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Reliability of Geneological Cemetery Records in Ascertaining Vital Status in an Historical Cohort Study

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Background

Ascertainment of vital status is a particular challenge in studies of historical cohorts, particularly when the time last known to be alive precedes available and linkable death databases. In Australia, vital status is typically ascertained by linkage to the National Death Index (NDI) which contains detailed information on all deaths occurring after 1 January 1980. While the Australian National Death registry has electronic records dating back to the 18th century searching for deaths prior to this date can only be undertaken on an individual basis by requesting specific death certificates from state/territory registrars of births, deaths and marriages, which is unfeasible for a whole cohort. In the past decade, a number of publically accessible online genealogical databases containing either details of burials/cremations or tombstone inscriptions have become available. While genealogical cemetery records are a potential source of mortality ascertainment, their reliability for this purpose is unknown. We used the Australian NDI, as a gold standard, to assess the reliability of electronic cemetery records in ascertaining vital status in a cohort study.

Methods

In a historical cohort of former workers employed at a Tasmanian cement factory from 1936, Tasmanian electronic cemetery and tombstone inscription databases were checked for 'fact of death' for workers last known to be alive after 01 January 1980 (N=867, 31% of the cohort). The same cohort was also linked to the NDI. Sensitivity, specificity, positive and negative predictive values (PPV and NPV) of cemetery records were calculated.

Results

The NDI identified 78 deaths (9%) while we identified 50 deaths (6%) through cemetery record checks. The sensitivity of cemetery matching was low (53.8%; 95% CI 42.2-65.2) while specificity was 99.0% (95% CI 98.0-99.6). Positive and negative predictive values were also good, 84.0% (95% CI 70.9-92.8) and 95.6% (95% CI 94.0-96.9), respectively.

Conclusion

The results show that deaths identified from electronic cemetery records can be reliable (i.e. high PPV), even though this method correctly identified about half of deaths (i.e. low sensitivity). This methodology can be useful when sources of vital status ascertainment are limited.

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