

## The Brazilian Journal of Epidemiology: 18 years of contributing to knowledge dissemination

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**Abstract** *The Revista Brasileira de Epidemiologia (RBE - Brazilian Journal of Epidemiology) is completing 18 years as a vehicle for the dissemination of knowledge in the area of health. This knowledge relates to theoretical perspectives, the analysis of the reality of existing health conditions, as well as practices within health services. Fitting within all the disciplines of the field of public health, the origins of this journal, and the concepts that it covers, reflect movements within the health sector and also shadow the areas of operation proposed in the “Master Plans for the Development of Epidemiology in Brazil”. Over time, there has been increasing demand for the publication of articles within the journal, a fact that has favored its growing impact factor. The RBE adopted an editorial policy designed to disseminate its production in a bilingual form in order to attain greater international visibility and to meet the needs of both researchers and professionals in the field. Like all Brazilian scientific journals, it has suffered from the absence of national scientific and technological policies designed to provide more effective assistance in ensuring its sustainability. Looking towards the future, it is hoped that the RBE will achieve even greater impact within academia, in relation to health service professionals, and, not least, that it will achieve a high impact within society at large.*

**Key words** *Epidemiology, Scientific production, Editorial policy, Scientific policy, Public health*

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## Introduction

The idea to launch the *Revista Brasileira de Epidemiologia* (RBE - Brazilian Journal of Epidemiology) in the 1990s was rooted in the development, growth and consolidation of the disciplinary field in Brazil. It represented the fruit of a remarkable trajectory for Brazilian epidemiology, especially from the 1970s onwards, when it became jointly incorporated into the movement of the constitution of public health in Brazil.

In 1984, when the *Associação Brasileira de Saúde Coletiva* (Abrasco - Brazilian Association of Public Health) - at that time known as the Brazilian Association of Postgraduate Studies in Public Health - established an Epidemiology Commission, it represented one of the first steps towards systematizing the ongoing wide-ranging discussions which were mobilizing the community of researchers, teachers and health service professionals in the production and application of knowledge in the field. The Commission was also founded with the intention of being an important forum for the proposal and development of policies aimed at the sustainable development of the discipline, with the central guideline being an inseparable connection with the other disciplines that comprise the area of modern public health. The Commission was composed, as ever, by community health workers, whose overriding interest was centered on epidemiological studies, organized in such a way as to ensure the coverage of trends and views within the field.

As an advisory commission of the successive boards of Abrasco, from which it always received support for its initiatives, over a period of thirty years the Commission has organized events, conducted technical and scientific meetings, and promoted exchanges between Brazilian and foreign groups. All these activities led to the development of a discipline in full coordination with the wider area of public health, in a process that was coordinated by Abrasco. It is notable that a constant and profound debate has been maintained regarding the role of epidemiology in the production of knowledge committed to the reality of Brazilian conditions, and there has been a continuous review of its role in the activities carried out by health services.

The Abrasco Epidemiology Commission had an important role in the creation and establishment of the *Centro Nacional de Epidemiologia* (CENEPI - the National Epidemiology Center), through mobilization of a critical mass of epidemiologists and also influenced public health

services. This had been a long-standing demand of the community, and today it has become the successful *Secretaria de Vigilância em Saúde do Ministério da Saúde* (SVS - Department of Health Surveillance of the Ministry of Health), which has opened up broad perspectives regarding joint work between academia and health services.

Favored by its close relationship with the Pan American Health Organization (PAHO), Brazilian epidemiology has been able to follow and benefit from movements that it has initiated and it has strengthened epidemiology in the Americas, which was evidenced by the dissemination and wide distribution of the compendium entitled "The Challenge of Epidemiology - issues and selected readings"<sup>1</sup>. This compendium, especially its Spanish version, was one of the examples of the efforts that PAHO technicians used to spread epidemiological knowledge in the Americas, and it expressed the need to publicize and disseminate the production within this disciplinary field. Furthermore, it should be noted that PAHO, together with the Epidemiology Commission and the Brazilian Ministry of Health, was a key element in supporting and financing the First Brazilian Congress of Epidemiology, which was held in 1990 on the campus of Unicamp, in Campinas.

This, in summary, was the scenario within the field of epidemiology. As previously stated, it was within this fertile soil that Brazilian epidemiologists sought to use epidemiological methodology in the construction of knowledge to contribute to a better understanding of the reality of Brazilian sanitary conditions. This knowledge, together with the products of other areas of public health, could provide elements for the solution to public health problems. Arising from various initiatives, a movement came together to define strategies and actions to ensure the sustainability of the harmonious development of the discipline. Thus, as a reflection of this increased effort, in a meeting concerning "Strategies for the Development of Epidemiology in Brazil" held in Itaparica (Bahia) in 1989, the "Master Plan for the Development of Epidemiology in Brazil" was drawn up<sup>2</sup>. It was within this plan, and the five-year plans that followed, that conceptual bases were devised to create a specific tool for the dissemination of scientific and technical production in epidemiology, which was to be the Brazilian Journal of Epidemiology, the object of analysis in this section of the chapter.

The aforementioned master plan reveals a concern to ensure the dissemination of the knowledge produced by epidemiologists in both the academic field and the area of health services.

The plan set out three major areas for attention, namely, “human resources”, “research” and “health care practices”; for each of these areas it was stressed that the community needed to have additional instruments to those that existed for the dissemination and distribution of the products of the relevant actors. For example, in the area of human resources training the following action was proposed: “to set up permanent vehicles nationwide ... for the dissemination of information related to the level of health services”. Similarly in relation to the area of epidemiologic research, the plan highlighted a: “review of the editorial program of Abrasco”, such as “creating a community health journal.” In the area of health service practices the plan mentioned the intention to “create tools for communication, reports, newsletters, journals”. These definitions were repeated in plans that followed and the response to these demands included the creation of the RBE, which came to complement, in a cooperative and complementary manner, its sister journals in the area of public health.

### Evolution of the RBE

During this whole period, the RBE had (and still has) an editorial policy with a mission to publish articles of free demand of the area: 99.5% of published articles are of this nature. Throughout its history, the RBE has published supplements designed to discuss theoretical issues, such as the role of epidemiology in the establishment of the *Sistema Único de Saúde* (SUS – the Brazilian Unified Health System), or methodologies based around presentations made at seminars on *Population Surveys* sponsored by Abrasco’s Epidemiology Commission. Other supplements have presented the results of large national studies such as *Vigilância de Fatores de Risco e Proteção para Doenças Crônicas por Inquérito Telefônico* (VIGITEL – Surveillance of Risk and Protective Factors for Chronic Diseases through Telephone Enquiries; and the *Pesquisa Nacional de Saúde do Escolar* (PENSE - National Research on Health in Schools). Another supplement with analysis of data from the *Pesquisa Nacional de Saúde* (PNS - National Health Survey) will be published in 2015. In addition, at least two Brazilian Congresses of Epidemiology have had their transcripts published on magnetic media as a supplement to the RBE.

In recent years Brazilian science has had a greater profile on the international stage and

Brazil is now ranked fifteenth worldwide<sup>3</sup>. The RBE accompanied the growth of Brazilian science, and in particular the growth of the public health area. The latter is ranked in eighth position worldwide<sup>4</sup> and Brazilian epidemiology falls within this sector.

The biggest challenge for Brazilian scientific journals is to maintain regularity and continuity of publication. Over time, the RBE was able to meet this challenge and after a difficult initial period, which involved overcoming difficulties with great sacrifice, it was indexed in several databases such as Lilacs in 2000. The next steps were its indexing in the SciELO database in 2005, Scopus in 2007, and Medline/Pubmed in 2010.

The indexing of the RBE in SciELO (Scientific Electronic Library Online), as well as in other databases, allows free access to all and its articles include versions in Portuguese, Spanish and English in order to meet the needs of the communities of researchers and health care professionals, as well as the general population of Latin America, the Caribbean and Africa, in particular.

Indexing and the free electronic availability of RBE articles in the SciELO system forms part of the RBE’s editorial policy of giving society, and the scientific community and health professionals in particular, free access to its production. The indexing of the RBE in different databases has resulted in greater visibility for its articles, as shown by a 92% growth in the number of articles accessed via SciELO, which totalled 482,724 in 2014<sup>5</sup>. The increased visibility of the RBE has also resulted in a 338% rise in the number of manuscripts submitted to the journal for publication during the period 2006-2014.

Given the importance of increasing the international visibility of the scientific production disseminated by the RBE, various measures have been adopted. Initially, all articles published in Portuguese or Spanish had to be accompanied by an “extended summary” in English. This stipulation was recognized as being unworkable and it was quickly abandoned.

The inclusion of the RBE in the PubMed system also contributed to its increased international visibility, as reflected in the growth in the number of accesses to articles in English (Table 1)<sup>6-10</sup>.

In terms of the ways in which scientific knowledge is produced and disseminated in society, the evaluation of the impact factor of scientific journals is a controversial subject. However, although this indicator has its limitations, over time the RBE has shown an increase in its impact factor measured by SciELO, both in terms of the

SciELO Brasil collection and the SciELO public health collection (Table 2)<sup>11,12</sup>.

The impact factor of SciELO indicators follows that of other journals in the public health field (*Cadernos de Saúde Pública*, *Revista de Saúde Pública* and *Ciência e Saúde Coletiva*). It is noteworthy that the areas of epidemiology and public health in Brazil are differentiated from the basic sciences, where the impact factor for scientific production disseminated by journals such as *Nature* and *Science* is almost immediate. However, production in epidemiology has a much longer half life and published articles take longer to be cited.

Regarding the SciELO Public Health Collection, Brazilian journals in this area stand out from the journals of other countries with journals indexed on this basis. Considering its impact factor, the RBE stands in third place (Table 3)<sup>13-28</sup>.

The citations received for articles published in the RBE in the Collection SciELO Brasil are mostly from public health journals (35%), showing that there is a strong exchange between journals in this field (Table 4). The RBE differs from the leading journals in the area of public health. While the other journals feature more diverse thematic material, including epidemiology, the RBE also publishes a wide range of thematic material, but with a focus on epidemiological studies. The other areas that provide citations for the RBE are those where there is a strong incorporation of epidemiological techniques in their studies, such as the fields of nutrition, infectious diseases and paediatrics<sup>29</sup>.

There is an increase in the visibility of RBE production as registered by the Scientific Journal Ranking (SJR) - SCImago which also shows a good level of citations per published citations (Graph 1). RBE is also currently among the top 20 most cited Brazilian journals<sup>30</sup>.

Another important source to assess the impact of a journal is the Google Scholar system, which takes into account the citations received for journals in other scientific journals and refer-

ence sources such as theses and dissertations. In Google Scholar, public health journals are locat-

**Table 2.** RBE Impact factor on three years basis - SciELO Brasil Collection and the SciELO Public Health Collection, 2005-2013.

Year	SciELO Brazil	SciELO Public Health
2005	0.2308	0.1346
2006	0.3894	0.2035
2007	0.6198	0.3388
2008	0.7518	0.4043
2009	0.7849	0.3837
2010	0.8281	0.3854
2011	0.9694	0.5459
2012	0.7783	0.3842
2013	0.7738	0.4208

Source: SciELO<sup>11,12</sup>.

**Table 3.** Journals Impact factor on three years basis of SciELO Public Health Collection, 2013.

Journal	Impact factor
Revista de Saúde Pública	0.5405
Cadernos de Saúde Pública	0.4547
Revista brasileira de epidemiologia	0.4208
Gaceta Sanitaria	0.3992
Salud Colectiva	0.3333
Salud Pública de Mexico	0.2955
Revista Cubana de Salud Publica	0.2571
Revista Peruana de Medicina Experimental y S. Publica	0.2374
Bulletin of the World Health Organization	0.2131
Revista Española de Salud Publica	0.1939
Revista Panamericana de Salud Publica	0.1794
Interface - Comunicação, Saúde, Educação	0.1454
Ciência & Saúde Coletiva	0.1365
Annali dell'Istituto Superiore di Sanità	0.0727
Revista de Salud Publica	0.0683
Medicc review	-

Source: SciELO Public Health<sup>13-28</sup>.

**Table 1.** RBE – article requests by language, 2010-2014.

Language	2010	2011	2012	2013	2014	Variation 2014/2010
English	27.062	17.669	35.707	38.200	60.688	124,3
Spanish	10.657	7.228	9.724	11.691	15.263	43,2
Portuguese	396.625	294.973	422.799	392.525	405.867	2,3

Source: SciELO<sup>6-10</sup>.

ed among the first positions in terms of Brazilian journals, which demonstrate the importance of those journals in the field of Brazilian scientific

production. The RBE is also among the top twenty journals with the best evaluation, with a H5 index of 20<sup>31</sup>.

In recent times, the internationalization of Brazilian science has constituted one of the main objectives of policies related to science, technology and innovation in Brazil. In this sense, the RBE has sought to expand its international visibility. It began to publish full articles in Portuguese and English, initially with the cost of translation borne by the authors, and from 2014 this cost was met by the RBE. This initiative was intended to homogenize the quality of translation and to increase the RBE's visibility; all published articles being bilingual.

The editorial decision to keep articles published in both Portuguese and English is intended to increase international visibility for the RBE and also to continue the journal's editorial mission to maintain an interchange with Brazilian health services. This editorial policy is fairly recent and it is therefore difficult to assess its impact this far.

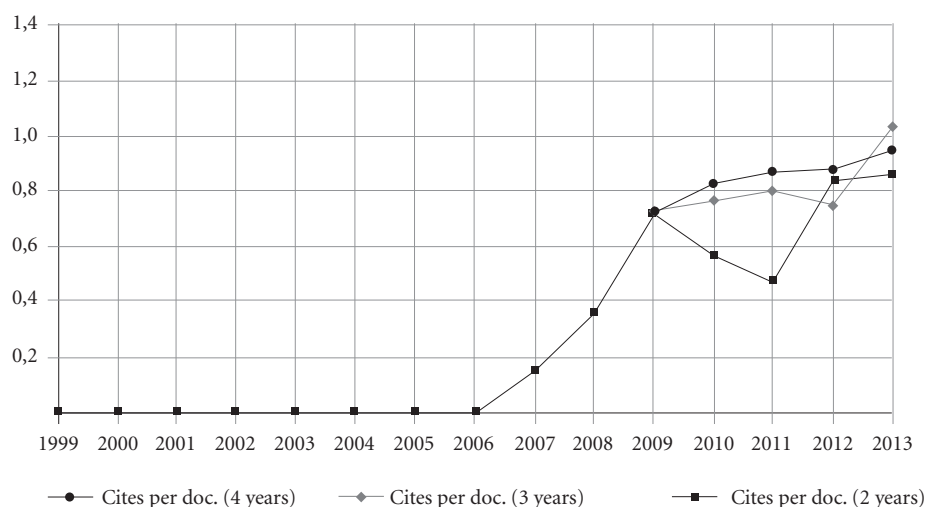
Regarding the issue of internationalization, the international journals which provide RBE citations are mainly originate from Latin American countries, especially Chile, Colombia, Argentina and Cuba<sup>32</sup>. According to data from Scopus, in 2006 the RBE was placed in the fourth quartile of international epidemiological journals and in 2009 it had moved into the third quartile<sup>30</sup>.

The thematic definition of articles is not a trivial matter because, despite the fact that ar-

**Table 4.** Main journals that cite articles from the RBE, according to SciELO Brazil Collection, 2013.

Journals	Received citations	
	N	%
Cadernos de Saúde Pública	104	15,7
Ciência & Saúde Coletiva	67	10,1
Revista de Saúde Pública	61	9,2
Revista Brasileira de Epidemiologia	51	7,7
Cadernos de Saúde Coletiva	18	2,7
Revista Brasileira de Cineantropometria & Desempenho Humano	16	2,4
Revista de Nutrição	16	2,4
Revista da Sociedade Brasileira de Medicina Tropical	15	2,3
Revista da Associação Médica Brasileira	12	1,8
Revista Latino-Americana de Enfermagem	11	1,7
Revista Panamericana de Salud Pública	11	1,7
Revista Paulista de Pediatria	11	1,7
Revista Brasileira de Enfermagem	10	1,5
Revista Brasileira de Geriatria e Gerontologia	10	1,5
Revista Brasileira de Ginecologia e Obstetria	10	1,5
Outros	240	36,2
Total	663	100

Source: SciELO<sup>29</sup>.



**Graph 1.** RBE Citations received from the Scopus system.



ticles address a specific theme, frequently their main focus is the method that was adopted. This implies that the classification adopted may be inaccurate. The following section will address the topics covered in the RBE and highlight the profile of the published articles.

The commitments that were present at the creation of the RBE with the Brazilian health conditions are still upheld to this day, and the characteristics of Brazilian epidemiology, where there is a strong interchange between the academic environment and the health services, is reflected in the scientific articles disseminated by the RBE and also through the broad subject matter that the journal covers.

The type of topics addressed by the articles disseminated by the RBE was modified over time. In the initial period of the journal (1998-2004) epidemiological studies about nutrition and infectious and parasitic diseases accounted for about almost 44% of the articles. In the following years, the themes of the articles became broader in scope. The two aforementioned topics continued to account for a significant part of the articles (30%) but there were also an increasing number of articles about issues related to chronic diseases. However, these two areas (nutrition and infectious and parasitic diseases) accounted for over 30% of the articles. There was also an increase in

the number of articles about lifestyles (physical activity, alcohol and tobacco consumption, lack of physical inactivity, etc.), which are issues that form part of the epidemiology of chronic diseases. As might be expected in an epidemiology journal, methodological articles always accounted for nearly 10% of published articles (Table 5).

To better understand this scenario, the large numbers of articles related to nutrition in the RBE are due to the competence of this field in Brazil and the growing importance of epidemiological studies. It is also linked to the absence of a Brazilian journal with high impact factor in this area. It is also worth noting that the profile of published articles reflects the nutritional transition in Brazil, the texts are predominantly related to obesity, quality of diet and methodology.

Regarding the articles that deal with infectious and parasitic diseases, they mainly address emerging diseases such as AIDS or hepatitis B. Re-emerging diseases, which have been of great importance in the epidemiological profile of the population, such as dengue, are also part of this group, as well as articles about infectious diseases that still persist in Brazil such as tuberculosis and leprosy. Continuing with the issue of the topics addressed by the RBE, the journal contains articles which evaluate epidemiological aspects of the health services that characterize Brazilian epidemiology.

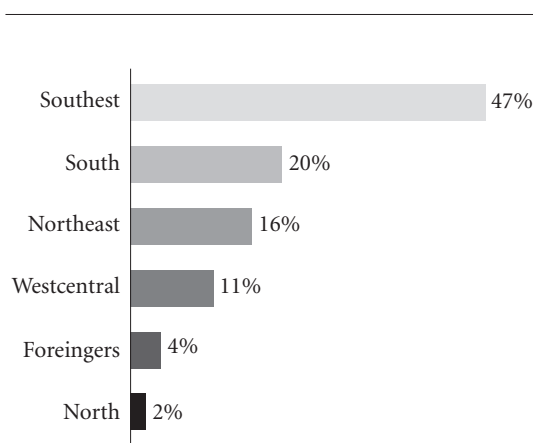
**Table 5.** Topics of the articles published in the RBE 1998-2014.

Topic	1998-2004		2005-2009		2010-2014		Total	
	N	%	N	%	N	%	N	%
Nutrition	35	22,9	21	15,3	85	10	141	16,6
Infectious and parasitic diseases	33	21,6	30	21,9	66	7,8	129	15,2
Chronic Diseases	12	7,8	8	5,8	72	8,5	92	10,9
Oral Health	6	3,9	7	5,1	23	2,7	36	4,3
Mental Health	1	0,7	1	0,7	14	1,7	16	1,9
Violence	6	3,9	5	3,6	37	4,4	48	5,7
Occupational Health	3	2	10	7,3	24	2,8	37	4,4
Methods	15	9,8	12	8,8	63	7,4	90	10,6
Women and child Health	11	7,2	8	5,8	31	3,7	50	5,9
Environmental Health	8	5,2	4	2,9	8	0,9	20	2,4
Elderly Health	3	2	10	7,3	18	2,1	31	3,7
Health services	4	2,6	4	2,9	29	3,4	37	4,4
Medicines	0	0	6	4,4	14	1,7	20	2,4
Behavior	2	1,3	4	2,9	46	5,4	52	6,1
Indigenous Health	0	0	2	1,5	6	0,7	8	0,9
Inequalities	1	0,7	2	1,5	11	1,3	14	1,7
Others	13	8,5	3	2,2	10	1,2	26	3,1
Total	153	100	137	100	557	100	847	100

Source: RBE.

Finally, in order to better portray the nature of the RBE, it is necessary to know something about the origins of the authors of the articles it publishes (Graph 2).

The regional distribution of authors followed the regional distribution of investments in scholarships and grants from the CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico- Brazilian National Council for Science and Technology). The southeast region accounted for 54%, the south 17%, the northeast 16%, the midwest 10%, and the north 3%<sup>33</sup>. The data also shows that the RBE included about 4% of foreign authors in its publications, which were predominantly from Latin America, but there were also contributions from authors from Australia, Spain, Portugal, England and the USA. Using data from Scopus, which considers all authors, international collaboration within the RBE was about 10% in 2013<sup>30</sup>.



**Graph 2.** Distribution of the authors of articles published in the RBE according to origin, 2010-2014.

Source: RBE.

In order to improve its editorial work, in 2015 the RBE will reformulate its editorial committee, recognizing its key workers and adopting editorials according to the main published topics.

It is worth mentioning that one of the main difficulties facing the RBE, and this is a problem common to all journals in the area of public health in Brazil, is the issue of financing its publishing activities. The funding from the CNPq publishing program is limited and does not even cover the costs of editing one issue. Over the past few years the RBE has enjoyed the support of the Department of Health Surveillance of the Ministry of Health, which has supported its activities and helped to make possible the adoption of the policy of bilingual publication of articles. The editors of the RBE emphasize the need to implement an STI policy in order to foster the development of Brazilian journals.

The future prospects for the RBE are based on financial sustainability, which is a challenge that is common to the sector of science and technology sector in health. Consequently, it is intended to monitor the development of the newly-created Public Health Journal Forum to find permanent solutions regarding support for editorial policies in Brazilian publications. Equally importantly, it is intended to follow up on invitations to publish articles of good technical and scientific quality (assessed, as always by peer reviewers) from Brazilian and foreign researchers. It is hoped that by maintaining an independent editorial policy, process of selection, and evaluation of articles submitted to the journal, the RBE can achieve greater visibility/impact in relation to academia and health service professionals, and also have a high impact in society in general.

## Collaborations

MF Almeida, M Goldbaum and JR Carvalheiro participated equally in all stages of preparation of the article.

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