1–99.3)	83.1 (77.8–88.4)	80.0 (73.3–86.7)
		Pacific	66.4 (54.8–78.0)	54.0 (44.0–64.1)	44.2 (38.1–50.3)	38.7 (31.7–45.7)
		Non-Māori non-Pacific	49.9 (48.5–51.3)	49.9 (48.5–51.3)	40.3 (39.2–41.4)	31.6 (30.4–32.8)
	Motor vehicle accident	Māori	58.5 (52.9–64.0)	58.0 (52.8–63.2)	53.7 (49.5–57.9)	46.7 (41.7–51.7)
		Pacific	35.0 (27.5–42.4)	23.6 (18.4–28.7)	25.2 (20.7–29.8)	19.7 (14.9–24.6)
		Non-Māori non-Pacific	27.7 (26.7–28.8)	30.8 (29.7–31.9)	24.5 (23.6–25.4)	18.2 (17.3–19.1)
	Suicide	Māori	12.0 (9.4–14.7)	17.7 (15.0–20.4)	23.5 (21.0–26.1)	37.7 (33.2–42.1)
		Pacific	10.2 (6.0–14.4)	14.2 (10.1–18.3)	19.3 (15.3–23.3)	16.2 (12.0–20.4)
		Non-Māori non-Pacific	16.3 (15.5–17.1)	19.5 (18.7–20.4)	22.1 (21.2–22.9)	23.1 (22.1–24.2)

(Continued)

Gender	Cause	Ethnic group	1980–84	1985–89	1990–95	1996–99
Females	Cancer	Māori	192.1 (179–205)	191.4 (179–203)	201.5 (191–212)	239.2 (226–253)
		Pacific	112.6 (92.0–133)	141.8 (122–161)	132.7 (119–146)	160.2 (144–176)
		Non-Māori non-Pacific	105.8 (104–108)	106.2 (104–108)	105.2 (103–107)	97.8 (95.9–99.8)
	Lung cancer	Māori	53.4 (46.2–60.7)	58.0 (51.2–64.9)	63.4 (57.6–69.3)	81.6 (73.5–89.7)
		Pacific	4.8 (1.1–8.5)	18.9 (11.2–26.5)	14.8 (10.1–19.4)	21.3 (15.2–27.5)
		Non-Māori non-Pacific	11.6 (11.0–12.3)	13.7 (13.0–14.3)	15.2 (14.5–15.8)	14.4 (13.7–15.1)
	Breast cancer	Māori	33.8 (28.5–39.1)	32.9 (28.1–37.7)	31.9 (27.9–35.9)	43.0 (37.5–48.4)
		Pacific	14.2 (8.2–20.2)	37.1 (28.1–46.1)	27.5 (21.9–33.0)	43.9 (35.7–52.1)
		Non-Māori non-Pacific	24.5 (23.6–25.5)	25.0 (24.0–25.9)	23.9 (23.1–24.7)	21.8 (20.9–22.7)
	Colorectal cancer	Māori	7.7 (5.1–10.3)	9.8 (7.0–12.6)	10.5 (8.1–12.8)	12.6 (9.4–15.7)
		Pacific	1.1 (0.3–2.6)	4.0 (0.5–7.4)	5.9 (3.0–8.7)	10.6 (6.4–14.9)
		Non-Māori non-Pacific	17.6 (16.8–18.4)	17.2 (16.4–17.9)	15.8 (15.2–16.5)	14.4 (13.6–15.1)
	Cardiovascular disease	Māori	310.1 (292.5–327.7)	274.2 (259.2–289.1)	251.7 (240.0–263.5)	228.3 (214.8–241.8)
		Pacific	179.5 (151.8–207.1)	198.8 (173.3–224.3)	156.7 (141.6–171.9)	149.5 (133.4–165.5)
		Non-Māori non-Pacific	109.5 (107.6–111.3)	87.4 (85.8–89.0)	68.5 (67.2–69.8)	47.0 (45.7–48.3)
	Ischaemic heart disease	Māori	158.3 (145–171)	138.9 (128–150)	129.3 (121–138)	116.9 (107–127)
		Pacific	64.6 (48.2–81.0)	80.5 (64.1–96.9)	71.5 (61.1–82.0)	55.0 (45.1–64.9)
		Non-Māori non-Pacific	65.4 (64.0–66.8)	52.3 (51.0–53.5)	39.3 (38.4–40.3)	24.7 (23.8–25.6)
	Stroke	Māori	68.6 (60.4–76.8)	52.1 (45.6–58.7)	48.8 (43.6–54.0)	41.4 (35.7–47.2)
		Pacific	67.5 (49.8–85.3)	51.6 (38.5–64.7)	47.9 (39.4–56.4)	41.9 (33.2–50.5)
		Non-Māori non-Pacific	27.2 (26.3–28.1)	20.5 (19.7–21.3)	16.4 (15.8–17.1)	12.1 (11.5–12.8)
	Respiratory diseases	Māori	80.8 (72.2–89.4)	74.0 (66.4–81.7)	66.9 (60.8–72.9)	66.4 (59.1–73.8)
		Pacific	45.0 (31.5–58.4)	53.0 (40.1–65.8)	25.8 (19.9–31.7)	21.8 (15.8–27.9)
		Non-Māori non-Pacific	19.9 (19.1–20.7)	20.8 (20.0–21.6)	15.6 (15.0–16.3)	14.2 (13.5–14.9)
	Unintentional injuries	Māori	31.2 (27.1–35.4)	34.5 (30.4–38.6)	31.6 (28.2–34.9)	27.9 (24.0–31.7)
		Pacific	11.7 (6.5–16.8)	16.7 (11.9–21.5)	13.2 (9.9–16.4)	11.5 (7.8–15.2)
		Non-Māori non-Pacific	18.1 (17.3–19.0)	17.1 (16.3–17.9)	13.8 (13.1–14.5)	10.9 (10.2–11.6)
	Motor vehicle accident	Māori	22.2 (18.8–25.5)	27.1 (23.5–30.7)	22.3 (19.5–25.1)	20.3 (17.1–23.6)
		Pacific	6.0 (3.7–8.4)	9.7 (5.7–13.7)	10.6 (7.6–13.5)	8.5 (5.3–11.7)
		Non-Māori non-Pacific	10.7 (10.1–11.4)	12.1 (11.4–12.8)	9.9 (9.3–10.5)	7.5 (7.0–8.1)
	Suicide	Māori	3.8 (2.5–5.1)	3.4 (2.4–4.4)	5.8 (4.6–7.1)	11.8 (9.4–14.2)
		Pacific	4.3 (1.1–7.6)	3.0 (1.1–4.9)	3.0 (1.4–4.6)	3.6 (1.6–5.5)
		Non-Māori non-Pacific	6.1 (5.6–6.6)	5.7 (5.3–6.2)	5.5 (5.1–5.9)	6.6 (6.0–7.1)

Table 41: Cause-specific mortality rates, by age group (sole series)

Cause	Age group	Ethnic group	1980–84		1985–89		1990–95		1996–99	
Category I	1–14 years	Māori	5.6	(3.8–7.3)	5.0	(3.3–6.7)	4.6	(3.2–5.9)	3.9	(2.2–5.6)
		Pacific	8.7	(5.0–12.5)	11.4	(6.9–15.8)	6.8	(4.2–9.5)	4.3	(1.7–7.0)
		Non-Māori non-Pacific	3.0	(2.5–3.5)	2.7	(2.2–3.2)	2.6	(2.2–3.1)	1.7	(1.3–2.1)
	15–24 years	Māori	4.1	(2.3–5.9)	2.2	(0.9–3.5)	4.2	(2.5–5.8)	2.4	(0.6–4.3)
		Pacific	1.6	(0.6–3.9)	5.1	(1.5–8.7)	1.9	(0.2–3.6)	7.0	(2.5–11.4)
		Non-Māori non-Pacific	2.1	(1.7–2.6)	2.1	(1.6–2.6)	1.5	(1.1–1.9)	1.1	(0.7–1.5)
	25–44 years	Māori	311.9	(295–328)	297.0	(282–312)	289.9	(278–302)	287.7	(273–303)
		Pacific	196.0	(174–218)	206.8	(187–226)	186.8	(172–201)	202.9	(185–221)
		Non-Māori non-Pacific	130.4	(127–134)	124.9	(122–128)	113.8	(111–116)	103.2	(101–106)
	45–64 years	Māori	56.7	(46.0–67.4)	57.6	(47.8–67.4)	41.2	(34.3–48.0)	25.3	(18.8–31.8)
		Pacific	49.8	(29.5–70.0)	75.9	(55.2–96.7)	23.1	(14.6–31.7)	32.4	(20.9–43.8)
		Non-Māori non-Pacific	15.6	(14.4–16.8)	13.9	(12.8–15.0)	10.0	(9.1–10.8)	6.7	(5.9–7.5)
	65–74 years	Māori	280.1	(223–337)	222.7	(176–270)	152.1	(120–184)	158.5	(120–197)
		Pacific	315.1	(182–448)	347.6	(231–464)	188.9	(130–248)	87.8	(45.4–130)
		Non-Māori non-Pacific	91.8	(86.8–96.8)	84.1	(79.4–88.8)	49.3	(46.1–52.4)	32.1	(29.2–35.1)
Category II	1–14 years	Māori	20.2	(16.9–23.4)	16.9	(13.8–20.1)	14.2	(11.6–16.7)	18.2	(14.2–22.1)
		Pacific	29.8	(23.0–36.6)	24.6	(18.1–31.1)	22.2	(17.3–27.1)	15.1	(10.0–20.3)
		Non-Māori non-Pacific	15.2	(14.1–16.3)	15.2	(14.0–16.4)	10.8	(9.9–11.7)	10.7	(9.7–11.8)
	15–24 years	Māori	51.2	(44.7–57.7)	29.1	(24.4–33.9)	29.9	(25.5–34.3)	32.7	(26.0–39.4)
		Pacific	43.6	(31.9–55.3)	45.7	(34.8–56.5)	25.8	(19.2–32.4)	40.0	(29.3–50.7)
		Non-Māori non-Pacific	24.3	(22.7–25.9)	21.2	(19.6–22.7)	19.0	(17.7–20.4)	17.0	(15.4–18.5)
	25–44 years	Māori	218.7	(205–233)	193.3	(181–206)	190.2	(180–200)	175.3	(163–187)
		Pacific	126.5	(109–144)	153.6	(137–171)	127.9	(116–140)	152.0	(136–168)
		Non-Māori non-Pacific	79.9	(77.5–82.4)	68.6	(66.5–70.7)	58.7	(57.0–60.4)	53.5	(51.6–55.4)
	45–64 years	Māori	1762.0	(1702–1822)	1727.6	(1674–1781)	1714.8	(1671–1759)	1749.1	(1694–1804)
		Pacific	1116.5	(1017–1216)	1232.2	(1147–1318)	1020.1	(964–1076)	1131.2	(1064–1199)
		Non-Māori non-Pacific	728.2	(720–737)	648.8	(641–657)	556.8	(550–563)	474.0	(467–481)
	65–74 years	Māori	5793.5	(5538–6049)	5244.9	(5017–5473)	5452.6	(5261–5644)	5921.3	(5688–6155)
		Pacific	3952.5	(3491–4414)	4695.4	(4262–5128)	4032.8	(3767–4299)	4519.2	(4218–4821)
		Non-Māori non-Pacific	3038.9	(3010–3068)	2804.8	(2778–2832)	2496.3	(2474–2519)	2069.4	(2045–2093)

(Continued)

Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Category III	1–14 years	Māori	30.5 (26.5–34.5)	28.7 (24.6–32.7)	28.9 (25.3–32.5)	38.4 (32.7–44.1)
		Pacific	23.7 (17.6–29.7)	17.5 (12.0–23.0)	20.6 (15.9–25.3)	9.3 (5.3–13.3)
		Non-Māori non-Pacific	17.0 (15.8–18.3)	15.9 (14.7–17.1)	11.9 (11.0–12.9)	9.4 (8.4–10.4)
	15–24 years	Māori	102.5 (93.3–112)	124.8 (115–135)	122.9 (114–132)	131.1 (118–145)
		Pacific	69.6 (54.8–84.3)	74.6 (60.7–88.4)	67.0 (56.4–77.5)	57.9 (45.0–70.8)
		Non-Māori non-Pacific	76.6 (73.7–79.5)	84.6 (81.5–87.6)	75.0 (72.3–77.7)	59.5 (56.6–62.4)
	25–44 years	Māori	83.4 (75.1–91.6)	95.5 (87.5–103)	90.5 (84.0–97.0)	104.5 (95.5–113)
		Pacific	51.8 (40.9–62.7)	46.0 (37.2–54.8)	44.3 (37.5–51.0)	45.6 (37.1–54.0)
		Non-Māori non-Pacific	46.7 (44.8–48.5)	51.2 (49.4–53.0)	48.4 (46.8–50.0)	45.2 (43.4–47.0)
	45–64 years	Māori	85.6 (72.9–98.2)	78.6 (67.3–89.9)	73.8 (64.8–82.8)	72.2 (61.2–83.2)
		Pacific	71.7 (48.0–95.4)	53.3 (36.0–70.5)	47.1 (35.2–59.1)	49.7 (36.1–63.4)
		Non-Māori non-Pacific	48.2 (46.0–50.4)	46.9 (44.7–49.0)	41.1 (39.3–43.0)	37.0 (35.1–38.9)
	65–74 years	Māori	131.9 (93.1–171)	95.3 (64.8–126)	80.9 (57.3–104)	61.6 (37.8–85.4)
		Pacific	83.3 (19.5–147)	93.2 (32.5–154)	48.4 (20.7–76.1)	25.6 (3.3–47.8)
		Non-Māori non-Pacific	79.2 (74.5–83.9)	64.7 (60.6–68.8)	50.9 (47.6–54.1)	48.4 (44.7–52.1)

Table 42: Mortality rate in 35–64 and 65–74-year-old males and females for cancers and cardiovascular diseases (sole series)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Cancer	35–64 years	Māori	351.3 (322–381)	338.5 (313–364)	344.8 (323–366)	384.5 (357–412)
			Pacific	295.2 (239–351)	294.1 (250–338)	217.2 (189–245)	275.6 (240–312)
			Non-Māori non-Pacific	198.3 (194–203)	185.0 (181–189)	174.3 (170–178)	159.7 (155–164)
		65–74 years	Māori	1600.5 (1410–1791)	1757.9 (1563–1953)	1947.8 (1779–2117)	2139.7 (1930–2349)
			Pacific	1573.7 (1130–2018)	1928.7 (1521–2336)	1575.6 (1323–1829)	1843.0 (1552–2134)
			Non-Māori non-Pacific	1129.8 (1103–1156)	1143.8 (1118–1170)	1160.3 (1137–1183)	1034.8 (1010–1060)
	Lung cancer	35–64 years	Māori	142.6 (124–161)	111.9 (96.9–127)	125.0 (112–138)	141.9 (125–159)
			Pacific	79.7 (50.9–109)	92.3 (66.4–118)	80.1 (62.8–97.5)	85.7 (65.3–106)
			Non-Māori non-Pacific	57.6 (55.1–60.1)	51.1 (48.8–53.5)	41.2 (39.3–43.1)	31.3 (29.4–33.3)
		65–74 years	Māori	744.3 (615–874)	756.0 (629–883)	852.2 (740–965)	909.8 (774–1046)
			Pacific	442.2 (199–685)	433.9 (248–620)	576.2 (424–728)	655.7 (481–830)
			Non-Māori non-Pacific	376.2 (361–391)	339.8 (326–354)	316.6 (305–329)	259.2 (247–272)
	Prostate cancer	35–64 years	Māori	14.4 (8.2–20.6)	16.9 (10.8–23.0)	15.8 (11.0–20.5)	13.7 (8.4–19.1)
			Pacific	– –	– –	– –	– –
			Non-Māori non-Pacific	6.8 (6.0–7.7)	6.8 (6.0–7.7)	7.3 (6.5–8.1)	7.0 (6.1–8.0)
		65–74 years	Māori	137.5 (80.3–194.7)	162.5 (103–222)	195.5 (140–250)	242.7 (172–314)
			Pacific	– –	309.8 (144–475)	207.9 (113–303)	164.1 (77.9–250.3)
			Non-Māori non-Pacific	117.0 (109–125)	119.7 (111–128)	131.2 (123–139)	114.1 (106–122)
	Colorectal cancer	35–64 years	Māori	21.4 (14.4–28.4)	25.9 (18.7–33.1)	18.7 (13.8–23.6)	28.8 (21.1–36.4)
			Pacific	– –	– –	– –	16.5 (8.1–24.9)
			Non-Māori non-Pacific	35.1 (33.1–37.1)	34.1 (32.1–36.0)	33.2 (31.5–35.0)	28.7 (26.8–30.5)
		65–74 years	Māori	113.3 (62.3–164.2)	94.1 (49.3–138.8)	144.6 (98.7–190.5)	171.2 (112–231)
			Pacific	– –	– –	– –	220.0 (121–319)
			Non-Māori non-Pacific	163.9 (154–174)	163.4 (154–173)	181.7 (173–191)	177.0 (167–187)
	Cardiovascular disease	35–64 years	Māori	698.3 (658–739)	663.0 (627–699)	639.1 (610–668)	639.6 (604–675)
			Pacific	439.1 (374–504)	508.6 (450.567)	426.9 (388–466)	410.8 (367–454)
			Non-Māori non-Pacific	322.0 (316–328)	263.5 (258–269)	195.7 (191–200)	146.9 (143–151)
		65–74 years	Māori	3520.9 (3237–3804)	3011.6 (2757–3266)	3042.9 (2831–3254)	3067.5 (2818–3317)
			Pacific	2647.9 (2088–3207)	2687.7 (2207–3169)	2458.9 (2148–2769)	2660.1 (2311–3010)
			Non-Māori non-Pacific	2287.5 (2250–2325)	1992.1 (1958–2026)	1608.2 (1581–1635)	1151.9 (1126–1178)
	Ischaemic heart disease	35–64 years	Māori	430.5 (399–462)	421.9 (393–451)	396.8 (374–420)	410.9 (382–439)
			Pacific	254.5 (205–304)	304.4 (258–350)	241.6 (213–271)	254.7 (221–289)
			Non-Māori non-Pacific	249.4 (244–255)	203.2 (199–208)	145.4 (142–149)	108.4 (105–112)
		65–74 years	Māori	2300.7 (2072–2530)	1694.2 (1503–1886)	2031.5 (1859–2204)	1896.0 (1700–2092)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
			Pacific	1599.5 (1167–2032)	1735.0 (1347–2123)	1334.7 (1110–1559)	1489.5 (1227–1752)
			Non-Māori non-Pacific	1602.2 (1571–1634)	1421.3 (1392–1450)	1118.9 (1096–1141)	796.0 (774–818)

(Continued)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Stroke	35–64 years	Māori	77.6 (63.9–91.3)	69.2 (57.7–80.8)	65.1 (55.8–74.4)	51.6 (41.5–61.6)
			Pacific	106.7 (73.9–140)	93.4 (68.5–118)	83.2 (65.7–101)	51.6 (35.9–67.3)
			Non-Māori non-Pacific	34.9 (32.9–36.9)	27.1 (25.4–28.8)	21.6 (20.2–23.0)	17.0 (15.5–18.4)
		65–74 years	Māori	475.5 (371–580)	552.4 (443–662)	373.4 (299–448)	306.6 (227–386)
			Pacific	717.2 (425–1010)	712.6 (464–961)	541.2 (392–691)	647.8 (476–820)
			Non-Māori non-Pacific	386.4 (371–402)	299.5 (286–313)	249.3 (239–260)	171.0 (161–181)
Females	Cancer	35–64 years	Māori	330.8 (304–358)	342.7 (318–368)	364.7 (343–386)	411.1 (383–439)
			Pacific	192.1 (151–233)	250.1 (211–290)	227.3 (200–254)	257.5 (224–291)
			Non-Māori non-Pacific	180.0 (175–185)	178.3 (174–183)	177.6 (174–182)	162.1 (158–167)
		65–74 years	Māori	1209.5 (1047–1372)	1182.3 (1035–1329)	1214.3 (1092–1337)	1590.2 (1427–1753)
			Pacific	732.1 (463–1001)	828.2 (580–1076)	865.4 (700–1031)	1090.7 (893–1289)
			Non-Māori non-Pacific	676.8 (658–695)	701.0 (683–719)	703.4 (687–720)	668.0 (649–687)
	Lung cancer	35–64 years	Māori	85.0 (70.8–99.1)	94.7 (81.3–108.2)	109.9 (97.9–121.9)	123.2 (107–139)
			Pacific	– –	27.9 (13.9–41.9)	20.6 (12.3–28.9)	28.1 (16.8–39.3)
			Non-Māori non-Pacific	18.3 (16.9–19.7)	21.8 (20.3–23.4)	23.1 (21.7–24.6)	21.2 (19.6–22.8)
		65–74 years	Māori	430.7 (334–528)	444.4 (355–534)	448.9 (375–523)	693.0 (585–801)
			Pacific	– –	– –	137.5 (71–204)	204.7 (118–291)
			Non-Māori non-Pacific	94.9 (87.9–101.8)	109.2 (102–116)	126.9 (120–134)	125.2 (117–133)
	Breast cancer	35–64 years	Māori	72.2 (59.9–84.5)	74.1 (62.5–85.6)	63.2 (54.3–72.0)	95.1 (81.8–108.3)
			Pacific	38.6 (21.6–55.5)	87.0 (64.9–109.1)	60.0 (46.9–73.1)	91.7 (72.4–111.1)
			Non-Māori non-Pacific	50.5 (48.1–53.0)	50.9 (48.5–53.3)	48.9 (46.7–51.0)	45.1 (42.8–47.4)
		65–74 years	Māori	136.6 (81.6–191.5)	106.0 (61.7–150.2)	161.5 (116–207)	136.8 (88.6–185.1)
			Pacific	– –	– –	– –	170.3 (91.1–249.5)
			Non-Māori non-Pacific	112.7 (105–120)	116.9 (109–124)	111.8 (105–118)	98.6 (91.3–106.0)
	Colorectal cancer	35–64 years	Māori	14.1 (8.4–19.8)	16.4 (10.9–22.0)	19.5 (14.6–24.5)	21.6 (15.1–28.2)
			Pacific	– –	– –	– –	19.9 (10.6–29.3)
			Non-Māori non-Pacific	30.6 (28.7–32.5)	29.1 (27.3–30.9)	26.6 (25.0–28.1)	22.9 (21.3–24.6)
		65–74 years	Māori	– –	72.9 (36.4–109.4)	63.2 (35.0–91.4)	90.4 (51.8–129.1)
			Pacific	– –	– –	– –	– –
			Non-Māori non-Pacific	121.6 (114–129)	124.9 (117–133)	115.6 (109–122)	111.6 (104–119)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
	Cardiovascular disease	35–64 years	Māori	437.9 (406–469)	410.0 (382–438)	389.8 (367–412)	321.9 (297–347)
			Pacific	280.4 (227–334)	260.3 (218–303)	207.2 (180–234)	193.1 (164–222)
			Non-Māori non-Pacific	120.6 (117–124)	92.2 (89.0–95.3)	71.2 (68.7–73.7)	50.0 (47.5–52.4)
		65–74 years	Māori	2694.2 (2447–2941)	2284.1 (2080–2488)	2015.3 (1857–2173)	2048.9 (1863–2235)
			Pacific	1357.3 (990–1725)	1868.1 (1491–2245)	1464.9 (1249–1681)	1375.1 (1154–1596)
			Non-Māori non-Pacific	1185.7 (1161–1210)	976.3 (955–998)	770.8 (754–788)	512.3 (496–529)

(Continued)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Females	Ischaemic heart disease	35–64 years	Māori	208.1 (186–230)	188.3 (169–207)	192.0 (176–208)	160.4 (143–178)
			Pacific	129.1 (92.4–166)	107.3 (80.4–134)	85.5 (68.1–103)	66.5 (49.2–83.8)
			Non-Māori non-Pacific	68.8 (66.1–71.6)	53.6 (51.2–56.0)	38.2 (36.3–40.0)	24.7 (23.0–26.4)
		65–74 years	Māori	1539.4 (1353–1726)	1321.7 (1166–1477)	1117.9 (1000–1236)	1097.1 (961–1233)
			Pacific	341.4 (157–526)	772.0 (527–1017)	752.7 (598–907)	562.5 (421–704)
			Non-Māori non-Pacific	750.8 (731–770)	609.0 (592–626)	471.3 (458–485)	290.9 (279–303)
	Stroke	35–64 years	Māori	100.1 (85.1–115)	77.0 (64.9–89.1)	71.2 (61.7–80.7)	59.6 (48.8–70.4)
			Pacific	65.9 (40.5–91.4)	63.0 (42.1–83.9)	62.8 (47.9–77.6)	53.6 (38.0–69.1)
			Non-Māori non-Pacific	30.5 (28.7–32.4)	21.5 (19.9–23.0)	19.1 (17.8–20.5)	14.1 (12.8–15.4)
		65–74 years	Māori	578.9 (465–693)	444.7 (355–535)	414.8 (343–487)	360.4 (283–438)
			Pacific	789.7 (510–1070)	528.3 (329–727)	466.5 (344–589)	415.6 (293–538)
			Non-Māori non-Pacific	288.4 (276–300)	226.1 (216–236)	171.1 (163–179)	123.3 (115–131)

Note: '–' indicates insufficient data.

Table 43: Mortality rate in 1–14, 15–24 and 25–44-year-old males and females for unintentional injuries and motor vehicle accidents (sole series)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Unintentional injuries	1–14 years	Māori	34.8 (28.8–40.8)	31.1 (25.2–37.1)	33.5 (28.1–38.9)	36.8 (29.1–44.4)
			Pacific	29.3 (20.1–38.6)	16.0 (8.7–23.4)	22.8 (16.0–29.7)	9.3 (3.9–14.7)
			Non-Māori non-Pacific	20.5 (18.6–22.4)	17.5 (15.7–19.2)	13.0 (11.6–14.4)	10.4 (8.9–11.8)
		15–24 years	Māori	136.6 (121–152)	126.3 (113–140)	124.5 (112–137)	105.7 (88.6–123)
			Pacific	96.4 (71.6–121)	88.8 (66.9–111)	67.7 (52.5–83.0)	59.0 (40.4–77.7)
			Non-Māori non-Pacific	96.5 (92.0–101)	101.6 (97.0–106)	76.5 (72.7–80.4)	52.5 (48.6–56.4)
		25–44 years	Māori	106.4 (93.1–120)	123.3 (110–136)	99.2 (89.3–109)	96.9 (84.4–109)
			Pacific	63.1 (46.3–79.8)	44.6 (32.4–56.8)	49.9 (39.6–60.3)	37.7 (26.6–48.7)
			Non-Māori non-Pacific	49.4 (46.7–52.0)	52.8 (50.2–55.4)	45.6 (43.5–47.8)	36.5 (34.2–38.7)
	Road traffic crashes	1–14 years	Māori	16.9 (12.7–21.0)	11.3 (7.7–14.9)	17.2 (13.3–21.1)	18.2 (12.8–23.7)
			Pacific	22.0 (14.0–30.0)	– –	9.1 (4.7–13.5)	– –
			Non-Māori non-Pacific	8.3 (7.1–9.5)	8.4 (7.2–9.6)	6.8 (5.8–7.8)	4.8 (3.9–5.8)
		15–24 years	Māori	95.9 (83.2–109)	93.7 (81.8–106)	104.9 (93.2–117)	78.8 (64.0–93.5)
			Pacific	79.7 (57.2–102)	56.8 (39.3–74.3)	41.0 (29.1–52.8)	32.7 (18.8–46.6)
			Non-Māori non-Pacific	71.1 (67.2–75.0)	77.9 (73.8–82.0)	57.2 (53.8–60.5)	38.5 (35.2–41.9)
		25–44 years	Māori	69.4 (58.7–80.1)	80.7 (70.3–91.1)	59.7 (52.1–67.3)	60.9 (51.0–70.7)
			Pacific	30.8 (19.0–42.6)	28.7 (19.1–38.3)	35.2 (26.6–43.9)	23.3 (14.6–32.0)
			Non-Māori non-Pacific	26.1 (24.2–28.0)	32.2 (30.1–34.2)	27.6 (25.9–29.3)	20.9 (19.2–22.6)
Females	Unintentional injuries	1–14 years	Māori	21.2 (16.5–26.0)	20.5 (15.6–25.4)	16.5 (12.7–20.4)	23.0 (16.7–29.4)
			Pacific	– –	12.3 (5.7–18.9)	12.5 (7.2–17.8)	6.5 (1.7–11.4)
			Non-Māori non-Pacific	12.0 (10.5–13.4)	12.0 (10.5–13.4)	8.0 (6.9–9.2)	6.0 (4.8–7.1)
		15–24 years	Māori	39.8 (31.6–47.9)	42.2 (34.1–50.3)	29.8 (23.6–36.1)	43.7 (32.6–54.8)
			Pacific	– –	22.8 (12.2–33.4)	19.2 (11.3–27.1)	– –
			Non-Māori non-Pacific	27.7 (25.2–30.2)	26.2 (23.8–28.6)	23.7 (21.5–25.9)	17.7 (15.4–20.0)
		25–44 years	Māori	28.0 (21.1–34.8)	30.3 (24.0–36.6)	35.1 (29.4–40.9)	26.9 (20.5–33.2)
			Pacific	– –	18.2 (10.6–25.9)	10.5 (5.9–15.0)	12.4 (6.2–18.5)
			Non-Māori non-Pacific	11.5 (10.2–12.8)	14.1 (12.7–15.4)	12.5 (11.4–13.6)	8.5 (7.4–9.5)
	Road traffic crashes	1–14 years	Māori	13.9 (10.1–17.8)	11.8 (8.1–15.6)	9.6 (6.6–12.6)	14.1 (9.1–19.1)
			Pacific	– –	– –	– –	– –
			Non-Māori non-Pacific	6.0 (5.0–7.0)	6.8 (5.7–7.9)	4.9 (4.1–5.8)	3.4 (2.6–4.3)
		15–24 years	Māori	33.9 (26.4–41.4)	38.7 (31.0–46.5)	24.4 (18.8–30.1)	36.5 (26.4–46.7)
			Pacific	– –	– –	17.1 (9.7–24.5)	– –
			Non-Māori non-Pacific	22.1 (19.8–24.3)	23.1 (20.8–25.3)	20.1 (18.1–22.1)	14.5 (12.4–16.6)
		25–44 years	Māori	20.1 (14.4–25.9)	25.9 (20.0–31.8)	26.1 (21.2–31.0)	20.5 (14.9–26.0)
			Pacific	– –	– –	8.0 (4.0–12.0)	10.5 (4.8–16.2)
			Non-Māori non-Pacific	7.1 (6.1–8.1)	10.7 (9.5–11.9)	8.9 (8.0–9.8)	6.4 (5.5–7.4)

Note: '–' indicates insufficient data.

Table 44: Mortality rate in 15–24, 25–44 and 45–74-year-old males and females for suicide (sole series)

Gender	Cause	Age group	Ethnic group	1980–84	1985–89	1990–95	1996–99
Males	Suicide	15–24 years	Māori	14.52 (9.51–19.54)	45.59 (37.28–53.9)	59.59 (50.78–68.4)	72.88 (58.69–87.06)
			Pacific	–	28.15 (15.87–40.44)	41.14 (29.22–53.06)	37.22 (22.36–52.09)
			Non-Māori non-Pacific	19.26 (17.22–21.3)	27.81 (25.36–30.26)	37.56 (34.87–40.26)	33.96 (30.83–37.08)
		25–44 years	Māori	18.14 (12.65–23.63)	19.45 (14.06–24.83)	31.44 (26.05–36.83)	57.98 (48.41–67.54)
			Pacific	16.38 (8.09–24.68)	18.91 (11.04–26.77)	19.16 (12.78–25.55)	22.85 (14.1–31.61)
			Non-Māori non-Pacific	21.15 (19.4–22.91)	24.13 (22.36–25.9)	28.17 (26.47–29.88)	35.02 (32.78–37.25)
		45–74 years	Māori	14.39 (7.33–21.46)	11.58 (5.91–17.25)	11.2 (6.78–15.63)	21.34 (13.3–29.38)
			Pacific	–	–	22.21 (11.5–32.92)	–
			Non-Māori non-Pacific	23.94 (22.05–25.83)	26.87 (24.87–28.88)	25.23 (23.5–26.96)	23.83 (21.91–25.75)
Females	Suicide	15–24 years	Māori	4.89 (2.07–7.7)	14.07 (9.4–18.74)	16.82 (12.12–21.52)	26.46 (17.86–35.05)
			Pacific	–	–	–	(1.2–14.6)
			Non-Māori non-Pacific	4.83 (3.78–5.87)	6.58 (5.37–7.79)	6.89 (5.72–8.06)	12.05 (10.16–13.94)
		25–44 years	Māori	5.95 (2.99–8.91)	–	5.64 93.42–7.85)	15.14 (10.34–19.94)
			Pacific	–	–	–	–
			Non-Māori non-Pacific	7.55 (6.5–8.6)	7.02 (6.07–7.98)	7.01 (6.18–7.85)	8.58 (7.5–9.65)
		45–74 years	Māori	–	–	–	–
			Pacific	–	–	–	–
			Non-Māori non-Pacific	11.19 (9.89–12.48)	9.01 (7.86–10.16)	8.02 (7.04–8.99)	6.54 (5.55–7.54)

Note: '–' indicates insufficient data.

Table 45: Cause-substituted life expectancy, by gender – categories I, II, III (prioritised series)

Prioritised ethnic group	Gender	Period	Cause-substituted life expectancy (in years)		
			Category I	Category II	Category III
Māori	Males	1980–84	0.37	5.20	0.77
		1985–89	0.33	5.60	1.03
		1990–95	0.31	7.13	1.12
		1996–99	0.26	8.31	1.41
	Females	1980–84	0.47	7.06	0.24
		1985–89	0.37	6.57	0.38
		1990–95	0.26	8.57	0.40
		1996–99	0.30	9.01	0.57
Pacific	Males	1980–84	0.51	3.26	0.45
		1985–89	0.62	4.26	0.09
		1990–95	0.43	4.62	0.11
		1996–99	0.43	7.13	0.27
	Females	1980–84	0.50	2.67	-0.19
		1985–89	0.52	4.18	-0.05
		1990–95	0.34	4.12	-0.08
		1996–99	0.42	6.15	0.02

Table 46: Cause-substituted life expectancy, by gender – categories I, II, III (sole series)

Sole ethnic group	Gender	Period	Cause-substituted life expectancy (in years)		
			Category I	Category II	Category III
Māori	Males	1980–84	0.48	6.08	0.96
		1985–89	0.37	6.22	1.06
		1990–95	0.37	7.73	1.26
		1996–99	0.28	9.73	1.70
	Females	1980–84	0.60	8.22	0.34
		1985–89	0.41	7.34	0.42
		1990–95	0.32	9.40	0.49
		1996–99	0.34	10.71	0.79
Pacific	Males	1980–84	0.38	2.34	0.27
		1985–89	0.58	3.87	-0.05
		1990–95	0.36	3.80	0.11
		1996–99	0.34	6.52	0.10
	Females	1980–84	0.43	2.13	-0.23
		1985–89	0.50	4.13	-0.08
		1990–95	0.32	3.88	-0.06
		1996–99	0.33	5.70	-0.04

Table 47: Cause-substituted life expectancy by gender – specific causes (prioritised series)

Prioritised ethnic group	Gender	Period	Age-substituted life expectancy (in years)				
			Cancer	Diabetes	Cardiovascular disease	Respiratory disease	Unintentional injuries
Māori	Males	1980–84	0.92	0.47	2.49	0.89	0.85
		1985–89	1.01	0.45	2.58	0.70	0.90
		1990–95	1.37	0.65	3.50	0.63	1.00
		1996–99	1.84	0.81	4.01	0.58	1.06
	Females	1980–84	1.37	0.61	3.60	1.26	0.28
		1985–89	1.28	0.59	3.32	1.09	0.41
		1990–95	1.75	0.92	3.82	1.05	0.38
		1996–99	2.51	0.93	3.61	1.04	0.46
Pacific	Males	1980–84	0.81	0.20	1.67	0.69	0.42
		1985–89	1.23	0.24	1.70	1.08	0.04
		1990–95	0.59	0.43	2.47	0.54	0.07
		1996–99	1.84	0.66	3.06	0.74	0.26
	Females	1980–84	0.27	0.32	1.36	0.47	-0.20
		1985–89	0.49	0.51	2.00	0.82	-0.02
		1990–95	0.62	0.61	2.24	0.31	-0.03
		1996–99	1.50	1.09	2.62	0.29	0.03

Table 48: Cause-substituted life expectancy by gender – specific causes (sole series)

Sole ethnic group	Gender	Period	Age-substituted life expectancy (in years)				
			Cancer	Diabetes	Cardiovascular disease	Respiratory disease	Unintentional injuries
Māori	Males	1980–84	1.11	0.49	2.87	1.01	1.03
		1985–89	1.15	0.46	2.88	0.75	0.93
		1990–95	1.50	0.66	3.74	0.68	1.12
		1996–99	2.17	0.89	4.57	0.64	1.33
	Females	1980–84	1.65	0.64	4.11	1.40	0.37
		1985–89	1.49	0.62	3.66	1.18	0.45
		1990–95	1.99	0.96	4.08	1.12	0.47
		1996–99	3.12	1.02	4.21	1.15	0.69
Pacific	Males	1980–84	0.68	0.18	1.40	0.63	0.30
		1985–89	1.25	0.24	1.71	1.09	-0.08
		1990–95	0.64	0.43	2.56	0.55	0.10
		1996–99	1.74	0.68	3.26	0.78	0.15
	Females	1980–84	0.13	0.29	1.10	0.40	-0.23
		1985–89	0.55	0.52	2.13	0.85	-0.05
		1990–95	0.72	0.63	2.37	0.34	-0.02
		1996–99	1.57	1.11	2.73	0.31	0.02

Table 49: Comparison of mortality rates, by age, EMT v. NZCMS (prioritised series)

Age group	Period	Māori – EMT	Māori – CMS	Pacific – EMT	Pacific – CMS	Non-Māori non-Pacific – EMT	Non-Māori non-Pacific – CMS
1–14 years	1980–84	49.0	38.1	70.6	42.1	35.4	27.4
	1985–89	48.9	37.7	50.2	39.9	33.1	24.3
	1990–95	41.8	29.1	46.9	31.7	25.6	21.2
	1996–99	43.7	34.8	31.3	25.8	20.6	17.5
15–24 years	1980–84	148.0	144.0	124.9	125.2	102.9	100.1
	1985–89	159.2	155.9	147.7	127.8	105.7	105.0
	1990–95	154.0	140.8	95.5	78.7	95.5	95.9
	1996–99	141.9	155.1	111.6	103.4	72.4	71.9
25–44 years	1980–84	283.9	273.2	198.6	138.4	129.0	123.4
	1985–89	276.6	249.5	212.0	194.5	122.9	119.1
	1990–95	262.3	237.8	179.6	148.1	113.3	111.5
	1996–99	252.9	240.9	213.3	195.6	94.9	94.7
45–64 years	1980–84	1749.7	1681.3	1309.5	1007.3	787.2	844.8
	1985–89	1734.0	1595.4	1324.5	1056.2	707.1	760.7
	1990–95	1723.0	1618.9	1071.0	887.2	605.5	621.7
	1996–99	1569.2	1461.6	1173.2	995.7	502.3	485.6
65–74 years	1980–84	5671.6	6193.0	4567.4	4663.0	3205.0	3758.5
	1985–89	5317.9	5793.1	5074.5	4587.1	2948.7	3577.3
	1990–95	5469.3	5857.5	4184.9	4210.8	2592.3	3085.4
	1996–99	5295.8	5781.5	4421.2	4358.9	2122.2	2636.7

Table 50: Comparison of mortality rates, by age, EMT v. NZCMS (sole series)

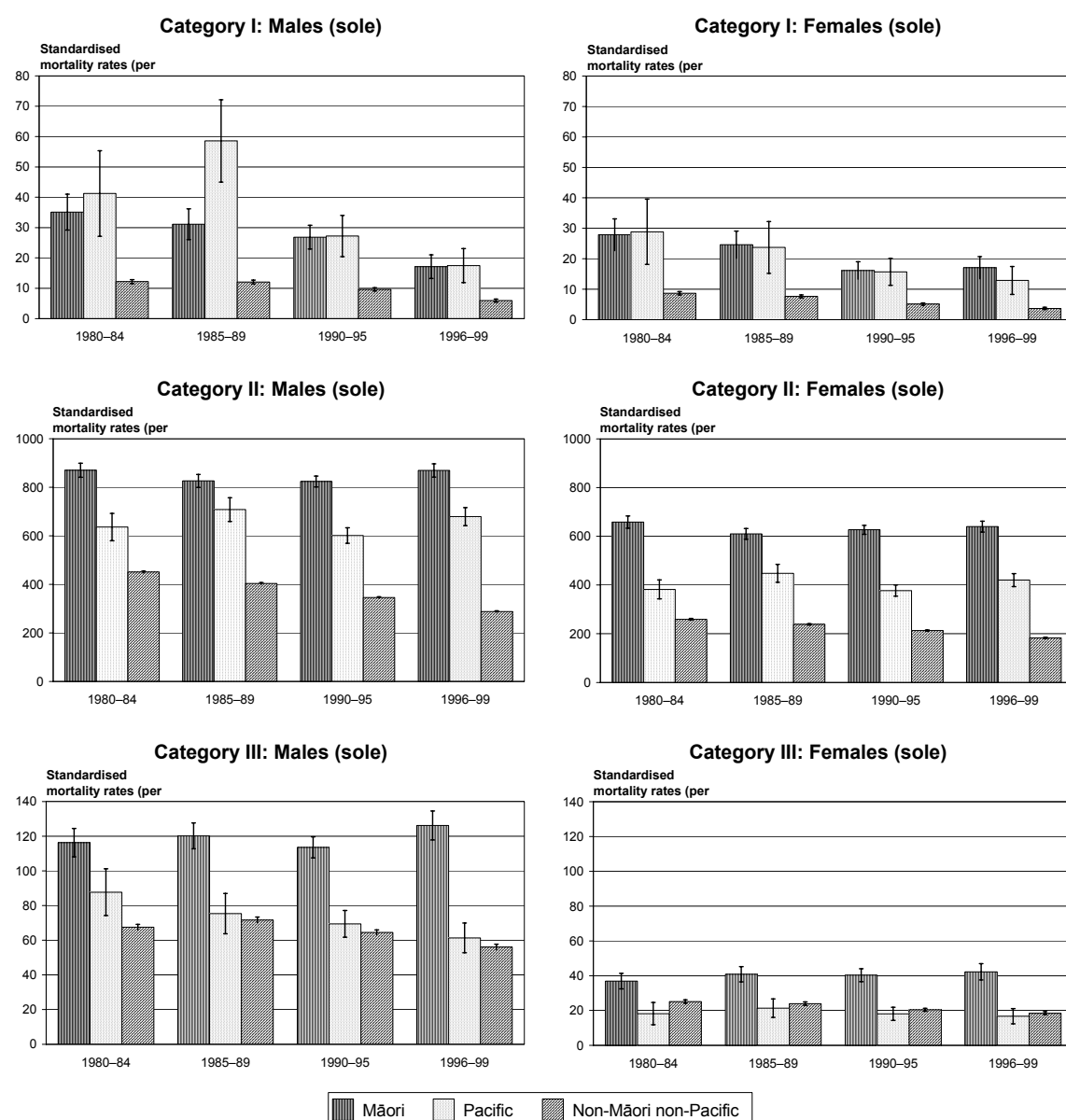
Age group	Period	Māori – EMT	Māori – CMS	Pacific – EMT	Pacific – CMS	Non-Māori non-Pacific – EMT	Non-Māori non-Pacific – CMS
1–14 years	1980–84	56.6	40.3	62.2	42.2	35.6	27.9
	1985–89	51.0	41.2	53.5	44.5	34.4	24.9
	1990–95	47.6	32.2	50.3	33.4	25.9	21.5
	1996–99	61.5	49.7	28.7	22.6	22.2	18.7
15–24 years	1980–84	159.4	154.6	119.7	130.9	104.1	100.7
	1985–89	158.3	160.4	125.3	115.1	109.1	107.6
	1990–95	158.8	144.5	96.5	81.8	97.1	97.4
	1996–99	167.0	177.8	106.8	106.3	78.4	79.0
25–44 years	1980–84	311.9	304.3	196.0	141.5	130.4	124.7
	1985–89	297.0	270.2	206.8	191.6	124.9	120.7
	1990–95	289.9	261.5	186.8	154.2	113.8	112.1
	1996–99	287.7	275.6	202.9	195.0	103.2	102.0
45–64 years	1980–84	1906.7	1835.7	1238.0	973.6	793.5	848.6
	1985–89	1866.7	1727.2	1372.7	1096.1	711.5	762.8
	1990–95	1833.6	1731.7	1095.9	904.0	609.3	625.4
	1996–99	1848.2	1804.3	1213.3	1043.3	519.1	497.4
65–74 years	1980–84	6205.5	6780.7	4350.8	4693.1	3213.2	3763.6
	1985–89	5571.7	6123.9	5136.3	4718.5	2957.1	3581.8
	1990–95	5691.8	6105.3	4281.8	4318.1	2600.1	3091.5
	1996–99	6141.4	6723.4	4632.6	4617.8	2151.6	2661.3

Appendix 4: Results – Sole Series

Global burden of disease categories I, II, III (sole series)

The pattern for the sole group is slightly different from that for the prioritised group, especially for Māori. Although there is evidence of decreasing mortality rates over time for cause category I, the trend is opposite for category II and there has been very little difference in injury mortality rates (category III).

Figure 24: Cause-specific standardised mortality rates, ages 1–74 years, by gender (sole series)

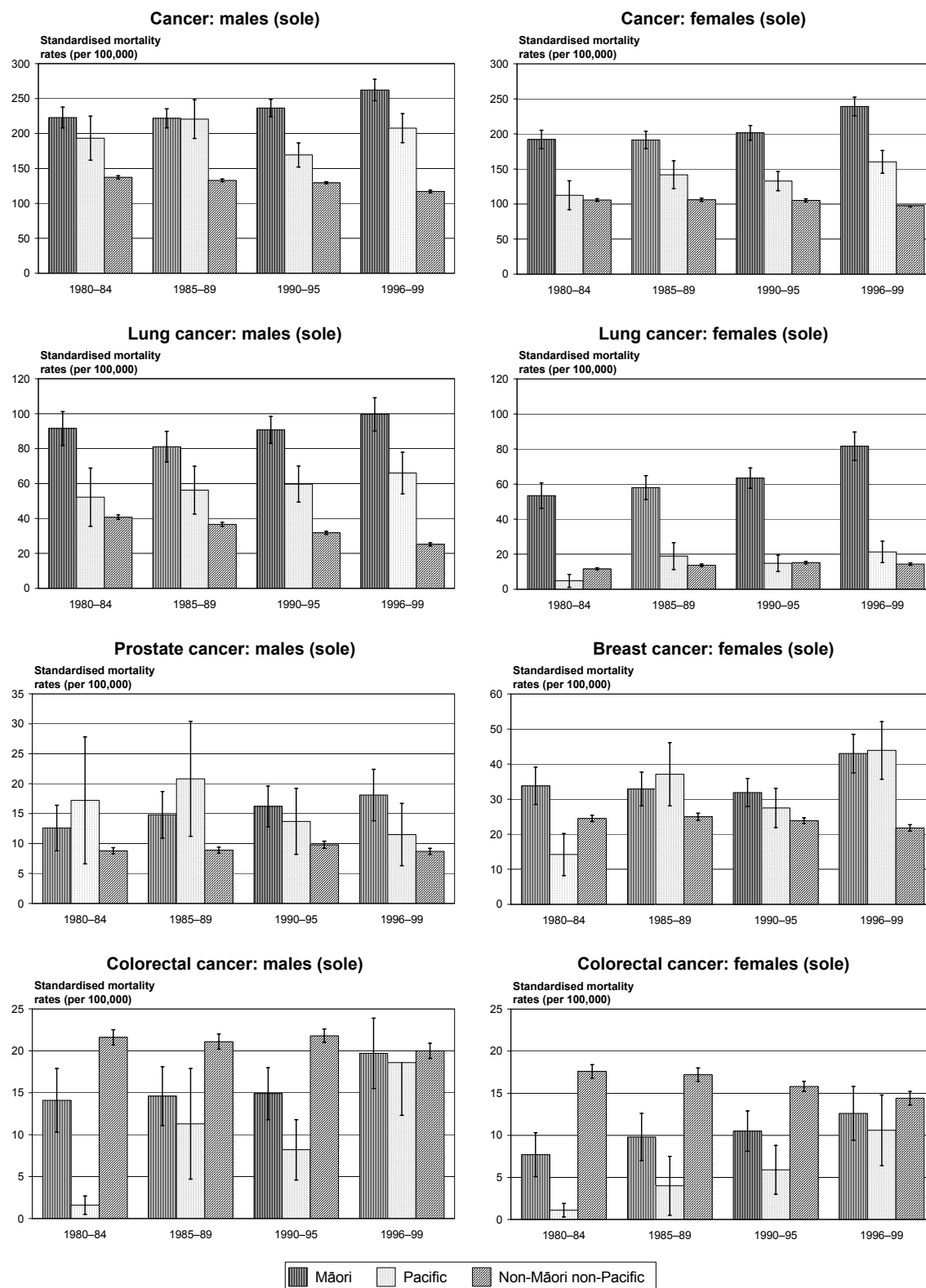


Corresponding table is Table 38. Category I: communicable disease, maternal, perinatal and nutritional conditions. Category II: non-communicable diseases. Category III: injuries.

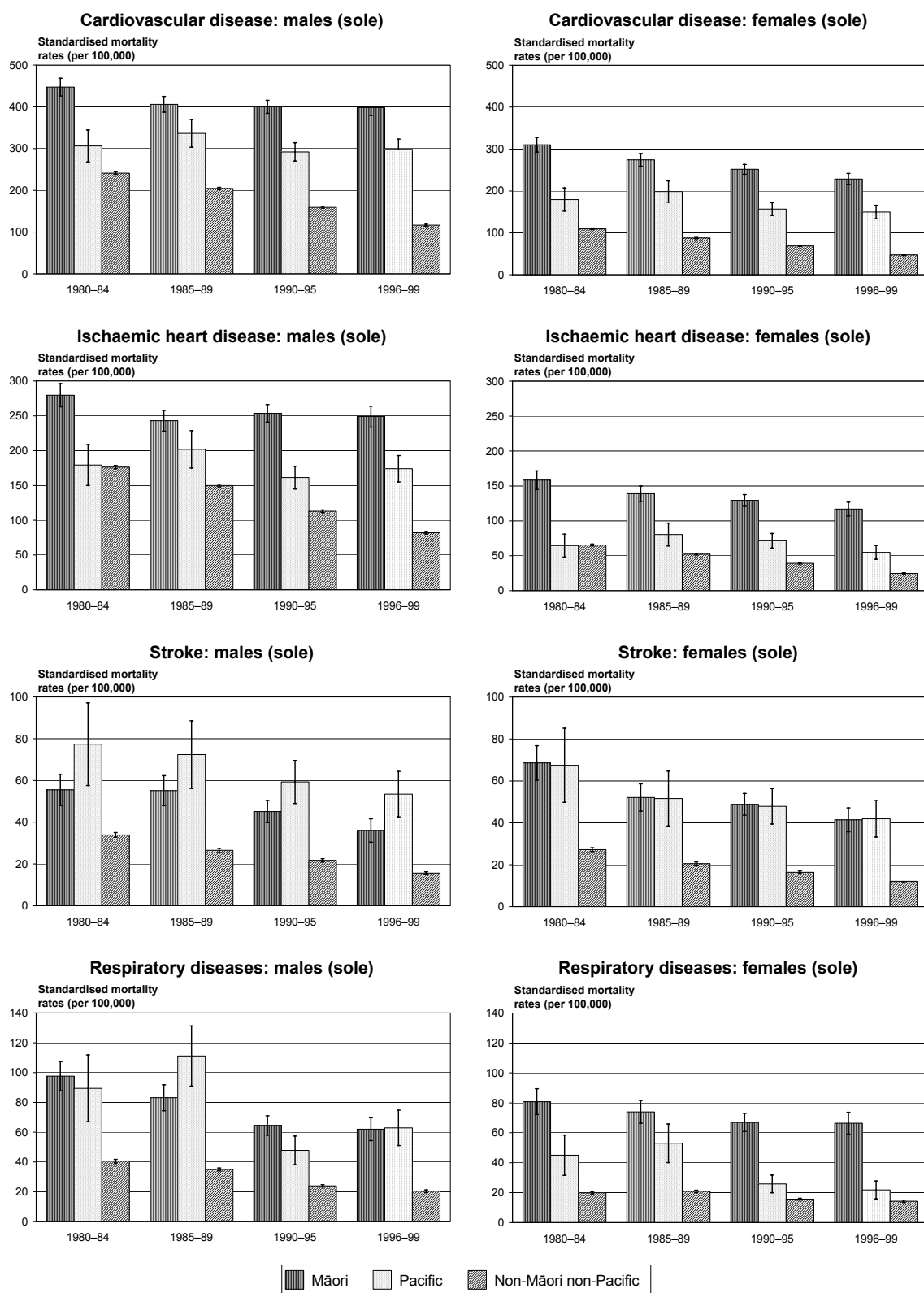
Cause-specific mortality rates (sole series)

The pattern for the sole group was similar to that for the prioritised pattern.

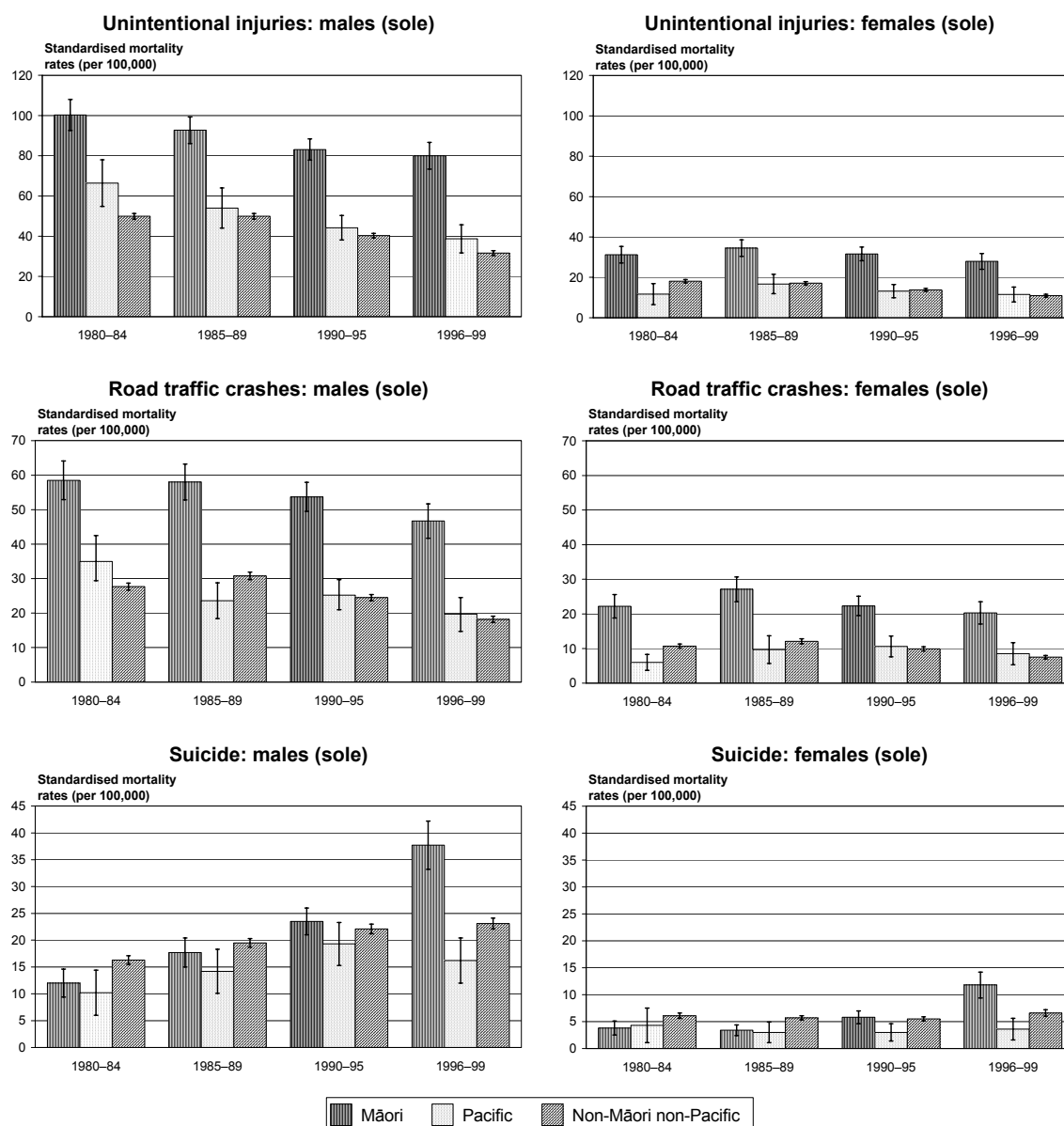
Figure 25: Standardised mortality rates, ages 1–74 years, by gender – specific causes (sole series)



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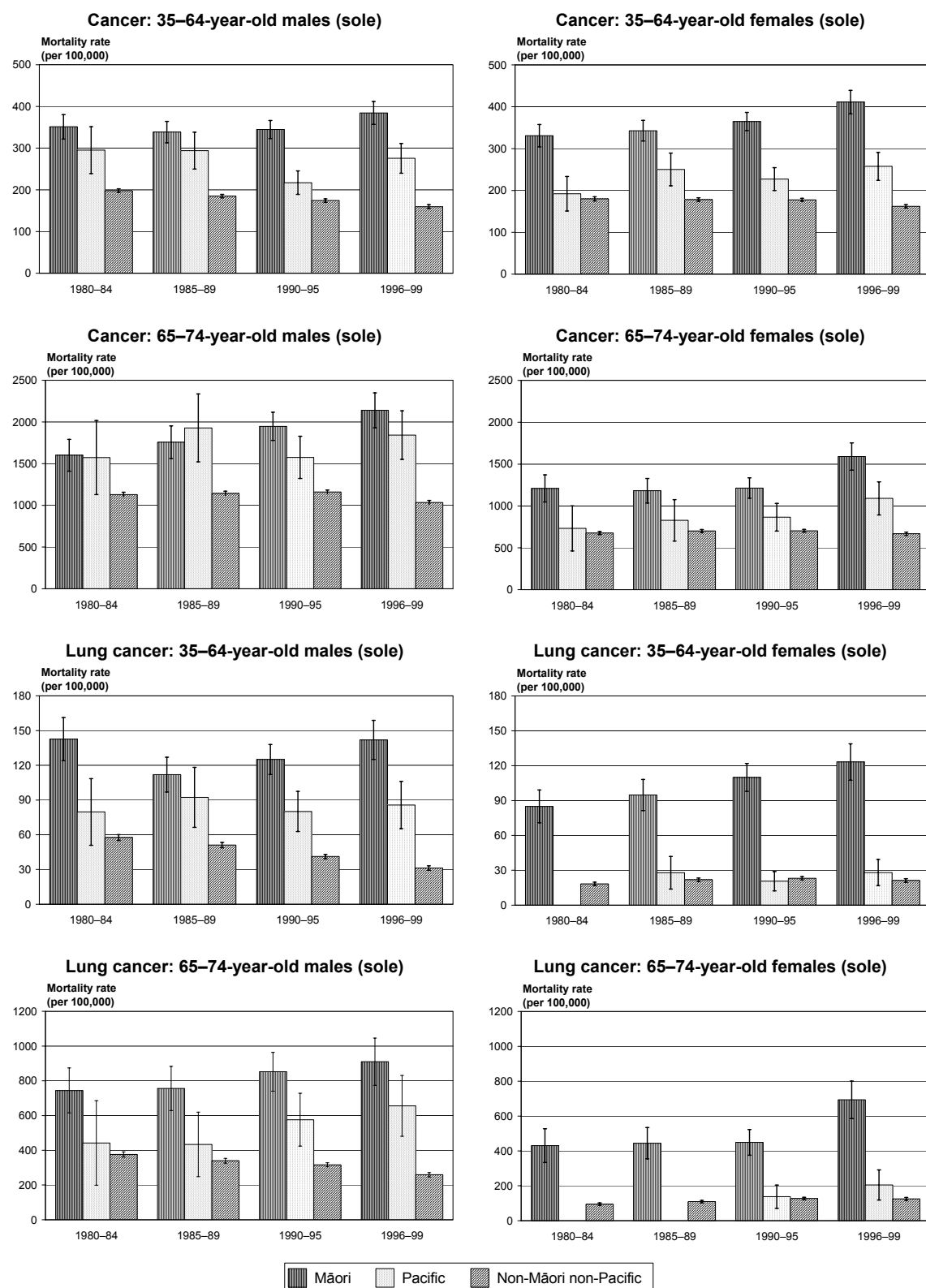
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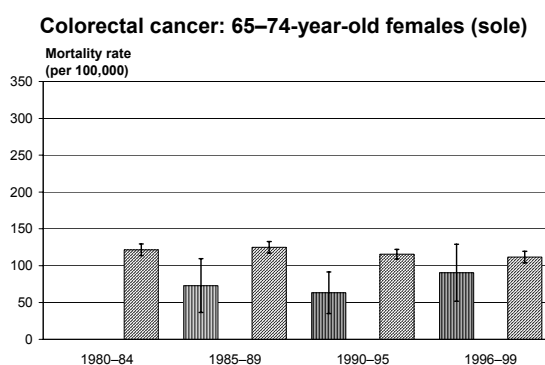
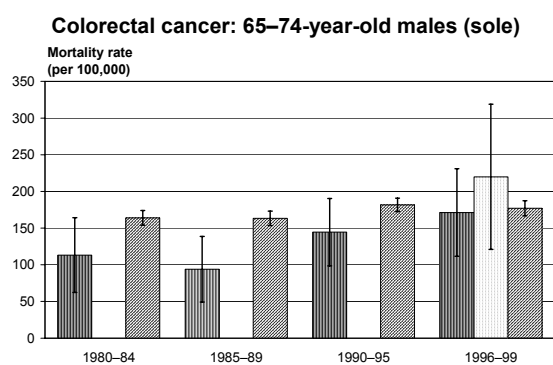
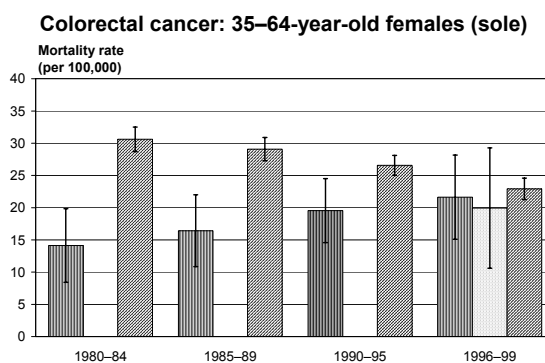
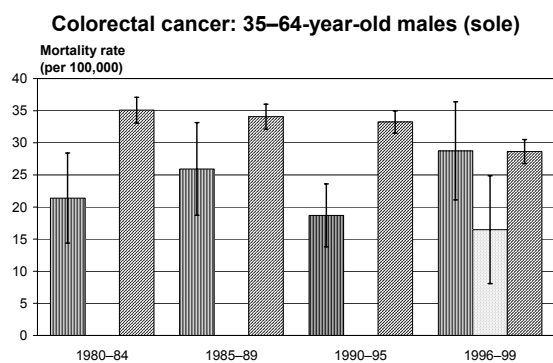
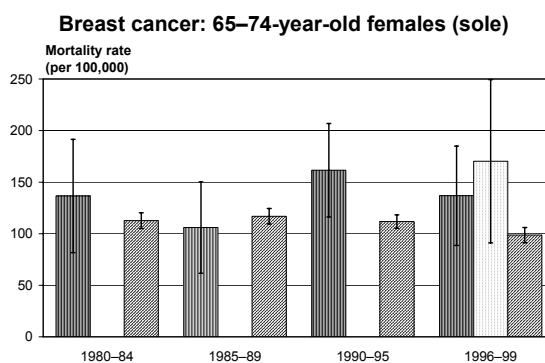
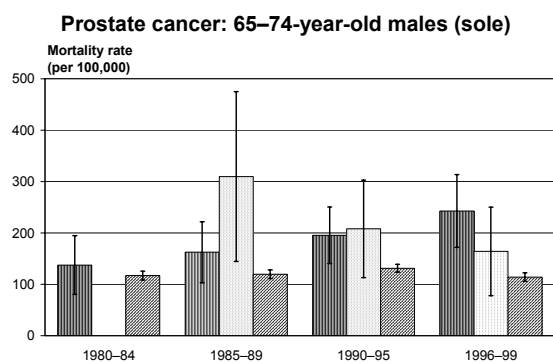
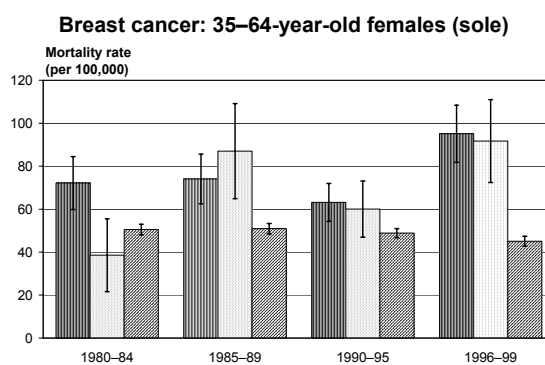
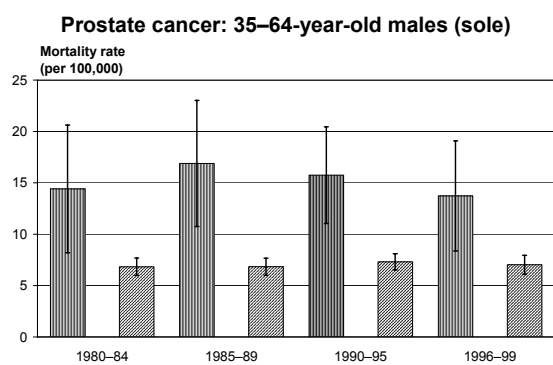
Corresponding table is Table 40.

Selected causes – specific age groups (sole series)

Figure 26: Mortality rate in 35–64 and 65–74-year-old males and females for cancers and cardiovascular diseases (sole series)



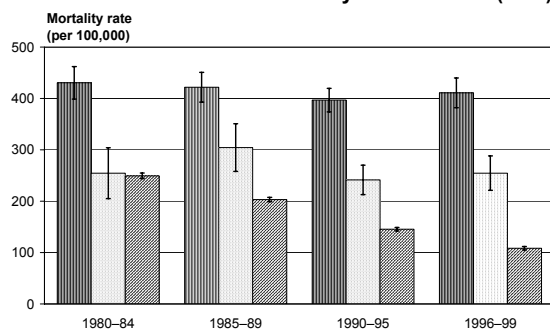
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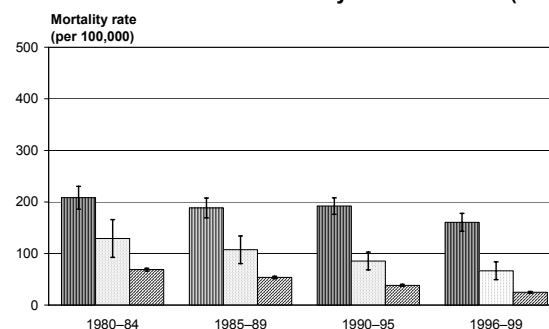
Māori
 Pacific
 Non-Māori non-Pacific

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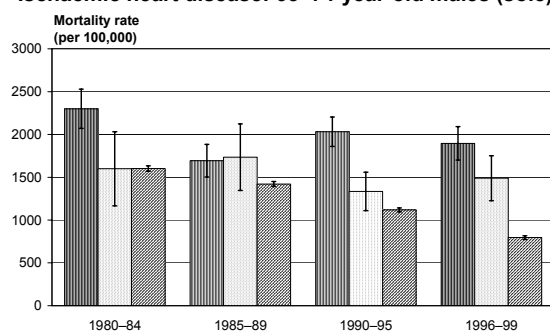
Ischaemic heart disease: 35–64-year-old males (sole)



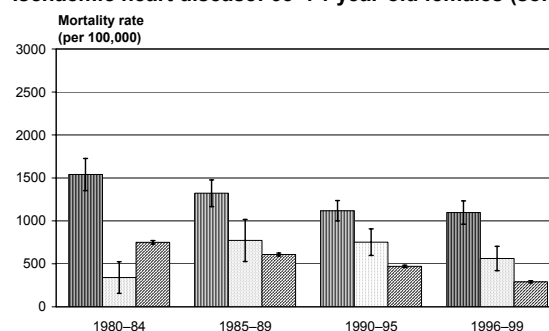
Ischaemic heart disease: 35–64-year-old females (sole)



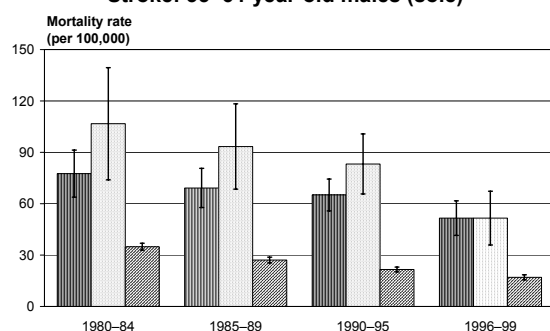
Ischaemic heart disease: 65–74-year-old males (sole)



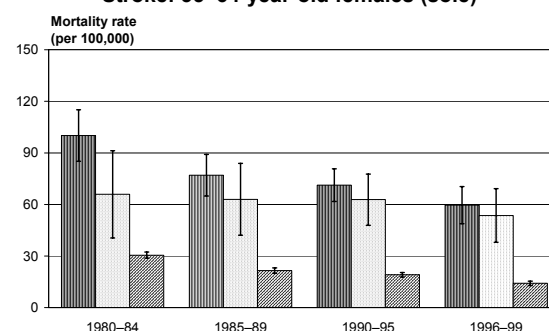
Ischaemic heart disease: 65–74-year-old females (sole)



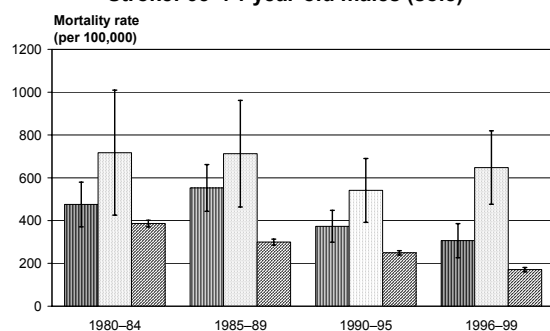
Stroke: 35–64-year-old males (sole)



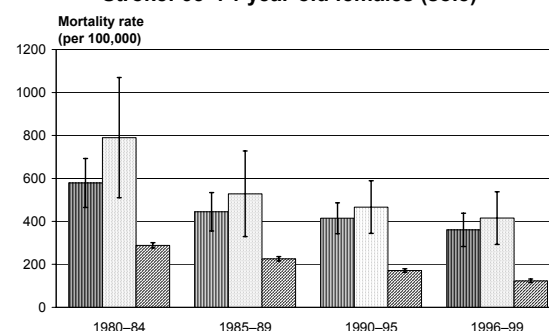
Stroke: 35–64-year-old females (sole)



Stroke: 65–74-year-old males (sole)



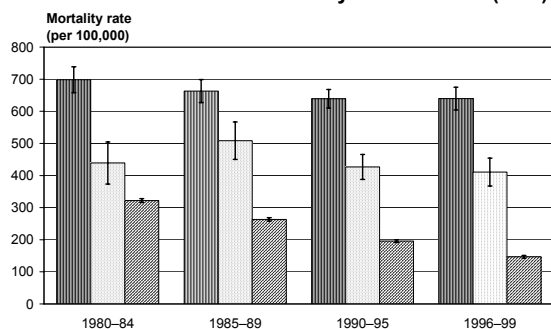
Stroke: 65–74-year-old females (sole)



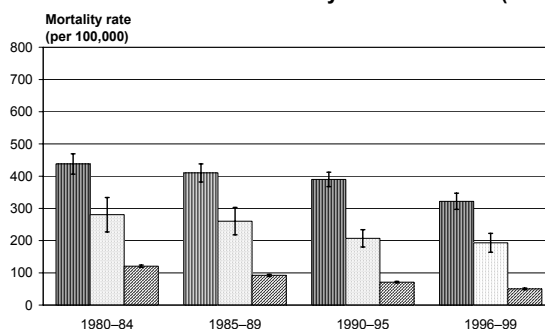
■ Māori □ Pacific ▨ Non-Māori non-Pacific

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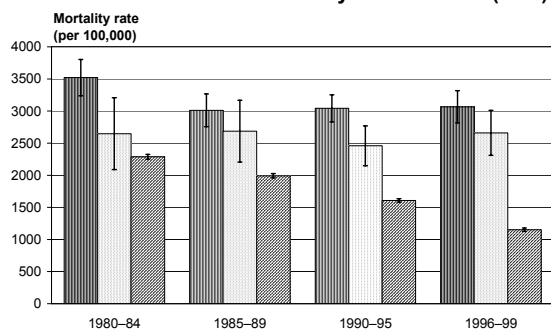
Cardiovascular disease: 35–64-year-old males (sole)



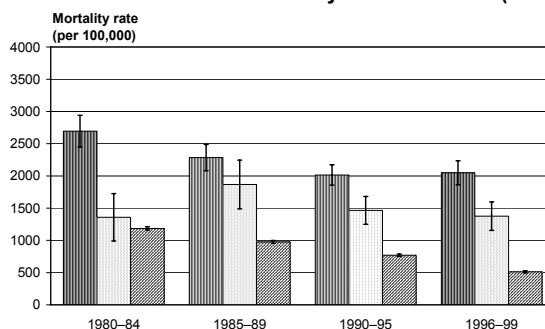
Cardiovascular disease: 35–64-year-old females (sole)



Cardiovascular disease: 65–74-year-old males (sole)



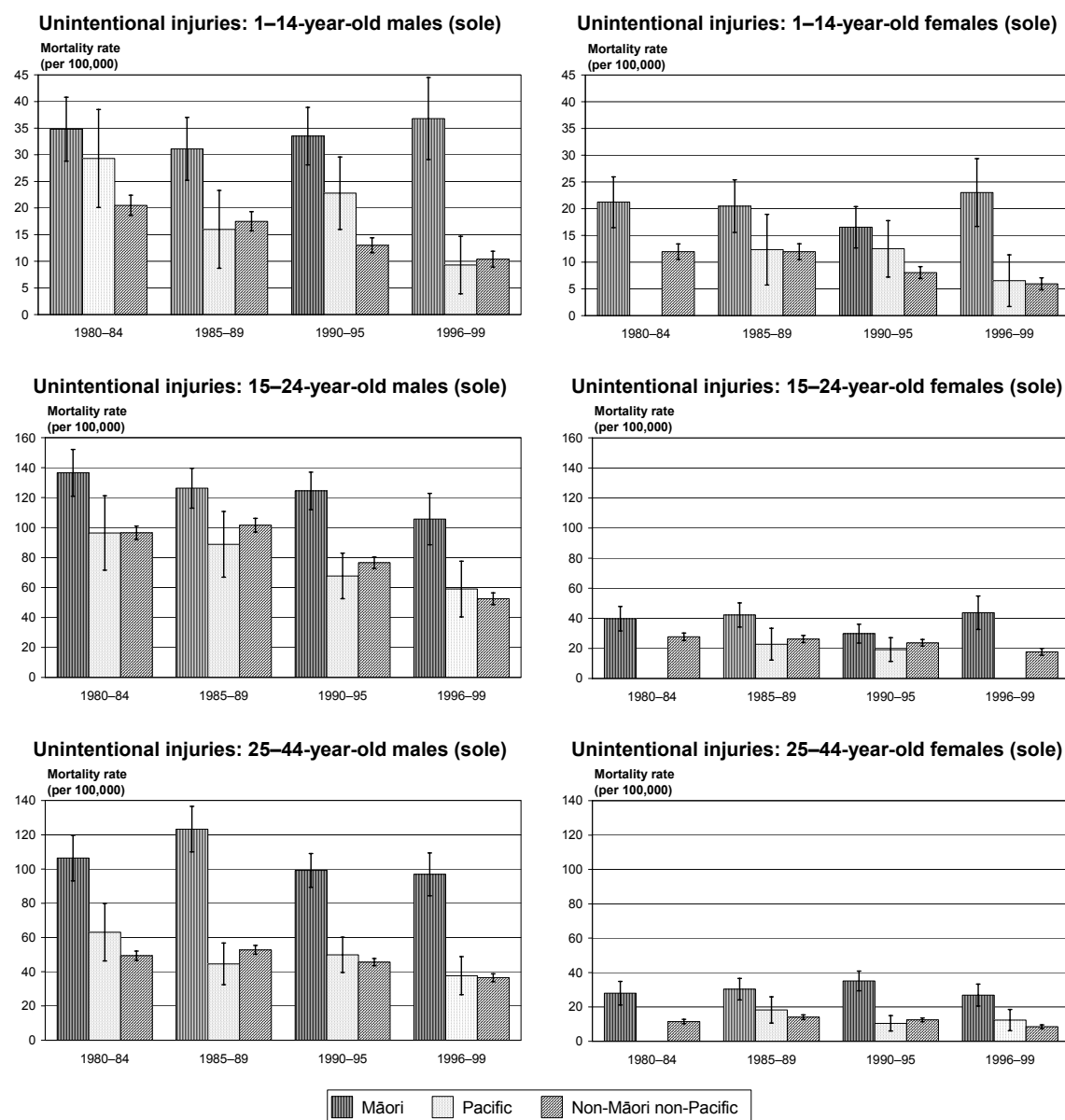
Cardiovascular disease: 65–74-year-old females (sole)



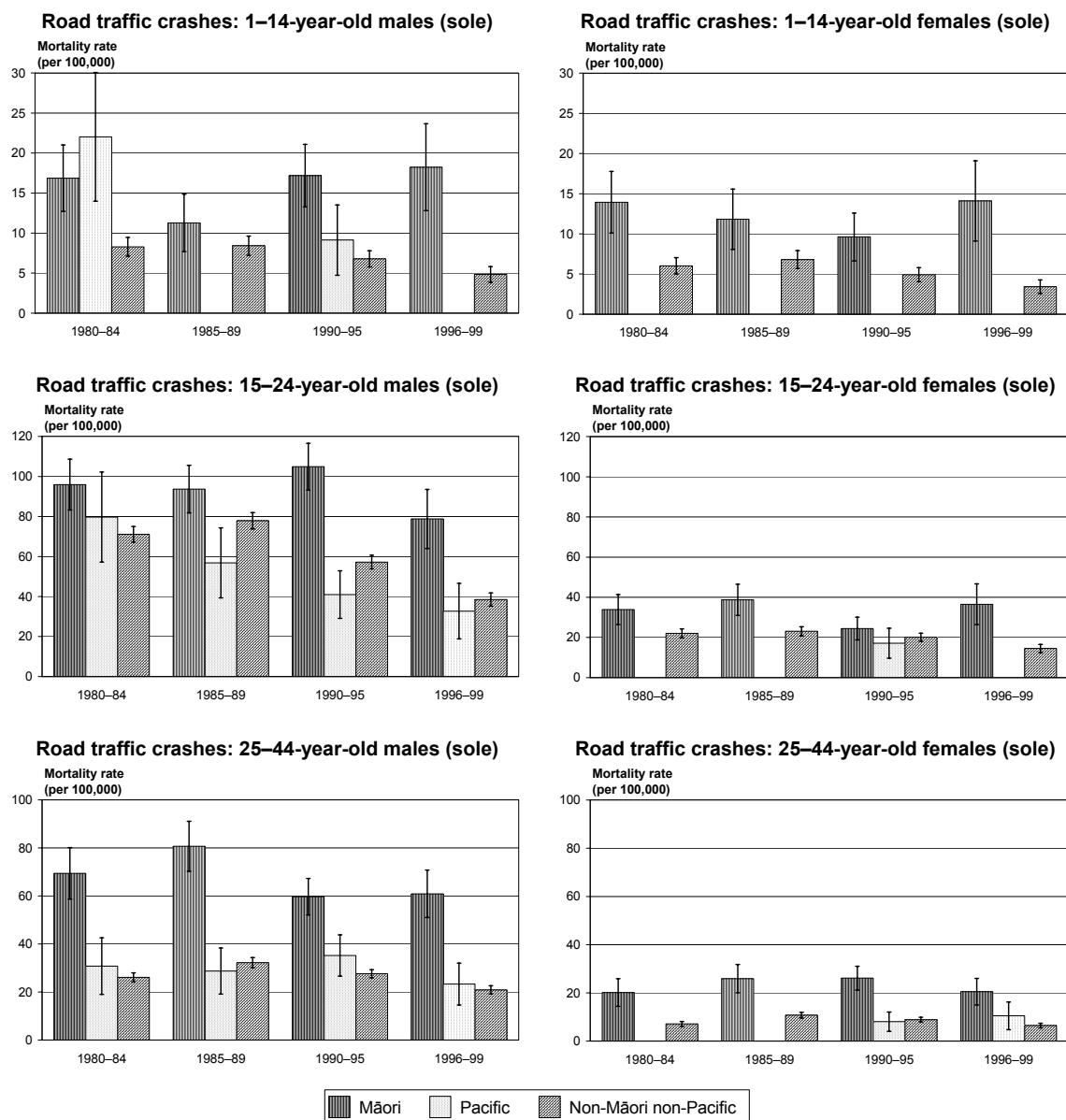
 Māori
  Pacific
  Non-Māori non-Pacific

Corresponding table is Table 42.

Figure 27: Mortality rate in 1–14, 15–24 and 25–44-year-old males and females for unintentional injuries and road traffic crashes (sole series)

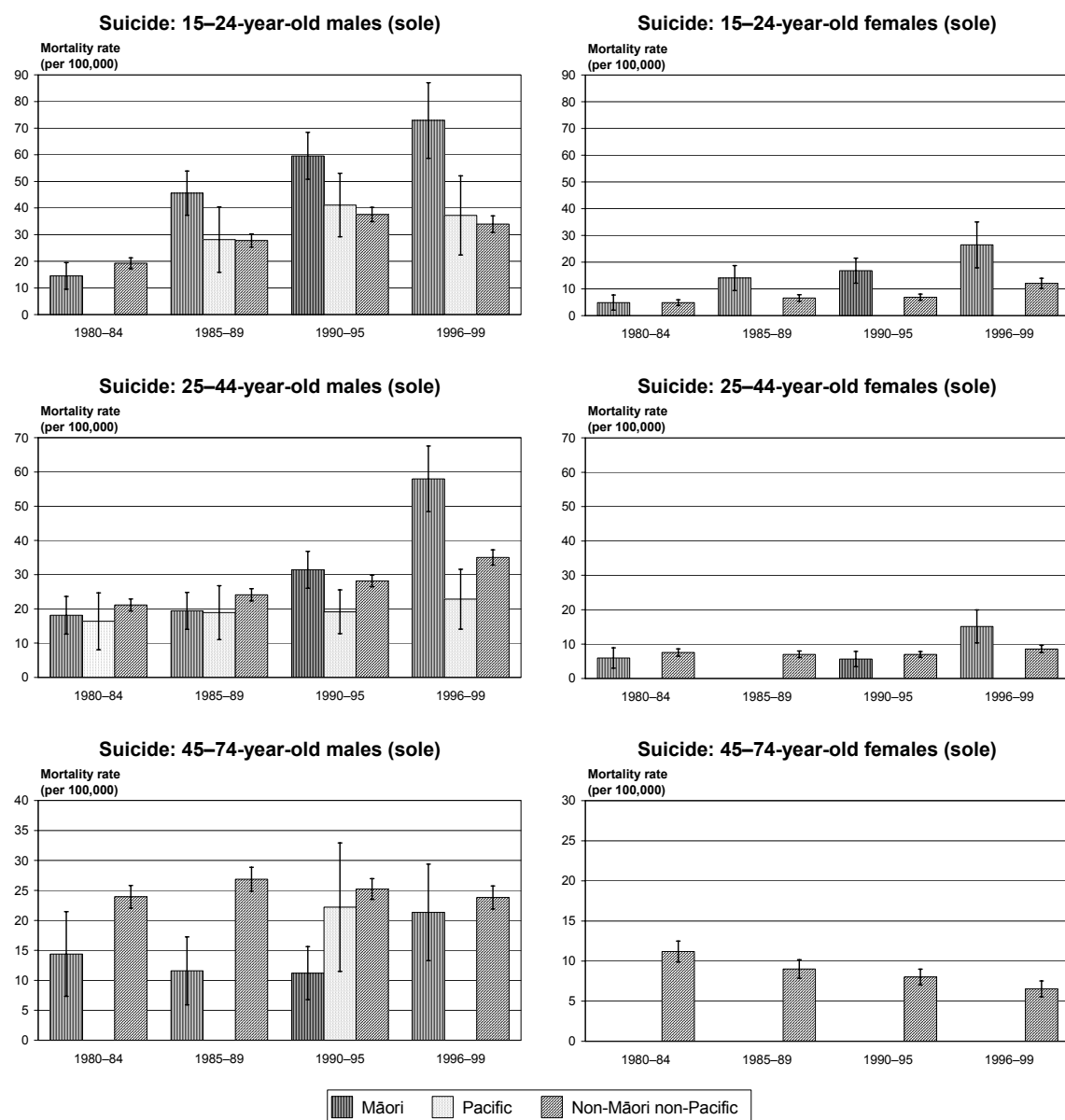


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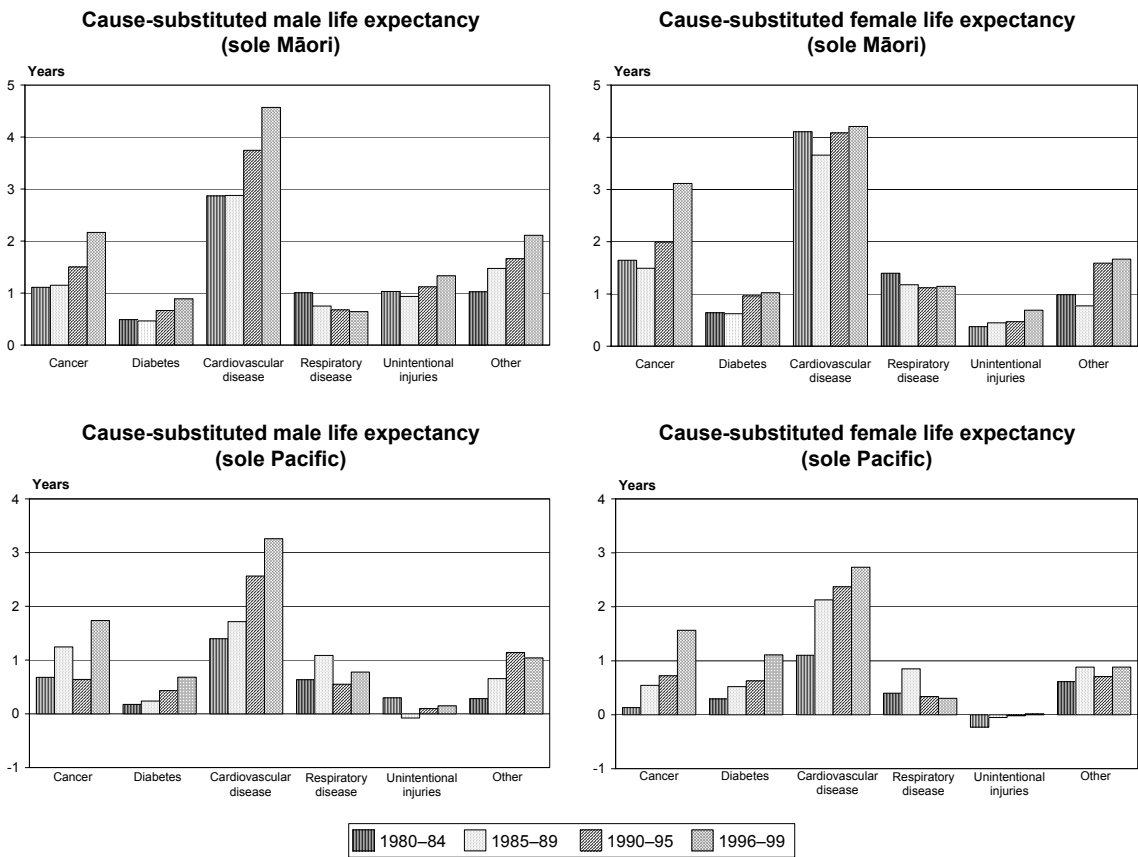
Corresponding table is Table 43.

Figure 28: Mortality rate in 15–24, 25–44 and 45–74-year-old males and females for suicide (sole series)



Corresponding table is Table 44.

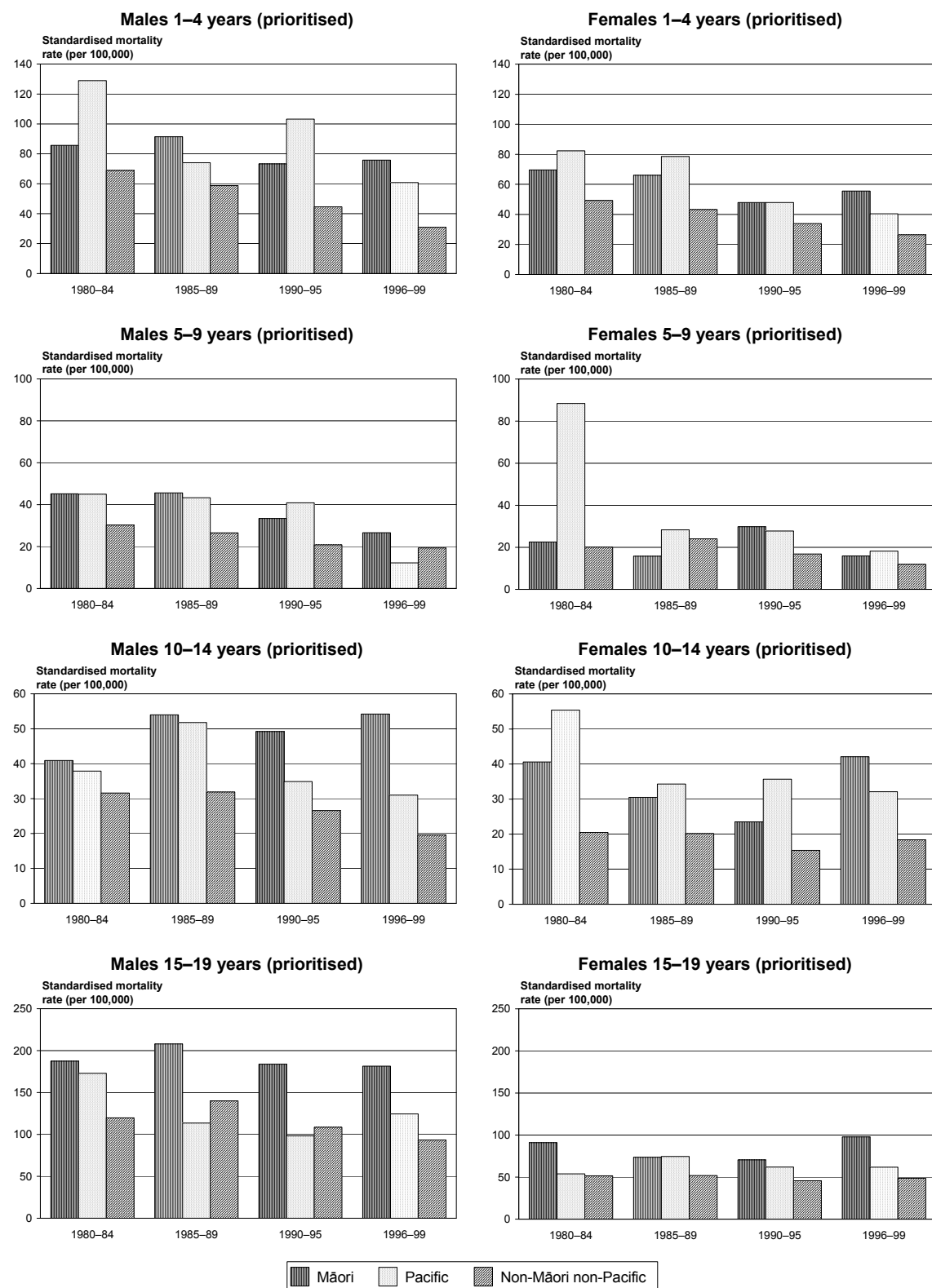
Figure 29: Cause substituted life expectancy, by gender – specific causes (sole series)



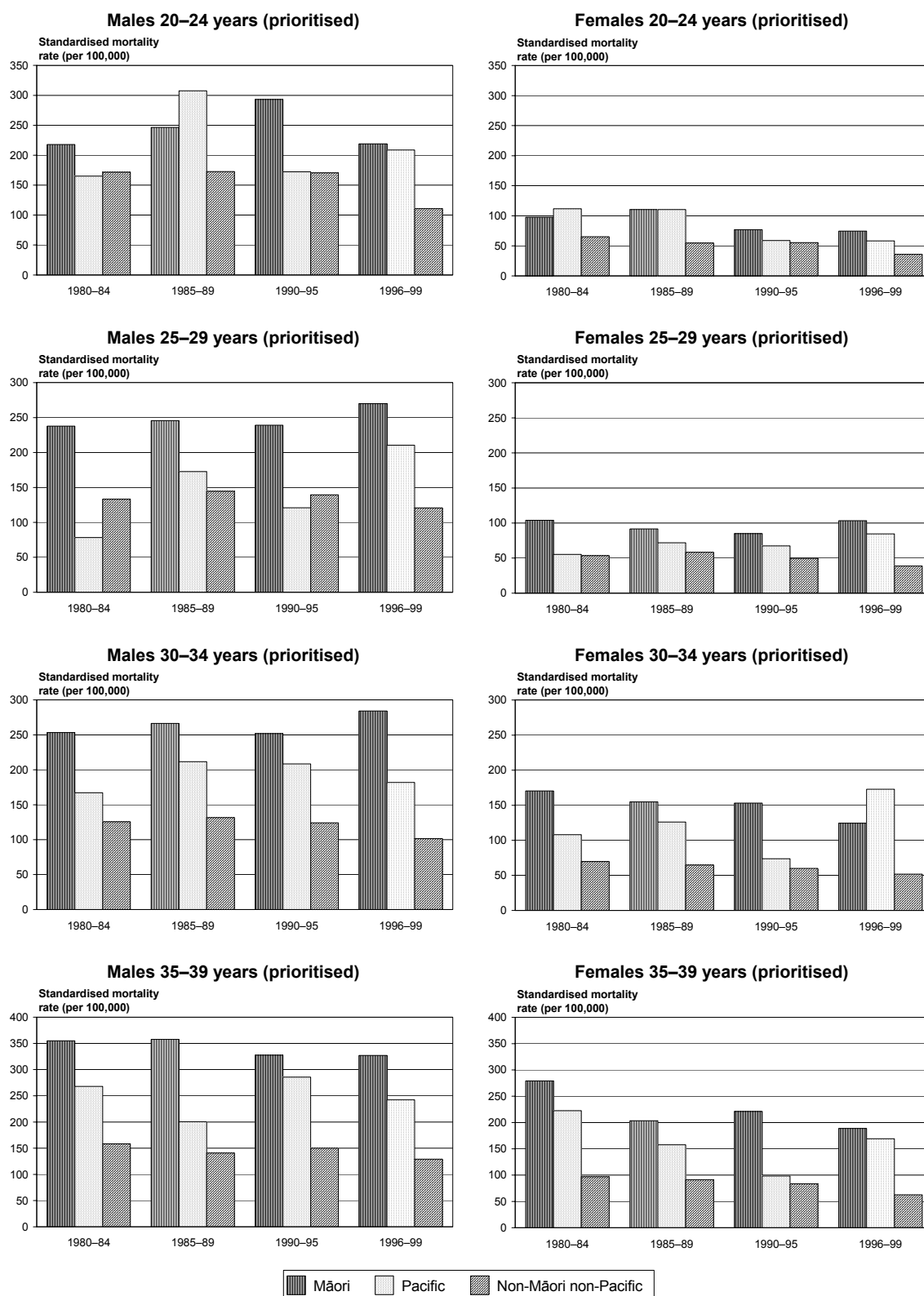
Corresponding table is Table 48.

Appendix 5: Mortality Rates by Five-year Age Categories

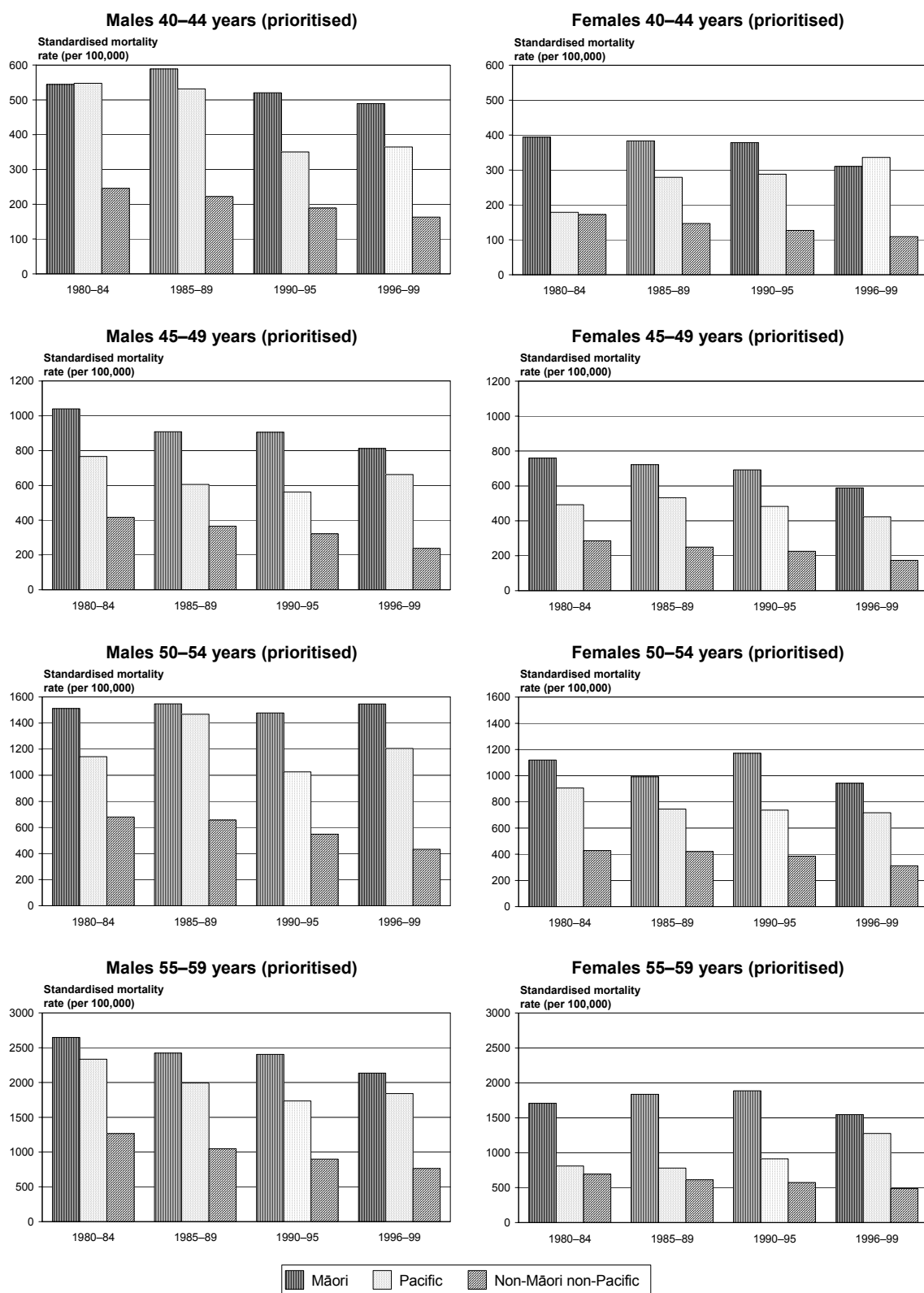
Figure 30: Mortality rate, by gender and five-year age group (prioritised series)



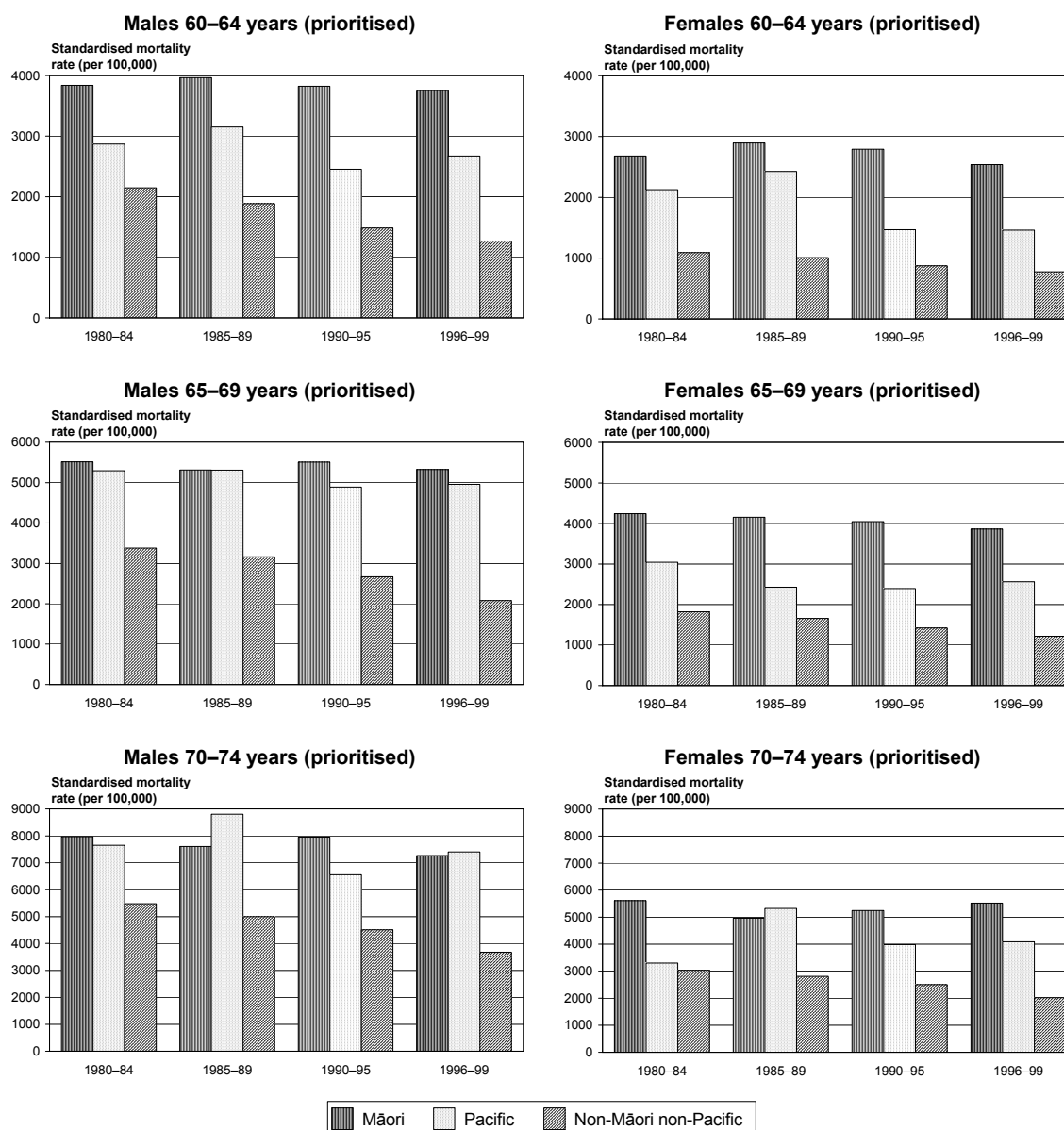
(Continued)



(Continued)

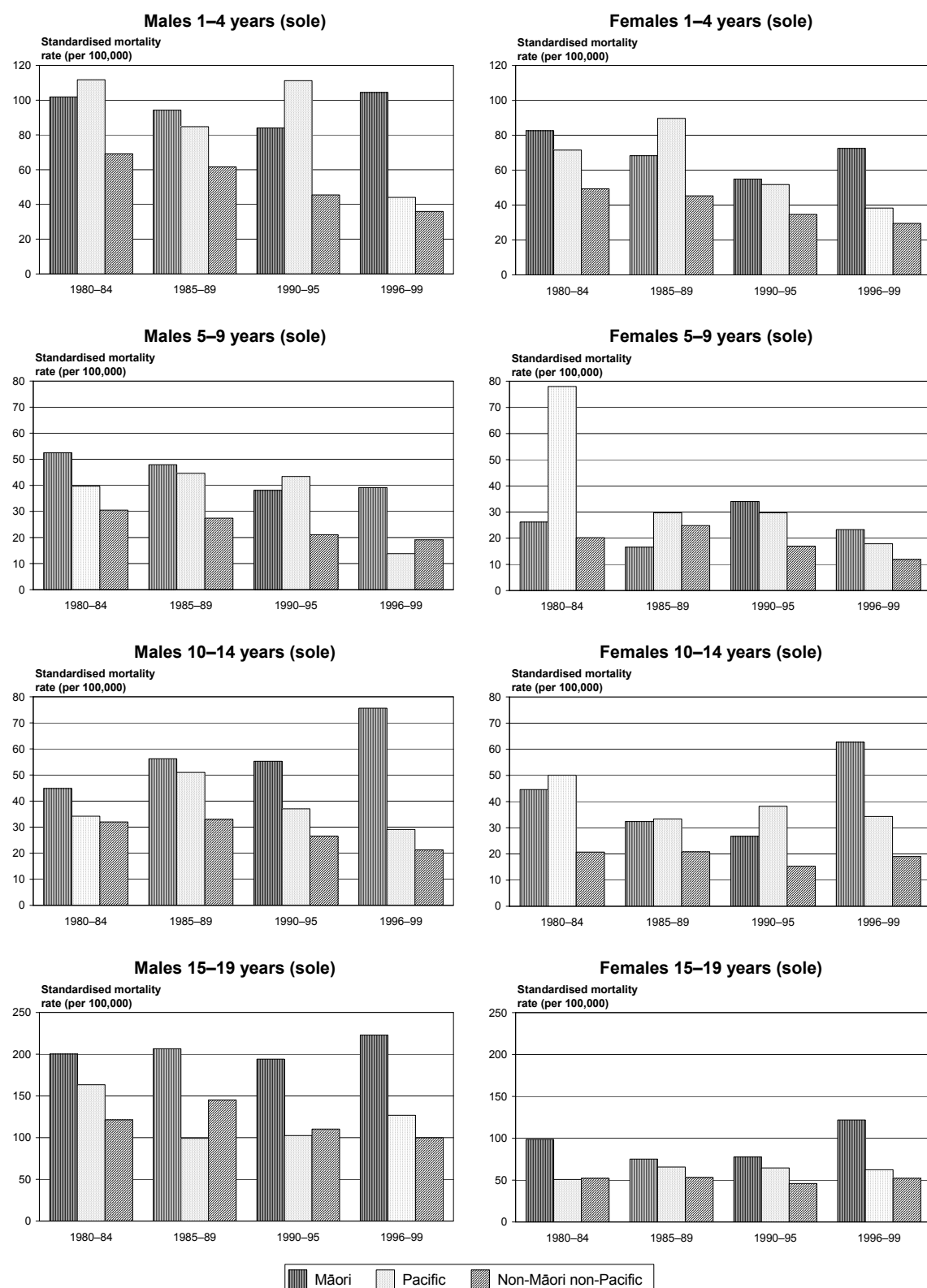


(Continued)

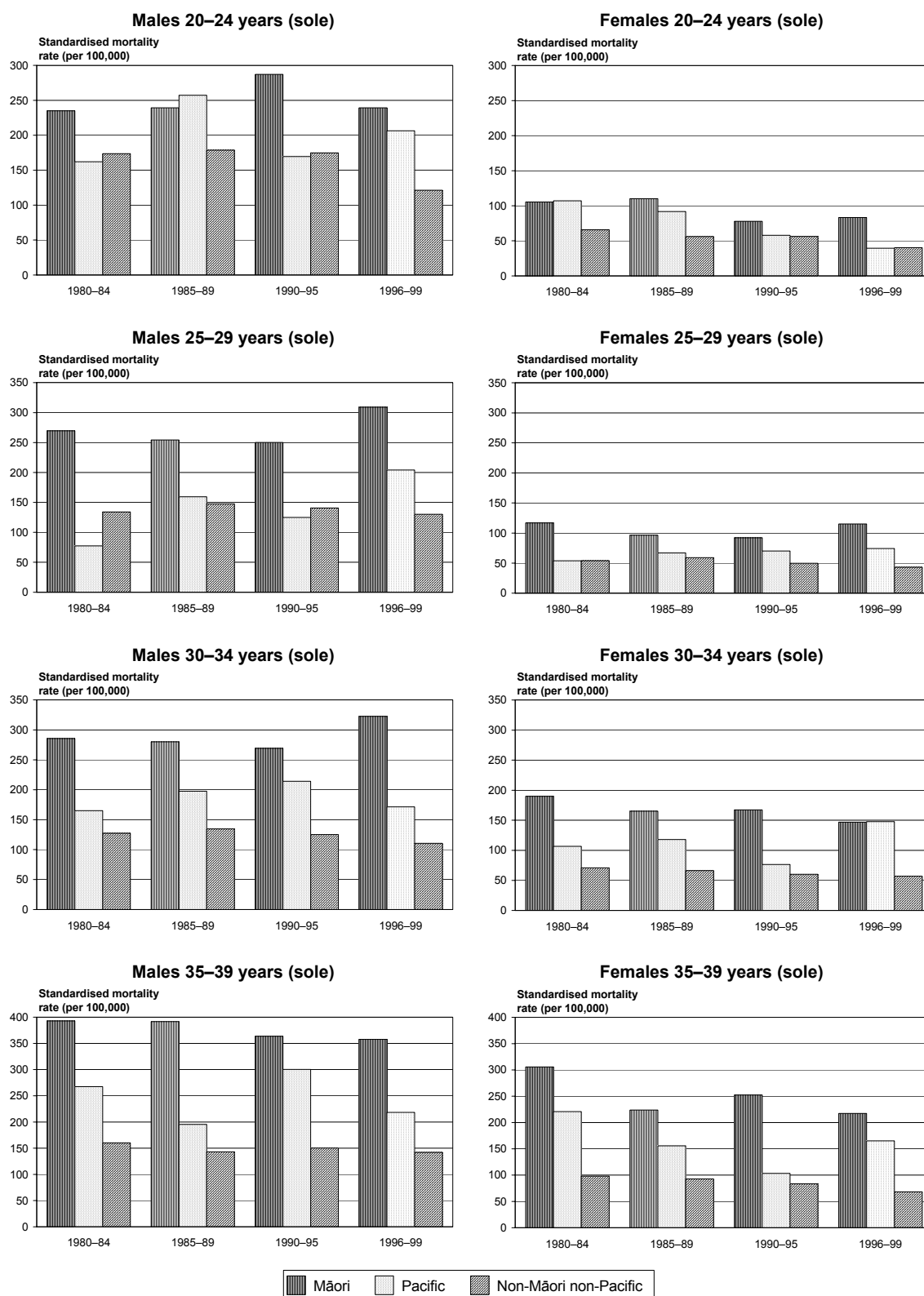


Corresponding table is Table 51.

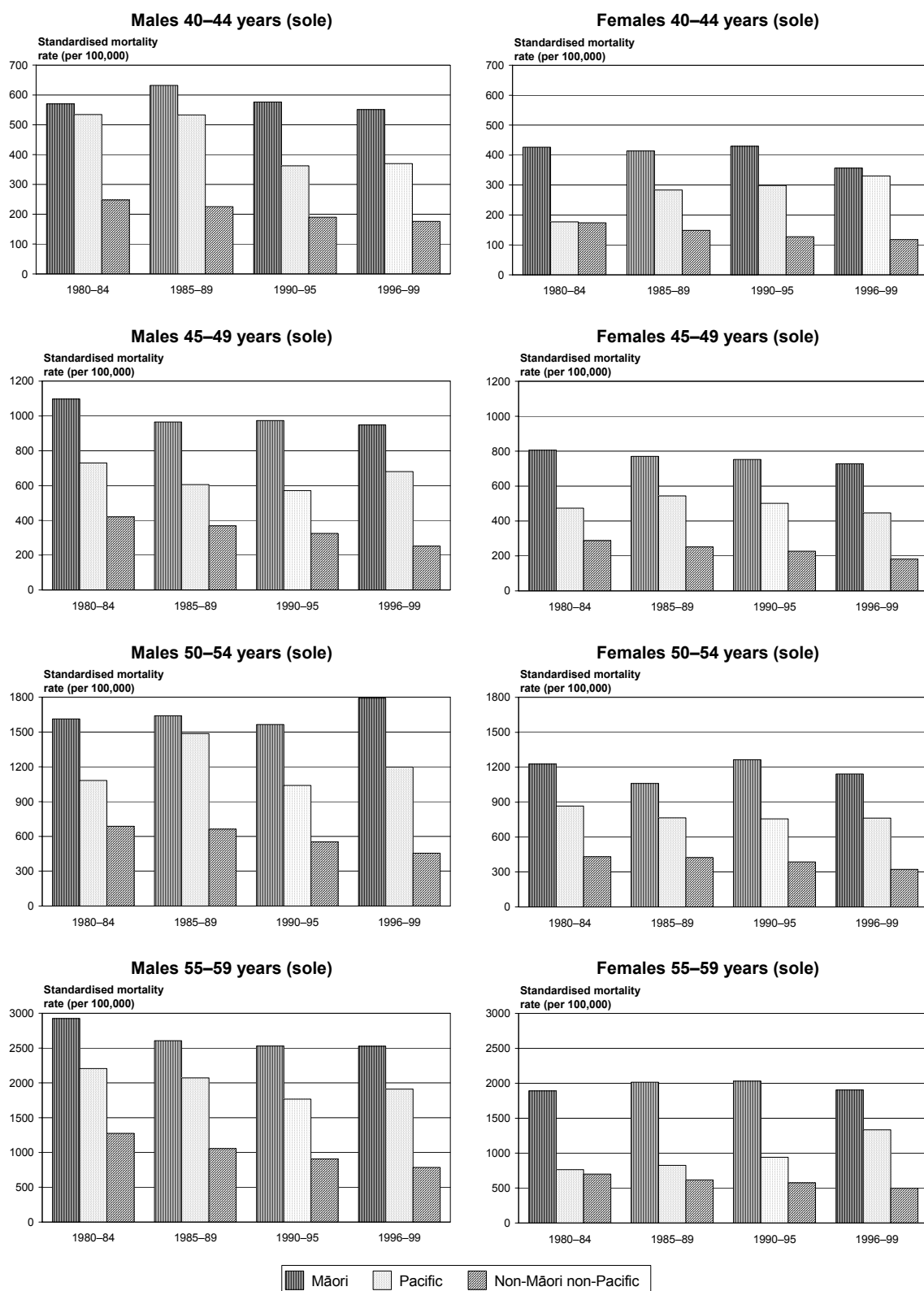
Figure 31: Mortality rate, by gender and five-year age group (sole series)



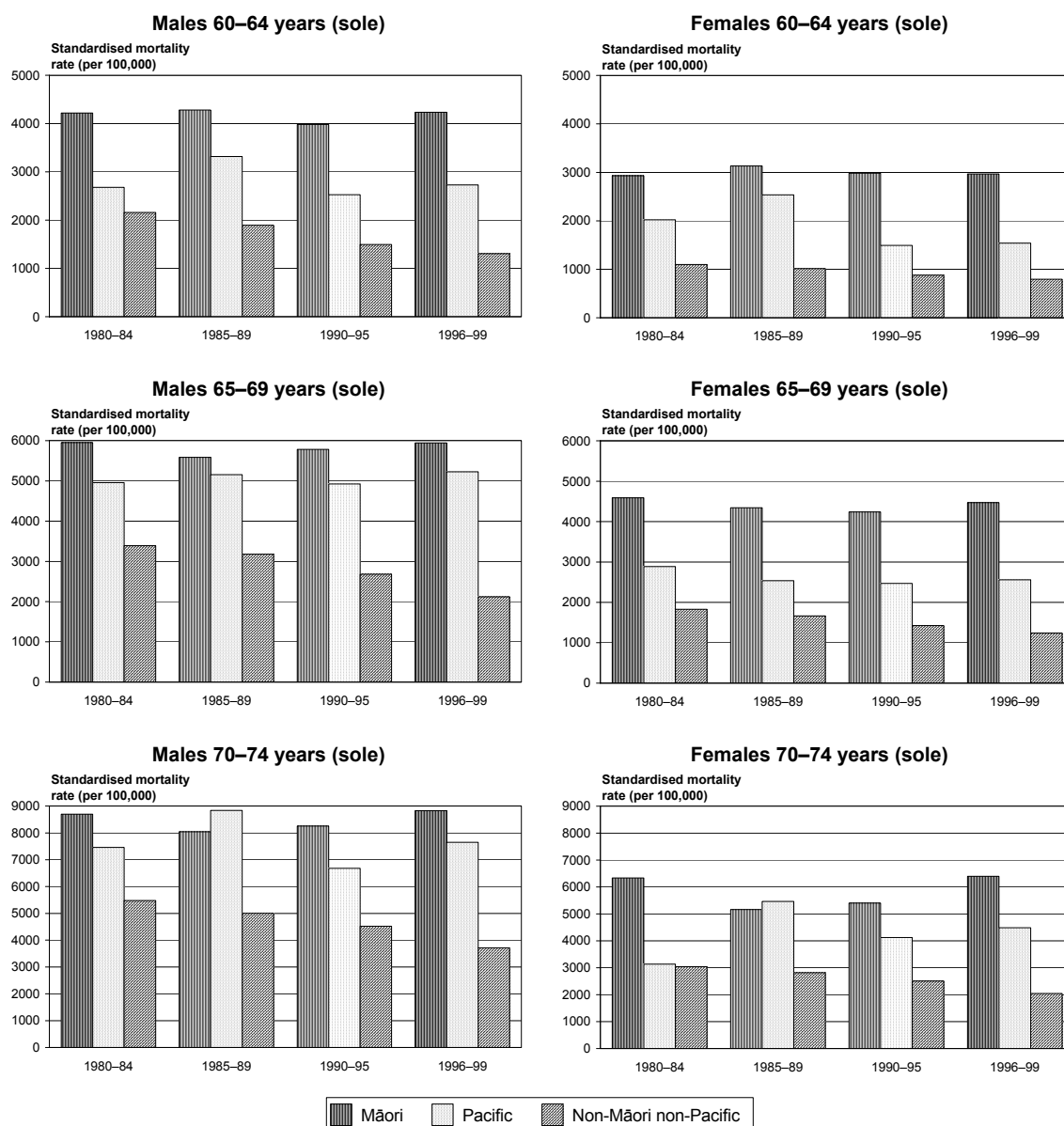
(Continued)



(Continued)



(Continued)



Corresponding table is Table 52.

Table 51: Age-specific mortality rates, by gender (five-year age groups) – prioritised series

Age group	Prioritised ethnic group	Males				Females			
		1980–84	1985–89	1990–95	1996–99	1980–84	1985–89	1990–95	1996–99
1–4 years	Māori	85.7	91.4	73.3	75.8	69.6	66.0	47.9	55.5
	Pacific	128.9	74.1	103.2	60.8	82.3	78.6	47.9	40.4
	Non-Māori non-Pacific	69.0	58.8	44.6	30.9	49.3	43.3	33.9	26.4
5–9 years	Māori	45.2	45.6	33.4	26.6	22.5	15.8	29.8	15.9
	Pacific	45.0	43.3	40.9	12.2	88.4	28.3	27.7	18.2
	Non-Māori non-Pacific	30.3	26.5	20.8	19.3	20.1	24.0	16.8	11.9
10–14 years	Māori	40.9	54.0	49.2	54.2	40.6	30.5	23.5	42.1
	Pacific	37.9	51.8	34.9	31.0	55.4	34.3	35.7	32.1
	Non-Māori non-Pacific	31.6	31.9	26.6	19.6	20.5	20.2	15.4	18.4
15–19 years	Māori	187.4	208.0	183.9	181.5	91.0	73.6	70.4	97.8
	Pacific	172.9	113.5	98.2	124.5	53.8	74.4	61.9	61.8
	Non-Māori non-Pacific	119.7	140.0	108.6	93.3	51.6	51.8	45.7	48.6
20–24 years	Māori	217.8	246.5	293.1	218.9	97.5	110.3	76.8	74.5
	Pacific	165.0	307.6	172.3	208.8	111.8	110.4	58.8	58.2
	Non-Māori non-Pacific	171.7	172.8	170.5	110.9	65.2	54.7	55.4	35.9
25–29 years	Māori	237.8	245.7	239.2	270.0	104.0	91.5	84.9	103.4
	Pacific	78.4	172.8	120.9	210.6	55.3	71.9	67.4	84.6
	Non-Māori non-Pacific	133.3	144.5	139.4	120.7	53.6	58.2	49.8	38.7
30–34 years	Māori	253.4	266.3	251.9	284.1	170.3	154.8	153.0	124.5
	Pacific	167.1	211.6	208.5	181.8	108.1	126.1	73.8	172.8
	Non-Māori non-Pacific	125.6	131.6	124.1	101.5	69.9	64.9	60.0	51.7
35–39 years	Māori	354.8	357.8	327.6	327.1	279.1	203.3	220.9	188.8
	Pacific	267.9	200.5	285.7	242.2	222.6	157.7	98.2	169.0
	Non-Māori non-Pacific	158.1	140.7	149.9	129.2	96.8	91.2	83.5	62.6
40–44 years	Māori	544.4	588.8	520.4	489.4	394.2	383.1	378.5	310.3
	Pacific	547.7	531.9	350.4	364.6	178.9	278.9	287.8	335.9
	Non-Māori non-Pacific	245.7	222.2	189.3	163.0	172.4	146.8	127.1	109.0
45–49 years	Māori	1040.1	908.7	905.8	812.0	759.0	722.0	692.0	588.3
	Pacific	766.2	605.5	561.8	662.8	492.6	532.7	483.0	423.2
	Non-Māori non-Pacific	416.8	365.7	322.2	237.3	286.0	249.6	226.0	173.4
50–54 years	Māori	1511.2	1547.5	1477.5	1546.8	1119.0	991.8	1170.8	942.2
	Pacific	1142.7	1467.7	1025.6	1205.4	906.2	744.7	736.6	717.7
	Non-Māori non-Pacific	680.3	656.9	548.4	432.3	427.6	421.0	385.0	311.9
55–59 years	Māori	2647.2	2423.8	2403.0	2134.8	1708.6	1837.5	1886.0	1544.7
	Pacific	2334.0	1993.8	1735.0	1841.4	810.6	779.3	912.6	1275.6
	Non-Māori non-Pacific	1264.9	1049.4	899.5	763.5	694.5	613.2	573.2	487.4
60–64 years	Māori	3838.7	3966.1	3824.3	3753.9	2679.4	2894.8	2792.3	2538.2
	Pacific	2869.5	3150.4	2454.0	2672.5	2127.4	2425.0	1467.8	1460.6
	Non-Māori non-Pacific	2145.3	1885.2	1482.5	1268.2	1089.4	1008.3	875.4	774.9
65–69 years	Māori	5515.6	5312.3	5506.9	5322.8	4242.0	4155.1	4044.4	3863.9
	Pacific	5293.2	5309.4	4891.6	4959.1	3044.4	2429.3	2395.2	2560.9
	Non-Māori non-Pacific	3378.8	3165.1	2670.0	2078.9	1821.1	1657.9	1423.4	1216.5
70–74 years	Māori	7967.1	7605.1	7955.2	7269.2	5610.3	4960.4	5244.6	5518.1
	Pacific	7652.3	8805.3	6554.9	7405.4	3302.6	5326.6	3982.5	4091.1
	Non-Māori non-Pacific	5475.0	4996.2	4508.5	3681.1	3032.7	2808.8	2500.1	2021.5

Table 52: Age-specific mortality rates, by gender (five-year age groups) – sole series

Age group	Sole ethnic group	Males				Females			
		1980–84	1985–89	1990–95	1996–99	1980–84	1985–89	1990–95	1996–99
1–4 years	Māori	101.8	94.2	84.0	104.4	82.6	68.3	54.9	72.5
	Pacific	111.7	84.7	111.2	44.0	71.5	89.7	51.8	38.3
	Non-Māori non-Pacific	69.1	61.6	45.5	36.0	49.3	45.3	34.6	29.5
5–9 years	Māori	52.5	47.9	38.1	39.1	26.2	16.6	34.0	23.3
	Pacific	39.7	44.6	43.4	13.8	78.0	29.7	29.7	17.9
	Non-Māori non-Pacific	30.5	27.4	21.1	19.1	20.2	24.8	17.0	11.9
10–14 years	Māori	44.8	56.2	55.3	75.6	44.6	32.4	26.7	62.7
	Pacific	34.2	51.0	37.0	29.1	50.1	33.4	38.2	34.3
	Non-Māori non-Pacific	32.0	33.0	26.6	21.3	20.7	20.8	15.3	19.0
15–19 years	Māori	200.2	206.6	194.2	223.0	98.5	75.1	77.6	121.9
	Pacific	163.4	99.3	102.6	126.7	50.7	65.6	64.6	62.4
	Non-Māori non-Pacific	121.3	145.2	110.3	99.8	52.1	53.3	45.9	52.2
20–24 years	Māori	235.0	239.4	287.2	239.4	105.4	110.1	77.8	83.3
	Pacific	162.1	257.2	169.6	206.4	107.1	91.9	58.0	39.4
	Non-Māori non-Pacific	173.7	178.6	174.8	121.3	65.8	56.1	56.2	40.3
25–29 years	Māori	269.5	254.3	250.2	309.1	116.8	96.4	92.1	115.1
	Pacific	77.3	159.4	124.9	204.1	53.9	66.9	70.2	74.3
	Non-Māori non-Pacific	134.2	147.6	140.6	130.1	54.0	59.1	49.7	43.3
30–34 years	Māori	285.5	280.0	269.2	322.5	189.9	165.2	167.3	146.8
	Pacific	165.0	197.6	214.2	171.4	106.7	118.0	76.6	147.7
	Non-Māori non-Pacific	127.4	134.6	125.3	110.6	70.8	66.2	60.2	56.9
35–39 years	Māori	392.9	391.6	363.8	357.6	305.7	223.9	252.2	217.2
	Pacific	267.4	195.4	300.4	218.3	220.7	155.6	103.2	165.3
	Non-Māori non-Pacific	160.1	143.2	150.3	142.0	98.0	92.6	83.5	68.2
40–44 years	Māori	569.8	632.0	576.0	550.9	426.2	413.9	429.1	356.2
	Pacific	534.6	533.2	362.4	369.9	176.9	283.2	298.7	330.1
	Non-Māori non-Pacific	248.3	225.4	190.3	176.1	174.0	148.6	127.4	118.0
45–49 years	Māori	1096.8	965.3	973.6	948.2	805.3	770.5	752.9	728.0
	Pacific	729.8	605.5	570.8	679.9	473.6	544.1	501.4	446.2
	Non-Māori non-Pacific	420.3	368.9	324.9	251.7	288.2	251.4	227.4	181.2
50–54 years	Māori	1613.0	1640.3	1564.6	1790.9	1227.3	1060.1	1263.4	1142.0
	Pacific	1081.7	1486.0	1039.1	1197.9	866.2	765.9	756.9	763.3
	Non-Māori non-Pacific	687.5	662.4	552.5	455.6	430.9	423.9	387.0	323.0
55–59 years	Māori	2924.1	2605.8	2529.0	2525.6	1890.6	2014.0	2029.4	1904.2
	Pacific	2205.7	2070.9	1766.7	1910.8	763.2	825.0	940.7	1333.8
	Non-Māori non-Pacific	1275.1	1056.0	905.7	784.6	699.9	615.6	575.7	498.1
60–64 years	Māori	4219.2	4281.0	3981.9	4233.5	2931.0	3131.1	2981.7	2968.4
	Pacific	2679.4	3316.8	2527.1	2729.7	2018.9	2533.8	1493.1	1538.9
	Non-Māori non-Pacific	2160.1	1895.5	1493.3	1303.9	1097.4	1013.6	880.2	793.9
65–69 years	Māori	5951.7	5585.5	5782.9	5945.4	4589.7	4342.7	4238.7	4468.4
	Pacific	4957.5	5157.7	4925.0	5226.7	2887.1	2537.3	2468.9	2560.2
	Non-Māori non-Pacific	3389.8	3176.7	2679.9	2119.2	1828.7	1664.2	1428.2	1240.0
70–74 years	Māori	8696.3	8039.8	8254.2	8828.6	6334.1	5164.5	5402.0	6400.2
	Pacific	7460.1	8840.1	6676.5	7650.3	3130.6	5467.7	4122.8	4490.3
	Non-Māori non-Pacific	5481.0	5005.4	4519.8	3715.0	3038.6	2815.4	2506.7	2041.7