THE "MIDAS TOUCH" TO RECORD LINKAGE OF LARGE ADMINISTRATIVE DATA FILES TO STUDY HEART DISEASE

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Interest in methods to link records from large administrative data files has risen with the increase in use of these data in epidemiologic research. The authors present a probabilistic method of record linkage for hospital discharge and death certificate files and discuss the complexities of this process in its application to the study of heart disease. The Myocardial Infarction Data Acquisition System (MIDAS) was developed to study risk factors, outcomes, and health service use of New Jersey State residents hospitalized for myocardial infarction in acute care facilities from 1986 to present. The system is based on probabilistic links of hospital discharge records with death certificate records to follow mortality and hospital discharge records with subsequent hospital discharge records to follow re-admission. The linkage scheme includes steps for data cleaning, computerized record matching, and manual review. Data from 1986, 1990, and 1993 are used to test the system. Sensitivity of the record linkage is estimated by assessing the number of death certificate links that result among the total number of patients coded with discharge status of dead in the hospital discharge files. Sensitivity estimates ranged from 98.2% with 1986 data to 98.1% with 1993 data. Estimates of specificity are made by observing the number of false positive links that occur when hospital discharge files are linked with death files from preceding years. Specificity ranged from 99.1% with 1990 data to 99.4% with 1986 and 1993 data. Errors in linkage can be attributed to duplicate records, incomplete or miss-coded values, name changes or inconsistencies, and missing records from migration to other states. Strategies are presented to improve the record linkage process with these types of large administrative data files.

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