

# Health research in Brazil: challenges to be faced

## *A pesquisa em saúde no Brasil: desafios a enfrentar*

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DOI: 10.1590/0103-11042019S511

**ABSTRACT** The essay presents reflections on how much research and development are capable of promoting a virtuous cycle in universal health systems, such as the Brazilian Unified Health System (SUS), endowing them with science for decision making and innovative proposals, when considering the opinions of its users. Based on the demands for ‘research’ presented in the final report of the VIII National Health Conference, it presents the current scenario of research in Brazil, with emphasis on insufficient funding and the gap between scientific production and health practices. It concludes by presenting the challenges that health researchers must translate to include Brazilians, their realities and capacities in the promotion of change and innovation for the SUS in the reduction of social inequalities, departing from debates on the future of universal systems.

**KEYWORDS** Research and development. Social participation. Unified Health System.

**RESUMO** O ensaio apresenta reflexões sobre o quanto a pesquisa e o desenvolvimento são capazes de promover um ciclo virtuoso nos sistemas universais de saúde, como o Sistema Único de Saúde (SUS), dotando-os de ciência para a tomada de decisão e de propostas inovadoras, quando consideradas as opiniões de seus usuários. A partir das demandas por ‘pesquisa’ expostas no relatório final da VIII Conferência Nacional de Saúde, apresenta o cenário atual da pesquisa no Brasil, com ênfase na insuficiência do financiamento e na lacuna entre a produção científica e as práticas em saúde. Conclui apresentando os desafios que devem ser transpostos pelos pesquisadores em saúde para inserir os brasileiros, suas realidades e capacidades na geração de mudança e inovação para o SUS, na redução de desigualdades sociais, a partir de debates sobre o futuro dos sistemas universais.

**PALAVRAS-CHAVE** Pesquisa e desenvolvimento. Participação social. Sistema Único de Saúde.

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## Introduction

Brazil is a country of continental dimensions, marked by social and economic inequalities and significant regional disparities. It has, by its constitutional definition, a decentralized universal public health system down to the municipal level, which can be considered a peculiar feature and additional difficulty, since there is a lack of scale required for the operation of some public services, notably those of health, in a country where 70% of its 5.570 municipalities have less than 20 thousand inhabitants<sup>1</sup>.

Coexisting with the public system there is a private system that covers about 25% of the population, especially the ones with the best income levels and which is concentrated mainly in the South and Southeast regions<sup>2</sup>. Therefore, the majority of the population has no access to health care except the one by the public sector. This one, despite unresolved chronic underfunding, regardless of succeeding governments over time, have been able to provide objective improvements in population health indicators, as attested by numerous national and international publications<sup>3-8</sup>.

In such environment, as is logical to deduce, health research must unfold into multiple approaches in attempt to provide answers and action paths to allow advanced development. The themes studied in Brazil do not differ much from those we have seen in other countries<sup>9-13</sup>: the social determinants of health, including poverty and inequalities; access and accessibility to health services; the way health care is organized, especially primary health care; new technologies and their cost-effectiveness; health system costs and financing; the pursuit of hospital management efficiency; the problem of the health workforce, which includes vocational training, the sufficiency of the workforce and its distribution in the territory, among others.

The undeniable importance of the

cultural dimension of health<sup>14</sup> is associated with other elements that make the consideration of historical, political, economic and social context fundamental to any attempts to understand health needs, the 'why' of things, its strengths, its weaknesses and the opportunities that rises or not during the course of the research and the performance of the researcher.

This essay presents reflections on the importance of taking into account the patient's opinions, their health needs and expectations as citizens before its health system. It also points out the often existing gap between scientific production and practices in health and, finally, discusses the challenges to research today.

## Research and the VIII National Health Conference

Understanding certain elements requires returning to their origins. In this sense, understanding the execution of health research requires revisiting the VIII National Health Conference (VIII CNS), held in 1986 and which gave rise to the Unified Health System (SUS) in Brazil.

As it can be read in the VIII CNS final report, the claims about scientific research indicated: i) strategic potential; ii) competence of the federal agency; iii) broad discussion about the research lines; iv) guidance towards the resolution of health problems:

It will remain within the scope of the new federal agency the national reference services, and the services and activities considered strategic for the development of the health system, such as: research bodies, immunobiological production, medicine and equipment. The lines of research developed in the health areas should be widely discussed among service research institutions and universities aiming at a more productive and relevant direction in solving the health problems of the country<sup>15</sup>.

Obviously, the importance given to the research also required locus of action and investments compatible with the objectives intended. These elements were also of concern to the VIII CNS:

In that sense, it is necessary to expand the scope of action and public investment in these strategic sectors, especially regarding to research, development and production of vaccines and serums for human use, as well as to deepen knowledge and use of alternative forms of health care<sup>15</sup>.

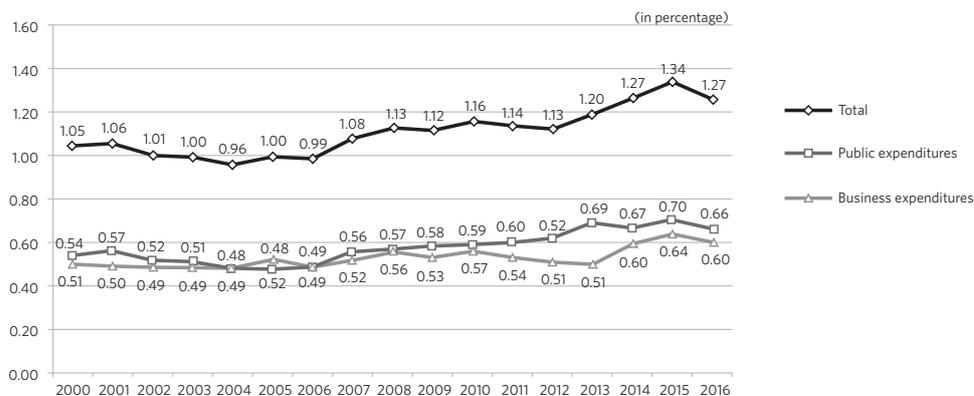
The state structure dedicated to health research is compatible with the VIII CNS claim. In the federal level, it reaches at least three ministries: i) Ministry of Health, through its Secretariat of Science, Technology and Strategic Inputs; ii) Ministry of Education, in the area of higher education, by the Coordination for the Improvement of Higher Education Personnel (Capes); and iii) Ministry of Science and Technology, through the National Council for Scientific and Technological Development (CNPq) and the Financier of Studies and Projects (Finep).

In state public management, various

institutions are also involved, such as: i) the state health departments themselves; ii) those denominations of science and technology or that worth it; iii) public and/or government health schools; and iv) research support foundations, structural framework that repeats itself in large municipalities. The productive sectors of health-related areas, both public and private; the universities; the institutes; the scientific community; national and international collaborators are also included.

However, considering the investments in research, the news are not encouraging. *Graph 1*, which deals with research investments in general, shows that the average public investment in research and development in Brazil between 2000 and 2016, was 0.55% of Gross Domestic Product (GDP), while the lowest percentage was 0.48%; and the largest 0.70%. Taking total values, that is, public and private investments, the investment was around 1.11% of GDP, with the lowest percentage being 0.96%; and the largest, 1.34%. It can also be noted that public investment was, over the years, the one that represented the largest financial contribution in the sector<sup>16</sup>.

Graph 1. National expenditure on Research and Development (R&D) in relation to Gross Domestic Product (GDP) by sector, 2000-2016



Source: Brazil. Federal Government. Graphic elaborated by MCTIC, 2016<sup>16</sup>.

The VIII CNS's plea for 'broad discussion of lines of research' and 'direction for solving the health problem' requires further detail in the following approach.

### Healthcare offerings and user interests

In general, health services are structured by academic knowledge and management guidelines, which not often entails a measure of arrogance by assuming that people who use them are unable to contribute to their improvement through criticism or opinions.

It is logical that, citizens who democratically built a universal health system participate in monitoring, evaluating and decision-making. In this sense, SUS has governance that articulates managers with each other and with workers, users and providers; therefore, it is a groundbreaking model that considers inter-managers committees and councils. Moreover, SUS is a producer and a consumer in an economic development chain.

Such elements make the Brazilian universal system a great object of study, learning and solutions formulation, either for itself or for others. Here fits the lesson of Roy<sup>17(18)</sup>:

The health system able to learn from itself is, therefore, the perspective by which research and care meet each other, in which we learn from what we do, from the problems we face, from the solutions we develop, every day.

To properly evaluate and decide, the pure and simple satisfaction of health needs, expressed exclusively in indicators and evidence, is not enough. This kind of evaluation and decision-making has already been criticized. It is also necessary to consider, on the one hand, the quality of services perceived by those who use them and the satisfaction of citizens' expectations regarding the system and health services<sup>16</sup>. The association between service quality and satisfaction of expectations takes into account scientific,

contextual, real knowledge and financial measurement by the achievement of a result, and not only by isolated acts<sup>17</sup>.

The researcher must be seduced by the opinion of the user, especially in the condition of patient, their health needs and their interests as a subject endowed with citizenship rights<sup>18</sup>.

A health system must be understood as the result of a collective construction, the result of a choice of society, which bears the costs of its operation through the payment of taxes<sup>19</sup>. Thus, it is more than desirable and necessary for citizen participation to be ensured in the larger decisions of health systems and in the organization of its services. What is seen worldwide, unfortunately, is a progressive retraction of spaces for social participation, with rare exceptions<sup>9,11</sup>.

Nevertheless, only databases capable of reflecting care delivery duly associated with the contexts and expectations stated by users will be able, through research, to identify innovative possibilities for improvement, foster uninterrupted learning cycles and promote positive change of the State's action, keeping the universal systems alive, pulsating and socially assumed.

In order to be compatible with what occurs in the field of public health management and operations, the research world also needs to be aware of this dimension of centrality over citizens.

For the most part, studies aim to satisfy governmental or institutional interests. The interests of the citizen are also object of study, but much less emphatically and without having on them the search for the solutions of problems. It is possible to exemplify the previous statement.

First, a study by Ocloo and Matthews<sup>20</sup>, in 2016, states that:

Current models are too narrow and only a few organizations mention empowerment or address equality and diversity in their citizen engagement strategies. These aspects of

participation should receive greater attention, as should the adoption of models that enable power and decision-making to be shared more equitably with patients and the public in the design, planning and co-production of health services' health<sup>20(626)</sup>.

Another study, jointly conducted by Brazilians and Italians<sup>21</sup>, addresses the potentialities and challenges of citizen participation in collegiate bodies of the health systems in both countries and concludes that there are difficulties, both in terms of the representativeness of collegiate bodies as the capacity of citizens' spokespersons to exert their influence on the decision-making processes of leaders. The authors conclude with the following question:

In other words, are we facing self-referential health systems that are still unable to cope with their social environments, or against a still weak and disorganized civil society, which until now has failed to express adequate forms of social protagonism and participation, to take advantage of the small gaps provided by health systems? Perhaps both hypotheses are correct. How to explain, otherwise, the insensitivity of management to some proposals for improving the quality of care that do not involve large financial investments or radical reorganizations of the health system?<sup>21(2419)</sup>.

In the field of patient safety, things are no different. A Finnish study from 2016<sup>22</sup> asserts that:

Patient participation in their safety is still insufficient in clinical practice, and systematic action is required to create a safety culture in which patients are considered as equal partners in promoting safe and high quality care<sup>22(461)</sup>.

It is also worth mentioning a Brazilian study on access, educational practice and empowerment of patients with chronic diseases<sup>23</sup>, which concludes:

Users points to the existence of some geographical barriers in access to health generating fatigue and lack of stimulation, and causing low continuity of treatment. It was observed that the adherence and the practice of care are closely linked to differential care, based on trust and respect for expectations of users. They consider guidance and health education as key elements to encourage self-care practice. It becomes necessary to restructure the conduct of professionals inserted in the Family Health Strategy, since it has the function of health promotion, in an intersectoral and interdisciplinary logic<sup>23(2923)</sup>.

It would be correct to state that the accumulation of evidence already produced is sufficient to leverage greater degree of development in the health level of populations. It is true that some countries have made more progress than others, but generally in the field of science there is much mismanaged teachings and knowledge; In the field of evidences, data are still underused; In the care field, experiences are poorly captured or used, especially when it refers to the user. Thus, the gap between knowledge and action needs to be filled<sup>24</sup>.

### **The gap between 'knowing' and 'doing'**

It is necessary to understand the ways in which it is possible to integrate scientific evidence into daily practice, making it applicable, resolute and more attractive. This scenario involves understanding and responding to the different interests of all parties involved.

Academic research, sometimes focused solely on the satisfaction of the personal interests of the researcher, finds no resonance among health professionals and users because, to a large extent, it does not dialogue with their interests and needs. Furthermore, it is important to note that

the relationships between health and culture are of such importance that often valid evidence for one population cannot be automatically applied to others.

Systems need to learn from themselves. Learning is based both on the quest for a solution to a problem denoted by practices and the performance of the health system<sup>25</sup>. However, the mobilization of knowledge for the search for solutions must go through the users, holders of the real context.

Roy teaches that after identifying the problem, its causes, and the innovative solution, the challenge is to move from ‘a successful pilot project’ to ‘system level’:

The third step is to move from this knowledge to the problem, its causes, and innovative solutions to increase overall system performance. This is one of the key contemporaneous challenges for public health systems: moving from a successful pilot project to a successful system-level scaling<sup>17(28)</sup>.

This is the gap that needs to be overcome. However, this challenge requires that there be theoretical input, compatible projects and funding, and there will be no innovative solutions if the same actions are taken. The research field must be able to promote change, mobilize new knowledge, propose solutions and consequently positive change of needs.

## Health research trends

It is indispensable to improve the ‘request’ of scientific studies, always looking to search the implication of professionals and users, listening to their interests and needs. This will only be possible when it is assumed that managers, health professionals and citizens needs to interact synergistically. It is necessary to build spaces for dialogue and communication so that the research can seek answers that satisfy everyone’s questions, taking into account the cultural diversity and the particularities involved.

Research also needs to tighten its links with novelties that seek to bring the aforementioned dimensions on the highlights; it needs to contribute to health systems that seek to learn from their own experiences and from those of other systems, both in their mistakes and their successes; it needs to interest itself in finding out the best ways of listening to people and drawing lessons and new directions for them, as well as contributing to the strengthening of the discussion and decision-making spaces of society regarding their health system. It should, furthermore, turn to the study of the new roles played by health professions, to the use of new technologies that contributes to greater patient autonomy and their greater participation in the directions, strategies and organization of health systems and health services.

A text published by the journal of the European Observatory on Health Systems and Policies<sup>26</sup> matters:

The Ministry of Health in Wales has introduced prudent health policy in order to transform service delivery through empowering people through better health knowledge and patient involvement in clinical decision-making, self-management and in care planning. Prudent healthcare seeks to minimize interventions and maximize their effectiveness. The policy puts people at the center of decision-making, working in partnership with patients to co-produce an action plan with shared responsibilities. Particular attention has been given to the implications for health personnel related to the first ground of ‘talking about centrality over people’<sup>26(30)</sup>.

Finally, it must study the real benefits of public-private relations in health area, not only in terms of managerial gains, but in objective benefits in terms of quality of care and user satisfaction.

## Expectations and Brazilian scenario for scientific research

Despite the fact that research and development is a strategic sector and the demands are evident, Brazil ranks only 13th in the publication of scientific articles, ahead of the Latin American countries, and with the impact of the quote below, but growing, all according to data from ‘Research in Brazil’<sup>27</sup>.

The aforementioned report indicates that the Brazilian publications curve is upward, led by the following institutions: University of São Paulo (USP), Paulista State University (Unesp), State University of Campinas (Unicamp), Federal University of Rio de Janeiro (UFRJ) and Federal University of Rio Grande do Sul (UFRGS), which reiterates the aforementioned regional inequalities<sup>27</sup>.

The main areas of publication are: medicine; agricultural and biological sciences; biochemistry, genetics and molecular biology; physics and astronomy; chemical industry, which reflects the industrial interests in the Country or even, because the Brazilians are working with more international partners, which reflects the global interest of capital.

It is worth mentioning that, from 2010 to 2017, the national research obtained relative budget increase and executed a visibility program called ‘Science without Borders’, which allowed more than 90 thousand students (undergraduate and postgraduate) to come to relevant foreign universities. Currently, while South Korea and Israel invest more than 4% of their GDP in research, Europe applies about 3%; the United States applies about 2%; and Brazil, only 1% in rounded calculation<sup>27</sup>.

In an attempt to solve or to minimize logistical difficulties, as well as to change inputs, structures, equipment, public-private relations, imports, among others, the legislative amendment of the so-called Innovation Law occurred (Law n° 10.973, of December 2, 2004) by Law n° 13.243 of January 11, 2016 and also

by Constitutional Amendment n° 85/2015, on which criticism of the relativization of the protection of the internal market is in force.

The validity of Constitutional Amendment n° 95, of 2016, known as the ‘Expenditure Ceiling Amendment’, paralyzes the increase in public spending during two decades and has caused increasing contingencies, perhaps cuts, in the financial amounts to be spent by the Union, both to the health sector as for the others.

The years 2018, since August, and 2019, since March, were marked by Capes’ warnings about the budgetary and financial insufficiency to cover the expenses of Brazilian researchers’ scholarships during the respective fiscal years. These scholarships have historically unattractive values, and today the situation is even more alarming: undergraduate (R\$ 830 monthly), master (R\$ 1,5 thousand monthly) and doctorate (R\$ 2,2 thousand monthly), on which no labor rights are present<sup>28,29</sup>.

The Brazilian Society for the Advancement of Science (SBPC)<sup>28</sup> and the Brazilian Academy of Sciences (ABC)<sup>30</sup> have positioned themselves on the risk of brain drain. On the ‘next day’ following the encouragement for young people to join scientific research, there was a major slowdown, especially financial, putting the future of national development at risk:

We have again observed a strong movement of brain drain. Both people abroad and unable to return, as well as researchers who are here and going outside to continue their research. This is what we need to avoid! (Roseli de Deus – Brazilian Society for the Progress of Science – SBPC)<sup>28</sup>.

In Brazil, economic authorities are mainly concerned with accounting, without proposing a national development agenda. It is no use just making cuts, it is necessary to have a clear idea of where you want to go. [...] It is important to start recomposing the budget for the area. This is urgent, even to give an optimistic signal to keep young researchers

in Brazil (Luiz Davidovich – from the Brazilian Academy of Sciences – ABC)<sup>30</sup>.

The general analysis indicates that, often, solutions to economic crises requires investment in the sector, rather than reduction, even less significantly and abruptly. They reiterate that ‘pre-salt oil exploration’, ‘increased soybean productivity’ and ‘rapid response to the Zika epidemic’ are the return to society of long-term investments in research and innovation.

There is a danger and risk of continuity solution in the Brazilian scientific production, mainly produced in postgraduate studies, which will impact the economy, health, agriculture and all sectors dependent on innovation.

Considering that Brazilian social inequality already contributes so that few have access to universities, it is consequently said that few have access to research and scientific production, as universities and research-related sectors are strongly turned to an elite, which is marked as an unfavorable differential to Brazil when compared to other continents.

## Final considerations

Some concerns comes up. First ones focus on the field of research and development. The current scenario denotes that the future is uncertain for researchers already inserted in the academic and knowledge production segment. Doubtful is also for those who, already undergraduate, will not have state support to engage in scientific academic development and who, because they need to work, can, somehow, affect the quality of research, minimally in its production time.

Another point of reflection is that Brazilian society has only recently been mobilizing to prevent transient reductions or permanent retraction in the field of research. However, there is not enough mobilization to promote

financial increase in research and development, whether in the public and/or private sphere, which gives the scenario a tone of hopelessness, keeping investments, for decades, close to 1% of GDP.

Another group of concerns, which will only be wiped out after the first concerns, research aimed at universal health systems, especially, SUS. To build a virtuous cycle between knowing, doing, and learning, results need to be measured in their various dimensions, not limited to general and funding data, but rather to the impacts of actions or actions health services and their ultimate benefits to users. In the long run, it is necessary to understand the yearnings of Brazilians, their contexts, their difficulties and, above all, their abilities in generating insights and strategies for change and innovation. More than that, research needs to act in favor of management qualification, but in order to hold all those involved in a universal health system capable of reshaping social structures in favor of reducing inequalities.

It is not a simple task, let alone an easy task. However, it is necessary to persist and go further. At the same time, the struggle for the vital financial increase in the health and research sector is necessary, as well as the guarantee of objective mechanisms so that citizens can have their health needs and expectations met, including activities linked to it. Regarding this, the differential may lie in the transformative power of the qualification of demand, in order to bring it closer to the needs of SUS users, making the scarce resources manage to make the Brazilian universal system develop in the most promising directions.

## Collaborators

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Received on 05/24/2019

Approved on 10/16/2019

Conflict of interests: non-existent

Financial support: non-existent