



Availability of information in Public Health on the Internet: An analysis of national health authorities in the Spanish-speaking Latin American and Caribbean countries



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ABSTRACT

Introduction: Access to reliable and quality health information and appropriate medical advice can contribute to a dramatic reduction in the mortality figures of countries. The governments of the Americas are faced with the opportunity to continue working on this challenge, and their institutional presence on their websites should play a key role in this task. In a setting where the access to information is essential to both health professionals and citizens, it is relevant to analyze the role of national health authorities. Given that search engines play such a key role in the access to health information, it is important to specifically know – in connection to national health authorities – whether health information offered is easily available to the population, and whether this information is well-ranked in search engines.

Methods: Quantitative methods were used to gather data on the institutional presence of national health authorities on the web. An exploratory and descriptive research served to analyze and interpret data and information obtained quantitatively from different perspectives, including an analysis by country, and also by leading causes of death. A total of 18 web pages were analyzed. Information on leading causes of death was searched on websites of national health authorities in the week of August 10–14, 2015.

Results: The probability of finding information of national health authorities on the 10 leading causes of death in a country, among the top 10 results on Google, is 6.66%. Additionally, ten out of the 18 countries under study (55%) do not have information ranked among the top results in Google when searching for the selected terms. Additionally, a total of 33 websites represent the sources of information with the highest visibility for all the search strategies in each country on Google for the ten leading causes of death in a country. Two websites, the National Library of Medicine and Wikipedia, occur as a result with visibility in the total of eighteen countries of the sample.

Conclusions: Taking into consideration that providing reliable and quality information on these topics to the population should be one of the priorities of national health authorities, these results suggest that national health authorities need to take measures to try to better position their contents.

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1. Introduction

Even though public health in the Region of the Americas has experienced significant improvements over the last few decades,

Abbreviations: AWR, advanced web ranking; CDC, United States Centers for Disease Control and Prevention; DeCS, descriptors in health sciences; ICT, information and communications technologies; INE, Instituto Nacional de Estadística [National Statistics Institute]; MeSH, medical subject headings; PAHO, Pan American Health Organization; WHO, World Health Organization.

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challenges in prevention and control of diseases still prevail. Sub-optimal levels in maternal and child health, insufficient human resources and infrastructure, and the geographic and cultural differences throughout add complexities to the situation in the Region [1]. There are currently 23 principal causes of death, some of which are preventable. For instance, diabetes could be largely prevented through healthy diets and lifestyles; HIV/AIDS could be prevented through the adoption of the necessary precautions during sexual relations; and many sectors in society should confront the scourge of interpersonal violence with the integration of different strategies. [2].

In all of these cases, adequate medical counseling and the access to reliable and quality information could contribute to a dramatic

reduction in the mortality rates of these countries. Along with access to health information [3], the socialization and publication of comments on blogs and videos [4] have been identified as a tool that permits better empowerment and self-care of patients [5]. Patient-centered information is recognized today as the cornerstone of the amelioration of results and quality of healthcare [6], as it allows for both cost reduction [7] and the use of resources [8]. There is a steady increase of patients who are better equipped (i.e., they have the necessary knowledge to make decisions), better informed about the wide scope of topics related to healthcare [9–11], and who desire to use ICTs, especially the Internet, to communicate and share personal health information [12,13].

In Latin America and the Caribbean, a total of 188 million people are connected to the Internet. The percentages of penetration, however, are significantly varied; for instance, this can be seen when considering that a country like Chile has a rate of penetration of 72%, whereas Nicaragua has a rate of 17% [14].

Even though the reality is that not everyone has access to the Internet and that there is a significant amount of inequality in access, the variable related to the number of people who have access to the Internet is starting to have relevance with regard to decision-making in public health, and it justifies the presence of national health authorities on the Internet [15]. On the other hand, there are portions of the populations who play a more relevant role. The following factors play a role in affecting the use of the Internet in health: gender and the age of patients and citizens [16–18]; socio-economic factors, such as education and literacy [19,20]; health status [17,18,21–23]; psychographic indicators, such as people's trust in the Internet, their physicians or the healthcare system [24]. Youth and adolescents, aged 10–19, thus have a relationship with sexual and reproductive health. Since maternal and infant mortality is a worldwide concern and one of the main challenges for the upcoming years, providing appropriate information to young people will help keep them knowledgeable about and updated on relevant topics, such as teenage pregnancy and/or HIV/AIDS transmission.

Empirical evidence about inequalities in the use of the Internet in health is still under development [21,25,26], and not all investigations neither factor in the necessary variables [27,28], nor adequately adjust themselves to the factors that could boost the use of the Internet in health in an ever-changing digital landscape [16,25]. Although the provision of reliable and quality health information is one of the strategies of governments in the framework of public health, studies analyzing this presence are still not available.

Therefore, the main objective of this study is to analyze the role of national health authorities in responding to the need of citizens to access reliable and quality information on the leading causes of death, with the aim to identify the available challenges and opportunities, and thus provide recommendations on the design of public health policies. Specifically, we analyze the visibility or availability of information in the institutional websites of national health authorities in the Google search engine; the websites with the highest visibility in Google; and, finally, determine whether the health information that national health authorities offer through their websites is easily accessible to the population through their search engines.

2. Materials and methods

To address these realities, a study with the following research dimensions has been designed to analyze web rankings of the national health authorities (and competitors) concerning key words and synonyms representing the 10 leading causes of death in each country -extracted from Descriptors in Health Sciences (DeCS) and translated by PAHO- [29], as well as the availability of informa-

tion about the leading causes of death through the internal search engines in the websites of the national health authorities.

The research methods selected to undertake this research were the following: data collection by structured and direct observation about web presence of national health authorities and search of information about leading causes of death on their online institutional websites; and a comparative analysis by country and leading cause of death.

Quantitative methods were used to collect data useful to identify the institutional presence of national health authorities on the web. This quantitative approach was also useful to know what countries have information on the leading causes of death available for the general public.

Moreover, the exploratory and descriptive research served to analyze and interpret data and information obtained quantitatively from different perspectives, including an analysis by country, and also by leading causes of death.

The target population of this research consisted of 18 Spanish-speaking Latin American and Caribbean countries, and the national health authorities of their governments. These countries were: Argentina, Bolivia, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Uruguay and Venezuela.

The surveyed variables of these countries were their official websites – including use of internal search engines. A total of 18 web pages were analyzed. Information on leading causes of death was searched on websites of national health authorities in the week of August 10–14, 2015.

Data were collected by structured and direct observation. The observation was related to data collection about national health authorities' websites and web ranking. Fig. 1 shows the conceptual framework of the research design used (Fig. 1).

2.1. Exploratory and descriptive analysis

In terms of the objectives related to web ranking and identification of competitors, the following should be considered:

- The search engine used was Google [30], which controls 64% percent of the search [31].
- The keywords used were the same terms describing the leading causes of death, in Spanish.
- For this exploratory and descriptive analysis, the web ranking tool used was Advanced Web Ranking Cloud (AWR) [32], which allowed to search information and to analyze wanted indicators (see Fig. 2. Advanced Web Ranking Cloud Interface). Specifically, AWR was used to identify the ranking of national health authorities' web pages regarding information on leading causes of death. Moreover, this tool provided information on the best-positioned websites in terms of the theme analyzed. AWR allowed to extract two types of files. The file "Search engine comparison" was used for the analysis on ranking of national health authorities' websites and the file "Top sites" was used to analyze search results and identify sites with the highest visibility.

This exercise was conducted the week of 10–14 August, 2015.

2.2. Selection of terminology

For terminology selection, WHO official information was consulted, available on its website (<http://www.who.int/>) under the tag "Countries" [33]. This tag offers the health profile of each of the member countries of the United Nations system. It offers basic data for each country: information on life expectancy, information on the millennium development goals, the use of health services, expenditure on health per capita, and the 10 leading causes of

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