

**Evaluation of dissemination strategies of the National Institute of Science,
Innovation and Technology in Health**

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Abstract

Knowledge dissemination is essential to democratization of society. In this matter, it is important that the researchers act to, more than serve as trustworthy and relevant sources of information, broad the dialog with the public. In the health field, researchers, professionals and managers must exchange knowledge between them and also with society at large if they want to improve health for all. In 2008, the Brazilian Science, Technology, and Innovation Department [Ministério da Ciência, Tecnologia e Inovação do Brasil] launched the programme of National Institutes of Science and Technology, with the purpose of closing ties between knowledge production and utilization in several scientific fields. As part of this programme, the National Institute of Science, Innovation and Technology in Health (Citecs) was founded in 2009. One of its objectives is to promote knowledge dissemination and transfer of health technology for society. The present study investigates the Citecs' experience related to this objective, trying to help in

the comprehension of the complex process of disclosure of the scientific knowledge for society. Thus, this study is intended to evaluate the Citecs' scientific knowledge dissemination strategies, characterizing the actions performed and to investigate the opinion of Citecs' scientists about science dissemination and about their interaction with science communicators.

Introduction

The knowledge dissemination is essential to the democratization of a society. Increasingly, the economic development of countries or regions is dependent of a high educational and cultural level of the population and of innovations in the productive processes. Wider is the public it reaches, more useful the knowledge becomes, as it includes citizens in the scientific culture, values the role of the scientists and knowledge from research, and reduces access inequality to the scientific knowledge produced.

In the science communication field, the terms dissemination, popularization, public communication, vulgarization and diffusion has been frequently used indistinctly (Massarani, 1998). Nevertheless, even if all those terms report to the transfer of scientific, technologic or innovation information, there are differences regarding the public profiles, communication channels used and the type of discourse employed. Scientific dissemination means popularization, public communication and/or science vulgarization are referred to the broadcasting of a scientific content, in accessible language, for a non-specialized public (Bueno, 2009). When the content is directed to experts, the suitable term is scientific communication, commonly directed to experts from the same knowledge field (intrapairs), but it can also be directed to experts from different fields (extrapairs) (Bueno, 2009). Diffusion of the scientific knowledge is defined, mainly by science historians, as the broadcasting of any messages with the scientific content, specialized or not (Massarani, 1998 and Bueno, 2009).

The science communication, by its characteristics, aims at acquainting the results of research and, for that, it uses as main forms of communication the scientific meetings and the peer-reviewed journals. Dissemination activities aim at contributing to the cultural and intellectual education and enrichment of interlocutors. For that, it needs transcoding of the scientific language in a way to allow better interaction between the

public and the facts and concepts transmitted. The main channels to dissemination of science are the press in its several forms: printed materials, audiovisual and artistic production, internet portals usually with the support of scientific journalists or communicators.

According to Bueno (2010), the dissemination of science in health presents single characteristics. That is because, although health is a theme of high interest of people and from the mass communication media, the conveyed information has been marked by low quality and by powerful commercial interests. Moreover, conditions were not created for the democratic interaction between the emitters and receptors of information (Bueno, 2010). A functioning model of communication, centered in the expert discourse, has prevailed with limited possibility of interaction and dialog with the public to which the actions of communication are directed (Oliveira, 2008). Additionally, in the health field, communication is frequently seen as mere message transmission between the emitter and receptor, in a linear and unidirectional model (Araújo, 2004).

On the contrary, it would be important that the researchers of the health field act to, more than serve as trustworthy and relevant sources of information, broaden the dialog with society at large, including media, managers and health professionals. The science-media interface is crucial for effective science communication (Peters, 2007), however the relationship between scientists and journalists is often considered to be difficult (Willems, 2003). A more precise understanding of the complex science-media interaction is needed (Roefs, 2011).

Founded in 2009, the National Institute of Science, Technology and Innovation in Health (Citecs) is headed by the Collective Health Institute of the Federal University of Bahia and has three objectives: (1) to build a network of research groups interested in the health innovation; (2) to develop relevant researches to improve health and for the economic and social development and (3) to promote the diffusion of knowledge and the transfer of health technology for the society.

The research groups that compose Citecs work in different health research fields: epidemiology, evaluation of health technology, health promotion, neuroscience, and immunology, among others. The results of research performed by these groups have been disseminated not only by their authors, but also by the communication coordination of the

Institute. This coordination developed a communication plan aiming at strengthening the interaction between the components of Citecs, narrowing the relationship with interest groups (journalists from science press, teachers from high school and company leaderships) and disseminating scientific information for the general population. These actions are operated by a series of activities as organization of a website, distribution of electronic newsletters and printed material, elaboration and distribution of releases, researchers' interviews in the media, preparation of clippings, video editing, creation of publicity campaigns, among others. It is important to highlight that all the activities have their own content and integrated products (printed, web, TV, radio).

Although it has little more than three years of activity, to investigate the experience of Citecs, including interaction with media and science communicators, may help understanding the complex process of dissemination of the scientific knowledge for society. Although it is growing in the whole world the interest by science diffusion, with consequent increase in initiatives of disclosure of the scientific production, the experiences are still recent and need to be known. In this sense, the analysis of Citecs' experience may be useful for the improvement of a disclosure strategy of the scientific knowledge in the health field and its adoption by other research centers, contributing to strengthen the popularization of the health science, particularly in emerging countries such as Brazil.

Purpose

- 1) To evaluate Citecs' experience of scientific knowledge dissemination in the health field, characterizing actions performed between 2010 and 2013.
- 2) To investigate the opinion of Citecs' scientists about science dissemination and about their interaction with science communicators.

Methodology

This is a case study with quantitative and qualitative approaches. The initiatives of science diffusion promoted by Citecs were characterized through the analysis of the material produced and registered during the three years of the Institute's life by its

communication team. This characterization included the identification of objectives, the activities description and the identification of the target audience.

Obstacles and challenges for the science dissemination activities have been identified from the structured questionnaire answered by the Citecs' research groups leaders. The questionnaire contained questions about dissemination aspects and Citecs communication strategies such as website and newsletters. 16 questionnaires were sent and 12 were returned. Absolute and relative frequencies were calculated using the SPSS 13.0 statistical program.

Results

This study shows that 30.3% (23) of the 76 reports sent to press by the communication team were published. These releases have produced 72 publications, of which 72.2% (52) were published on websites and 22.2 % (16) in newspapers. The main websites were news (44.4 %) and institutional sites (12.5%). Regarding the scope, most news were disclosed in nationwide vehicles (54.2%), followed by local vehicles (41.7%). The majority of news (59.7%; n=72) was referred to research results, 62.5% (45) including researcher's statements, 73.6% (53) researcher's citation and 43.1% (31) were referred to Citecs.

Regarding the dissemination concepts, it was found that most researchers believed that one of the main functions of public communication of science is to approximate and promote interaction between science producers and users (11; 91.7 %), to democratize access of citizens to scientific knowledge (9; 75%), to contribute to the public understanding of science (7; 58.3), and to provide information on scientific research to laypersons (7; 58.3). There was less agreement that the dissemination activities should contribute to improving the quality of scientific information disseminated by the media (5; 41.7%).

Participants believed that the main obstacle to a proper public communication of health science is the limited staff in research institutions (9; 75%), the restricted access to journalists and science communicators (6; 50%) and the poor quality of information disseminated by the media (6; 50%).

It was observed that 83.3% (10) of researchers conducted at least one activity to disseminate their research results to society in the period 2010-2013. Nevertheless, only three (25 %) researchers said they have a journalist or science communicator as a partner. Two of these said that Citecs contribute to that partnership and one revealed that the partnership was initiative of the journalist. When interacting with the media, most researchers considered a somewhat satisfying experience (4; 33.3%) or satisfactory one (3; 25%). Those who considered unsatisfactory criticized the lack of local editors and journalists with scientific knowledge, particularly in health science and said that they have produced materials for the media that have never been published or their interviews were published with misleading information.

Regarding the science dissemination strategies created by Citecs, 91.7 % (11) said they know the website, however, 66.7 % (8) rarely access it. Despite this, 33.3 % (4) and 25% (3) consider the site a satisfactory or somewhat satisfactory tool for the dissemination of science, respectively. The newsletters were considered a satisfactory tool for 41.7 % (5) and somewhat satisfactory by 33.3 % (4) of the researchers.

The suggestions given by the participants to improve the dissemination strategy of the Institute were: 1) disseminating scientific knowledge using research databases; 2) increasing the contact with the media by suggesting scientific news; 3) increasing the contact between Citecs communications team and researchers; 4) mobilizing researchers to help choosing relevant scientific knowledge for public communication.

Discussion

These results indicate that Internet has been an important tool to support health research dissemination conducted by Citecs, especially through journalistic and institutional sites. This has resulted in an increased distribution of news on national and international levels. The large number of news including researcher's citation as a source of information and dissemination of research results revealed that the Institute was successful in order to serve as source of quality scientific information. However, it was noted that most releases sent have not been accepted by the media. The Citecs dissemination tools (website and newsletters) were well evaluated, however access to the website is limited, when compared to the newsletters.

This study also showed that most of the researchers of the Institute are engaged in knowledge dissemination activities and are keen to expand the dissemination of their scientific papers. The vast majority of researchers agrees that the main function of public communication of science is to facilitate interaction between producers and users of knowledge. This idea is influenced by what Caplan (1979) called "the two communities theory." That theory was used to explain interaction between researchers and policy makers. It says that there is a gap between scientists and knowledge users because they live in separate worlds with different culture and values. Nevertheless, this concept has been criticized by many authors who consider the possibility of a dynamic and interactive process (Straus et al, 2009) that includes all stakeholders in knowledge development, without differentiating between producers of users.

A minority of researchers have agreed to be an objective of science dissemination to improve the quality of the information conveyed in the media. However, most researchers consider that the low quality of the information disclosed in the media makes it difficult to have successful science dissemination. A minority of researchers has frequent interaction with science communicators, but most of them consider necessary to approximate researchers of the media. They also have shown interest in increasing contact with the Citecs communication team and help choosing relevant scientific knowledge for public communication.

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