

## ABSTRACT

### Aim

Māori and Pacific mortality rates are underestimated (at least up to 1996) due to different recording of ethnicity between mortality and census data – the so-called numerator-denominator bias. Both ethnicity and deprivation are strongly associated with mortality in New Zealand, but it is unclear empirically and theoretically what are the independent and overlapping effects of each on health. The objectives of this study are:

1. To determine the effect of adjusting for numerator-denominator bias on ethnic-specific age-standardised all-cause mortality rates among 0-74 year olds during 1991-94.
2. To determine the effect of adjusting for numerator-denominator bias on analyses of the independent associations of ethnic group and small area deprivation with all-cause mortality in New Zealand.

### Methods

Direct standardisation methods were used to calculate rates of mortality by ethnic and small area deprivation groupings.

### Results

Unadjusted for numerator-denominator bias, Māori had a 70% and 101% higher standardised mortality rate than non-Māori non-Pacific for males and females, respectively. Adjusting for numerator-denominator bias, the excess Māori mortality burden increased to 126% and 158%. For Pacific people, excess mortality increased from –5% and –13% (i.e. apparently lower mortality rates) to 58% and 54% after adjustment, for males and females respectively.

Using data adjusted for numerator-denominator bias, about a third of the Māori to non-Māori non-Pacific disparity in mortality among 0-54 year olds was explained by small area deprivation. Conversely, about a quarter of the mortality gradient by deprivation in New Zealand was explained by ethnic group.

## Conclusions

Numerator-denominator bias causes a marked underestimate of the ethnic disparities in mortality in New Zealand for the 1991-94 period, both overall and within strata of deprivation. The distribution of small area deprivation by ethnicity explains some of the ethnic disparities in mortality.