

Estimates in small geographic areas: a necessary step towards reducing health inequalities

Estimativas em pequenas áreas geográficas: um passo necessário para a redução das desigualdades em saúde

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This supplement of *Revista Brasileira de Epidemiologia* (RBE), containing articles on unpublished results, explores the analytical potential of the Health Information Systems (SIS, acronym in Portuguese for “Sistemas de Informação em Saúde”) and national surveys in small geographic areas. This thematic issue aims to broaden the knowledge of the Brazilian scientific community about estimates in small areas and to support public policies that promote equity. To this end, international and national collaborations were articulated in an attempt to advance an innovative proposal as a health management tool and support for public policies.

Brazil is a country full of social inequalities that are reflected in the differences in distribution of income, unequal access to health services, housing, employment and education¹. Economic and social deprivation impacts health and causes situations such as inadequate access to food, hunger, child malnutrition, infectious diseases, decreased life expectancy and increased mortality from preventable and treatable diseases, including diarrhea, respiratory infections, HIV/AIDS, tuberculosis and malaria¹⁻³.

Current evidence show that these inequalities are substantial in different population groups in most behaviors and health-related outcomes^{4,5}. In this context, monitoring health indicators of different populations and features that amplify social differences and inequities is the first step in the planning of actions and programs that can reduce

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the occurrence and severity of diseases, since the objective is to identify features that can explain health outcomes, for example, the environment, urbanization, the labor market, type of leisure activities, education, and health institutions^{6,7}.

The SIS and population surveys are important tools to assess and monitor the dynamics, conditions and risk factors of diseases. Geographic Information Systems (GIS) have been the most used for analyzing health data in a specialized way and according to the principles of epidemiology (person, place, time, disease). Thus, geoepidemiology or spatial epidemiology analyzes the geographical variations of diseases or other health-related outcomes taking into account demographic, environmental, behavioral, socioeconomic, genetic and infectious risk factors⁸.

Examining health indicators from estimates for small areas can lead to important results that are often masked by national or state average statistics. The results at this level of disaggregation can help managers plan and allocate resources, as well as identify possible solutions to such problems^{9,10}.

In this sense, estimating health indicators in small areas is an advance for Brazilian public health, considering that this method is little used in the country with the purpose of guiding public management, and could be implemented using data from surveillance systems already in operation, such as the Mortality Information System (SIM), the Surveillance System for Risk and Protection Factors for Chronic Diseases by Telephone Survey (Vigitel), the Surveillance System for Violence and Accidents (VIVA), among others. The use of secondary previously consolidated information systems offers advantages such as wide population coverage and the possibility of including different geographical areas. Furthermore, the low cost of data collection is noteworthy, since the information is made available free of charges by the organizations that collect and organize it, which allows many studies to be carried out.

Brazil produces abundant research data in the health field with national coverage, accounting for large regions, federated units, metropolitan regions and capitals. However, there is lack of information about disaggregated levels, due to the high cost of these surveys.

This RBE supplement presents methodological advances that allow analyses in small areas. The SIS and its corrections were widely used in this supplement, supporting local managers and researchers in understanding the importance of these adjustments. The SIM was used with corrections for underreporting, redistribution of Garbage Codes and ill-defined causes, application of Bayesian methods, among others^{11,12}.

In addition, this issue is an innovation as it uses data from epidemiological surveys by conglomerates from the census sector, opening up new methodological perspectives for measuring intra-urban inequalities. Direct and indirect estimation methods for small areas were used to determine the prevalence of risk factors in smaller units, that is, a census sector or a set of census sectors.

The RBE issue is expected to produce rich knowledge for scientific growth, and the findings should contribute to back health managers and the society in guiding public policies, as well as inspiring a methodological progress in estimates for small geographic areas.

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