A bibliometric analysis of public health research work in Mexico

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Introduction

Public health research has been defined as the scientific activity related to the interaction between health conditions and social responses to improve well-being (Frenk, et al, 1986). Public health research in developing countries is particularly important due to existing epidemiological transitions, scarce resources and increasing budget cuts among these countries (Londono and Frenk, 1997). This situation is worsening by external pressures related to the globalisation of the world economy, extreme social changes and political constraints.

In the last two decades, multiple health care reforms have emerged in the Latin American and Caribbean regions (Gonzalez Garcia, 2001). In these countries, new tools and managerial models have been developed and published. Most health care researchers and managers in these countries however, are not aware of the results derived from public health research interventions, both at the national and international levels. No information exists regarding for example, public health research lines; benchmarking; visibility of research results; or impact on public health programmes. Clearly, less information exists on the relationship between public health research results and interventions leading to social change and improvement of well-being.

A previous bibliometric study on public health research work in Latin America and the Caribbean (Macìas-Chapula, et al, 2005) indicated that the production and visibility pattern of public health research results varied according to the database used. While LILACS-SP included more local and non-conventional literature in its database, MEDLINE reflected a highly academic and structured pattern of production. LILACS-SP was also more comprehensive in the inclusion of countries, while MEDLINE excluded most of Central American and Caribbean countries. Overall, leading countries in descending order were Brazil, Mexico, Chile, Argentina, Venezuela and Colombia. Due to the high production of Brazil, the dominant languages were Spanish and Portuguese.

Being the leading Spanish speaking country in the region, data and information on public health research work in Mexico is needed to establish a national analysis of the situation. Information regarding main public health research lines; local or international collaboration; visibility and use of research results are but only few of the indicators needed to support decision making and policy action. This approach has been previously reported in the fields of tuberculosis and diabetes research in India and China (Arunachalam & Gunasekaran, 2002, 2002a); and in the field of mental health research, in 15 OECD countries (Lewison, et al, 2002).

Purpose
To identify the production and visibility of public health research work of Mexico in different databases so as to obtain the main subject content, collaboration patterns and geographical coverage of such production. The final goal is to incorporate these results into the construction of a conceptual model of public health research work as related to knowledge management in the field.

Method
A bibliometric analysis was planned to be conducted at three stages, covering the period 1987-2007. In the first stage ARTEMISA (Mexico's national database of scientific health journals) and LILACS-SP (The Pan American Health Organisation's Latin American and Caribbean Literature on Public Health database) were used in order to identify the production and regional visibility of Mexico's public health research production. The second stage consisted in searching MEDLINE; and the third stage, ISI's Web of Science. This approach allowed for the identification of the production and the visibility of such production; that is, whether the production was mainly local, regional, or mainstream.

The literature search conducted for stages one and two, considered the use of public health controlled terms, as described by the US National Library of Medicine's Medical Subject Headings (MeSH) and its Spanish translation version of *Descriptores en Ciencias de la Salud* (DeCS). No limitations to language, check tags, or type of documents, were applied to each search strategy. When possible, affiliations were searched and classified according to the catalogue of Mexican institutions in MEDLINE (Macìas-Chapula, et al, 2007). The literature search for stage three considered both the Science Citation Index and the Social Science Citation Index.

For each stage, records were analysed using Microsoft Excel (2000) and Bibexcel version 2001 in order to identify the following data from each database:

- Production distribution throughout the period of study
- Distribution of type of documents
- Co-authorship
- Language of publication
- Subject content of documents
- Leading institutions

Documents were classified according to journal articles, books, technical reports, book chapters, research projects, or thesis. Here, main journals were also analysed according to journal title and country of publication. When possible, the editorship or publishing institution of books/technical reports were also obtained from the source fields. The subject content analysis of records was conducted according to the structure of MeSH/DeCS thesaurus. Analysis of data allowed for the comparison of scientific production by distribution ranks of types of documents, subject content, co-authorship, language of publication, and local, regional or mainstream visibility, accordingly.

Results
Preliminary results indicate that national and regional databases cover mainly Spanish language publications; while international databases cover results in English language. ARTEMISA for example, covers mainly articles published in local Spanish language

journals; and LILACS-SP covers books, book chapters and grey literature in a greater scale. Approximately 60% of the production in LILACS-SP is published as a result of the collaboration of two or more authors. In this database studies are mainly related to female adults and the subject content of the production is related to *health services* and *epidemiology*.

Final results will provide comparison tables of the distribution of publications by authorship, subject content, type of documents, and database coverage. Using the subject content of the documents a broad classification of research lines will be obtained. The type of collaboration whether national or international will also be obtained along with the identification of the participating institutions. Results will include a model of the distribution of the production within the context of the national, regional, and international coverage. An attempt will be made to identify the emergence of research fields and front groups.

Discussion
It is hoped that results will provide a rich discussion on the management of public health research applications in Mexico. New lines of research are needed regarding for example, the identification of real and potential users of public health research results. Which are the information needs of leaders of Mexico's Health National Programme and other non-government institutions? Is there a match between results of research lines and public health needs and problems? Approaches to integrate researchers and decision makers so as to manage knowledge generation in public health are other challenges to be discussed and met.

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