

Estimates of age-specific death rates and mortality risk using administrative pharmaceutical data

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Background

Estimates of age-specific mortality rates and relative mortality risks are useful for a variety of health, actuarial and life insurance purposes. Mortality risk may also be associated with individual health service utilisation.

Main aim

We aimed to identify mortality events using pharmaceutical administrative data and quantify mortality rates and their relationship to levels of pharmaceutical health utilisation.

Approach

A publicly available Australian Pharmaceutical Benefits Scheme (PBS) database was employed for this study. For all individuals listed in the dataset the last recorded prescription exchange was used to define a proxy mortality event and health utilisation was quantified by the average number of prescriptions exchanged per year (ppy). Age-specific mortality rates were calculated from PBS data for a range of health utilisation levels and used with Australian Bureau of Statistics (ABS) death rate data to estimate relative mortality risk.

Results

The age-specific population profile of 256 190 persons utilising PBS services closely correlated with Australian census data ($r=0.97$). Age specific PBS mortality rates calculated using proxy mortality events correlated well with ABS death rates for persons aged >45 years but correlated poorly in younger age groups. In these younger age cohorts PBS utilisation was associated with a high relative mortality risk, whereas for older persons aged mortality rates approached equivalence with ABS data.

Mortality rates were associated with use of the PBS. High PBS use (>20 ppy) was associated with poorer mortality rates

whereas moderate PBS use (5-19 ppy) was associated with improved mortality as compared to persons using PBS minimally (<5 ppy) ($p<.05$).

Conclusion

Pharmaceutical administrative data can identify mortality events and provide estimates of mortality rates and relative mortality risks associated with health care use.

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