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Under-coding of secondary conditions in coded hospital health data: impact of co-existing conditions, death status and number of codes in a record

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Background

Administrative health data including hospital discharge abstract data have been widely collected and analyzed for various purposes, including disease surveillance, case-mix costing, tracking healthcare system performance, policy-making and research. This study examined the coding validity of hypertension, diabetes, obesity and depression related to the presence of their co-existing conditions, death status and number of diagnosis codes in hospital discharge abstract data (DAD).

Approach

We randomly selected around 4000 DAD records from four teaching hospitals in Alberta, Canada and reviewed their charts to extract 31 conditions listed in Charlson and Elixhauser co-morbidity indices. Conditions associated with the four study conditions were identified through multivariable logistic regression. We examined the coding validity of the four study conditions related to whether their co-existing conditions were coded, whether the patient died in hospital and the total number of diagnosis codes recorded in a DAD record.

Results

Hypertension, diabetes, obesity and depression are generally secondary diagnosis and their validity are affected by the coding of their co-existing conditions. The sensitivity for the four conditions increased as the total number of diagnosis codes in the record increased. The impact of death status on coding validity for the four conditions was minimal.

Conclusion

The coding validity of conditions is closely related to its clinical importance and complexity of patients' case mix. We recommend mandatory coding of certain secondary diagnosis to meet the need of health research based on administrative health data.

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