



Can information about hospital mortality improve overall mortality figures?

Antony Stevens*

CGIAE/SVS – Ministry of Health, Brasília, Brazil - antony.stevens@saude.gov.br

Abstract

Background

There are two main sources of inaccuracy in the estimation of the frequencies of death due to different causes in a population. First the failure to identify all the deaths and second the failure to identify the correct cause of death. Several types of research project sponsored by the Ministry of Health attempt to address these issues.

If the correct cause of death is not identified then the frequencies due to that cause are under-estimated. A certain proportion of the mortality records will have “ill-defined” as their cause of death. Attempts are made to reclassify these records among the known causes so that higher, more accurate, frequencies may be obtained.

The rules for reclassification vary from the simple and maybe reasonable to the sophisticated. Of the simple kind of rule is that which says that ill-defined codes should not be reclassified as external since an external death is unlikely to be missed. Another rule attempts to ensure that cancer receives fewer ill-defined deaths as it is also less likely to be missed.

An extensive linkage of hospital separations and death records for five years (2008–2012) carried out for the Ministry of Health offers an opportunity to acquire new views as to how the reclassification may be carried out.

Methods

56.288.985 hospital separations were linked to 5.799.129 death records. The blocking factor used in the linkage was the municipality of residence and as there were some municipalities without both types of record not all municipalities participated, 5.565 out of a possible 5.570 municipalities were represented.

A Bloom Filter was constructed for the identifiers of each record. This was composed of the name, date of birth and municipality of residence. The municipality was redundant in view of the blocking but it will be relevant in later studies when larger blocks of municipalities are contemplated. The linkage methodology is based on the work of Schnell and colleagues.

Two records were assumed to belong to the same person if the Dice Coefficient between their Bloom Filters was 9000 or above. The major disease group of each record in a pair was obtained and compared. The frequencies of the disease groups of unmatched death records was also obtained as well as the recorded place of death for all death records, whether matched or not.

Results

There is a correspondence between the cause of death recorded on the hospital record, for those patients who died in hospital, and the cause of death on the death certificate for the same person. When the ill-defined records are compared there is support for the view that cancer and external causes are less likely to be ill-defined. Diabetes can also be added to these two groups. Among the other groups cardiovascular hospital deaths are the most frequent among the ill-defined deaths.

Several tabulations, described in the text, show some of the limitations of these results.

Conclusions

Although “how to redistribute ill-defined causes of death” is a very specific question this initial study should warn us that the answer to be obtained from linkages such as this one may be far from specific. The statistical aim of obtaining the best possible summary of the data should be postponed until there is a consensus on the processes that could have produced the observed data.

Keywords: Mortality; Ill-defined causes of death; Data quality; Brazil.