

Health and Deprivation, Relationship between Mortality and Hospital Utilisation Rates, and Area Deprivation in New Zealand

Ngaire Coombs¹, Zoë Matthews¹, Sabu Padmadas¹

¹School of Social Statistics, University of Southampton, UK.

Background

Areas with high and low deprivation scores in New Zealand have markedly different age and sex structures, fertility rates, and ethnic compositions (See Figures 1 & 2). It is well documented that more deprived areas have higher mortality rates, but cause-specific mortality and hospital utilisation by area deprivation have been relatively unexplored.

Aims

1. To determine if areas with high deprivation scores have higher mortality rates than areas with low deprivation scores.
2. To determine if areas with high deprivation scores have higher hospital bed day rates compared to areas with low deprivation scores.
3. To determine if the cause of death varies by deprivation score.
4. To determine if the cause of hospitalisation varies by deprivation score.

Findings

1. Areas with high deprivation scores have higher mortality rates than areas with low deprivation scores, but not at the oldest ages (see Fig. 3). Higher mortality rates at younger ages, and a younger age structure in areas with high deprivation scores drive the mortality differential.
2. Areas with high deprivation scores have higher hospital bed day rates than areas with low deprivation scores but this is not so pronounced at the oldest ages (see Fig.4). Higher hospital bed day rates at younger ages, and a younger age structure in areas with high deprivation scores drive the hospital bed day rate differential.
3. Cause of death does not appear to vary much by deprivation (See Figures 5 and 6), with the main causes of death being Circulatory (I00-I99) and Neoplasms (C00-D48).
4. Cause of hospital use does not appear to vary much by deprivation, however respiratory (J00-J99) and accidents (E00-E99) for males seem considerably higher in deprivation decile 10 (see Figures 7 and 8).

Limitations

- Hospital bed days do not capture effectiveness or quality of primary health care, or health seeking behaviours.
- Health seeking behaviours may be influenced by ethnicity, which varies by deprivation.
- Only based on public hospital discharges, does not include private discharges.
- Quality of hospital discharge data varies over time and between facilities.
- Hospital data heavily filtered to allow comparability over time.

Conclusions

- Both mortality and hospital bed day rates are higher in areas with high deprivation scores than areas with low deprivation scores. This differential is driven by younger age groups (under 75 years), mortality and hospital use rates amongst the oldest ages do not vary substantially by deprivation decile. Taking hospital

utilisation as a proxy for morbidity, areas with higher deprivation scores experience both higher mortality and higher morbidity, but the cause of morbidity and mortality does not vary substantially by deprivation score. Health interventions need to be targeted at preventing both premature mortality and morbidity in areas with high deprivation scores.

Notes

- Acknowledgement to Ian Pool, University of Waikato for helping facilitate this research.
- Hospital and Mortality data from National Minimum Data Set (NMDS), New Zealand Health Information Service.
- Population data from Statistics New Zealand (customised request) and New Zealand Ministry of Health.
- Deprivation data from NZdep 1991, 1996, 2001, and 2006.

Fig. 1. Age Sex Structure, Deprivation Decile 1, 2002

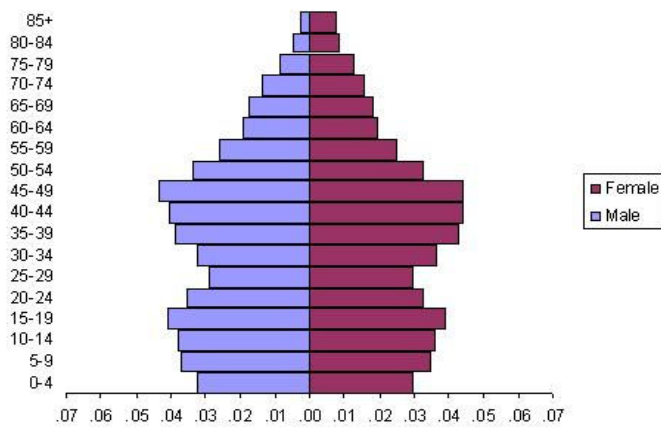


Fig. 3. Mortality rate by Deprivation, Age 80-84, 2002

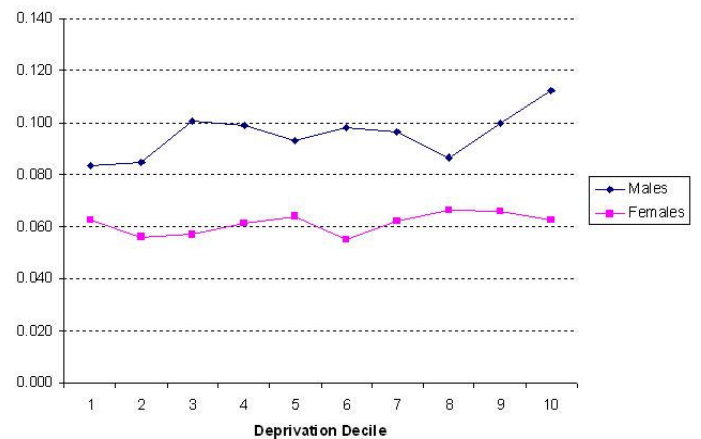


Fig. 2. Age Sex Structure, Deprivation Decile 10, 2002

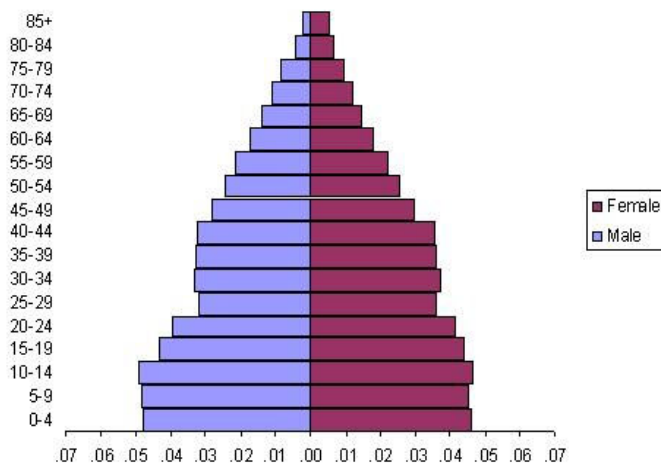


Fig. 4. Hospital Bed Day rate by Deprivation, Age 80-84, 2002

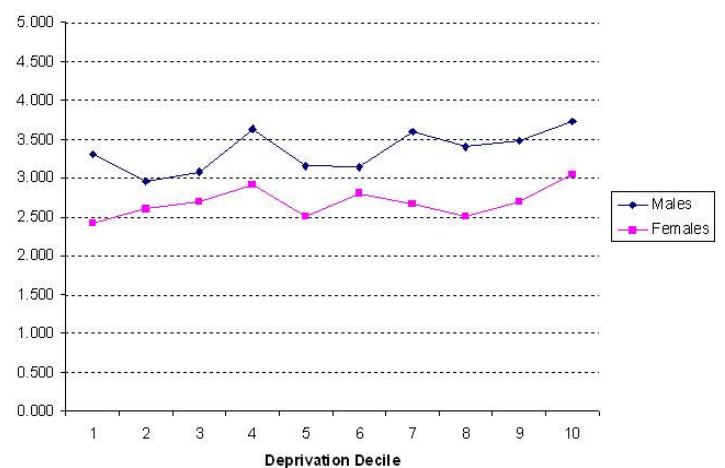


Fig. 5. Standardised Mortality rate per 1000, Deprivation Decile 1, 2002, 95% C.I.

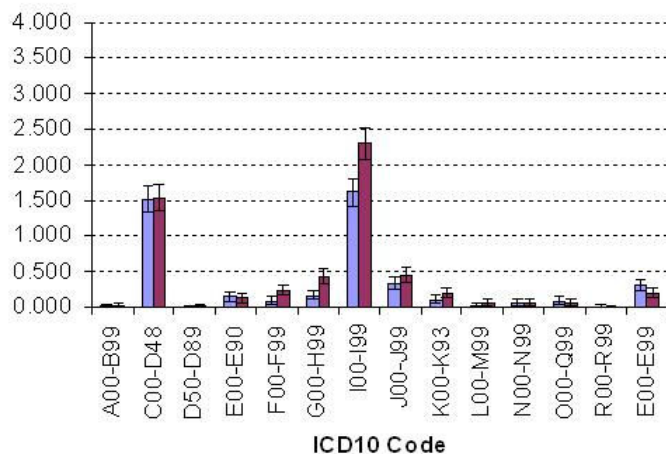


Fig. 7. Standardised Hospital Bed Day rate, Deprivation Decile 1, 2002

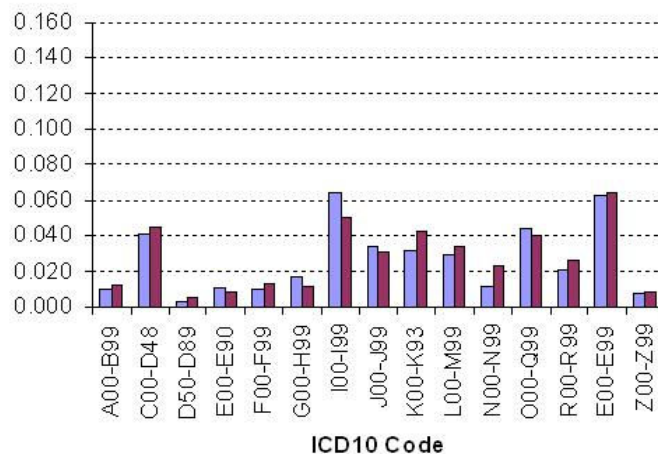


Fig. 6. Standardised Mortality rate per 1000, Deprivation Decile 10, 2002, 95% C.I.

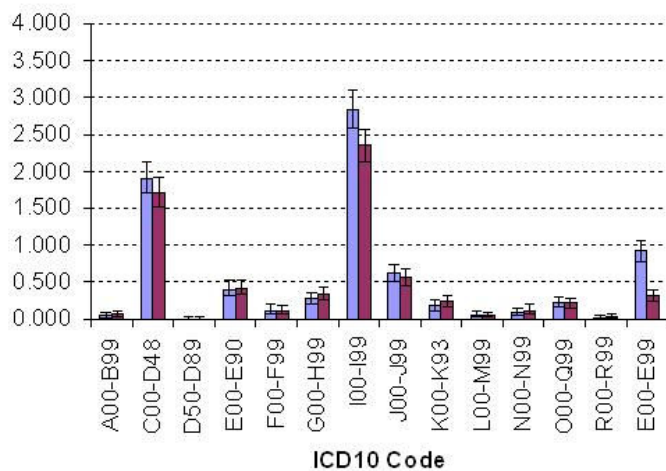


Fig. 8. Standardised Hospital Bed Day rate, Deprivation Decile 10, 2002

