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Using Linked Administrative Health Databases for An Obesity Case Definition

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Introduction

Capture of obesity using administrative health data is poor, with many cases being under coded within the data. Linking multiple health data sources may improve case ascertainment and facilitate the use of administrative health data for obesity research and surveillance.

Objectives and Approach

This research aims to determine if using individual-level linked data from multiple sources can improve case ascertainment for obesity in administrative health data. Data from between April 1, 2001 and March 31, 2015 were obtained from the Manitoba Population Data Repository. Eighteen obesity case definitions were developed with different observation times and combinations of diagnosis, procedure, and prescription codes from physician billing claims, hospitalization abstracts, and prescription drug records. Body mass index (BMI) records from primary care data and the Bone Mineral Density (BMD) registry were used for validation. Sensitivity, specificity, and Cohen's kappa were calculated.

Results

Individuals with a higher BMI class had more physician visits and were more likely to have comorbidities and obese codes in the administrative health data. A higher BMI class was associated with being in a lower income quintile and the age group 40-59.

Overall, the case definitions for obesity had high specificity (0.98-0.99) and low sensitivity (0.005-0.19) when validated using primary care data. Case definitions with obesity codes from multiple databases 3 year prior to and including the index date had the highest sensitivity (0.06-0.19) and kappa (0.04-0.23). Results with the BMD data were similar (specificity: 0.97-0.99; sensitivity: 0.007-0.21). Stratified analyses found agreement measures improved slightly for females, those who had chronic conditions and a later index year, and the age group 40-59.

Conclusion

When using multiple databases to build a case definition for obesity, sensitivity improves but remains low. Individuals with other chronic conditions and a higher BMI class were more likely to be accurately classified as an obese case.

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