

Hospital Information System and its application in Epidemiology

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The objective of this study was to survey the epidemiological research output based on application of data from the Hospital Information System of Brazil's Unified National System (SUS), in order to synthesize the advantages and limitations of this database for analyzing relevant public health issues.

The Hospital Information System, the only one of its kind in Brazil with a national scope, is based on the so-called Hospital Admissions Authorization forms, used to process payment for hospital admissions in public hospitals and private hospitals outsourced by the SUS. With the advantage of providing diagnostic, demographic, and geographic information for each hospitalization, the Hospital Admissions Authorization forms have expanded the possibilities for producing epidemiological knowledge in the country.

To conduct searches for articles published in scientific journals from 1984 to 2003, the authors consulted the Scielo, Medline, and Virtual Public Health Library databases and the websites of institutions providing Master's and doctoral graduate studies courses in public health to locate monographs, theses, and dissertations, as well as verifying the bibliographies of the articles identified through the above-mentioned sources. The electronic searches used the following descriptors: system, information, hospital morbidity, hospital, hospitalization; admission.

The articles identified were classified into five categories with different analytical watersheds. Two of them referred to the type and use of the data: (1) quality of the data in the Hospital Information System of the Unified National Health System; (2) strategies to enhance the use of information for research, management, and medical/hospital care. The other three included epidemiology's fields of action in the health services sphere: (3) description of hospital morbidity and mortality and medical care patterns; (4)

epidemiological surveillance and validation of other health information systems; and (5) evaluation of the hospital care's performance.

A total of 75 articles were identified for the reference period, of which 4.1%, 9.6%, 35.6%, 19.2%, and 31.5% were classified respectively in categories 1, 2, 3, 4, and 5. For the period studied, 1.4 % of the publications were from the 1980s, 30.1% from the 1990s, and the rest from 2000 onwards.

The articles involved 141 professionals affiliated with 16 different teaching and research institutions (two of which international) and twelve health services from different management levels.

The authors' institutional affiliation was concentrated in the Oswaldo Cruz Foundation (especially the National School of Public Health) and the School of Public Health at the University of São Paulo.

In the articles analyzed, the predominant themes were violence (13), with an emphasis on accidents, followed by infectious and parasitic diseases (12), with a wide variety of themes, and chronic non-communicable diseases (10). Nineteen publications approached data from Hospital Admissions Authorization forms relating to various diseases in a single article.

The predominance of analyses describing the morbidity patterns of hospitalizations in a sense indicates the studies' exploratory nature.

Although the controversies on the application of data from the Hospital Information System to the field of action in epidemiology are concentrated on the reliability of the Hospital Admissions Authorization forms, the studies are scarce and are limited to few diseases and two urban areas, thus limiting the ability to generalize the results.

Nonetheless the results indicate the enormous potential of the Hospital Information System as an adjuvant system in the surveillance of diseases with compulsory notification, thus stimulating their use at various levels.

Performance evaluations prioritized studies based on analysis of the results of hospital care. The studies with different levels of analytical sophistication indicated that monitoring of hospital death can play a discriminating role.

In general, the studies on medical care expenditures highlighted major cost variations according to age group, case severity, procedures, and the hospital's corporate legal status.

The current study presents the limitations identified by various authors in the Hospital Admissions Authorization forms and/or the filing structure of the Hospital Information System in the Unified National Health System.

Although the Hospital Information System in the Unified National Health System has incomplete coverage and there are uncertainties about the reliability of its data, the range of studies associated with results showed internal consistency with the current knowledge, reinforcing the system's importance and the need to understand its strong and weak points.