

# Quality of Primary Health Care in Brazil: advances, challenges and perspectives

## *Qualidade da Atenção Primária à Saúde no Brasil: avanços, desafios e perspectivas*

Luiz Augusto Facchini<sup>1</sup>, Elaine Tomasi<sup>2</sup>, Alitéia Santiago Dilélio<sup>3</sup>

DOI: 10.1590/0103-11042018S114

**ABSTRACT** The essay brings together advances, problems and proposals on the quality of Primary Health Care in Brazil, emphasizing the comprehensiveness of care, expressed in the completeness of health actions. Studies on access and quality of the Family Health Strategy (FHS) highlight advances in the expansion of population coverage and access of health actions, in the improvement of the structure of services, and provision of doctors. Structural problems persist, with emphasis on the availability of essential inputs and information and communication technologies. The organization and management of the services and of the professional practice of the teams suffer from a systemic problem of incompleteness of the offer of actions and health care, despite the references standards, guidelines, goals and protocols. We propose the universalization of FHS in Brazil with guarantees of investments in the structure of the services, complete team with doctors, nurses, dentists, nursing technicians and Community Health Agents with full dedication. Programs of continuous education, institutionalization of monitoring and evaluation practices in local teams and the accomplishment of ‘quality collective efforts’ stimulate the systemic improvement of the FHS in Brazil, contributing to the reduction of health inequalities.

**KEYWORDS** Quality of health care. Primary Health Care. Family Health Strategy. Health policy. Health evaluation.

**RESUMO** O ensaio reúne avanços, problemas e propostas sobre a qualidade da Atenção Básica no Brasil, com ênfase na integralidade do cuidado, expressa na completude das ações de saúde. Estudos sobre acesso e qualidade da Estratégia Saúde da Família (ESF) evidenciam avanços na ampliação das coberturas da ESF e do acesso da população, na melhoria da estrutura dos serviços, na provisão de médicos e na cobertura de ações de saúde. Persistem problemas de estrutura, com destaque para a disponibilidade de insumos essenciais e de tecnologias de informação e comunicação. A organização e a gestão dos serviços e a prática profissional das equipes padecem de um problema sistêmico de incompletude da oferta de ações e de cuidados de saúde, apesar dos padrões de referência, diretrizes, metas e protocolos. Propõe-se a universalização do modelo de atenção da ESF no Brasil com garantias de aportes na estrutura dos serviços de equipes completas com médicos, enfermeiros, dentistas, técnicos de enfermagem e Agentes Comunitários de Saúde com dedicação integral. Programas de educação permanente, institucionalização de práticas

<sup>1</sup>Universidade Federal de Pelotas (UFPEL), Departamento de Medicina Social, Faculdade de Medicina e Programa de Pós-Graduação em Epidemiologia e Saúde da Família (Profsaúde) e Programa de Pós-Graduação em Enfermagem - Pelotas (RS), Brasil.  
Orcid: <https://orcid.org/0000-0002-5746-5170>  
[luizfacchini@gmail.com](mailto:luizfacchini@gmail.com)

<sup>2</sup>Universidade Federal de Pelotas (UFPEL), Departamento de Medicina Social, Faculdade de Medicina e Programa de Pós-Graduação em Epidemiologia e Saúde da Família (Profsaúde) - Pelotas (RS), Brasil.  
Orcid: <https://orcid.org/0000-0001-7328-6044>  
[tomasiet@gmail.com](mailto:tomasiet@gmail.com)

<sup>3</sup>Universidade Federal de Pelotas (UFPEL), Programa de Pós-Graduação em Enfermagem - Pelotas (RS), Brasil.  
Orcid: <https://orcid.org/0000-0001-6718-2038>  
[aliteia@gmail.com](mailto:aliteia@gmail.com)



*de monitoramento e avaliação em equipes locais e a realização de ‘mutirões de qualidade’ estimulam a melhoria sistêmica da qualidade da ESF no Brasil, contribuindo para a redução das desigualdades em saúde.*

**PALAVRAS-CHAVE** *Qualidade da assistência à saúde. Atenção Primária à Saúde. Estratégia Saúde da Família. Política de saúde. Avaliação em saúde.*

## Introduction

The growing interest in evaluating advances and gaps in Primary Health Care (PHC) in the last 30 years<sup>1-8</sup> has contributed to the development of the Unified Health System (SUS) and the Family Health Strategy (FHS), by producing evidence on the range of universality, comprehensiveness and equity. Using criteria and internationally recognized conceptual and methodological models<sup>4,6,8-12</sup>, evaluative research in Brazil has promoted knowledge about FHS, including approaches to the quality of health services. The definition of care quality is a complex and essential task for the evaluation of policies and interventions in PHC<sup>13</sup>. Researches of large scale on the quality of health services, often associated with policy-making<sup>14-16</sup>, still runs into difficulties, ranging from a lack of consensus on definitions, conceptual models and dimensions of analysis to the construction of indicators, standardization tools and comparison of results<sup>17-20</sup>.

Since the middle of the XX century, the quality of health care has mobilized academic interest in the United States and Europe<sup>21,22</sup>. In Brazil, the emphasis on the theme was incipient before the SUS, gaining relevance with its expansion and consolidation<sup>23</sup>. Originally, quality expressed the value judgment of the user on medical care<sup>24,25</sup>. Over time, the concept began to encompass estimates of the degree to which care enhances patient health recovery and reduces

the likelihood of maleficence compared to appropriate parameters<sup>26</sup>. The development of the theoretical and methodological basis, of criteria and indicators to monitor and evaluate the quality of health services is strategic for the standardization of tools, the identification of areas that need more attention or the need for protocol revision and reorganization of the service<sup>4,17-19</sup>.

Since its publication, in 1966, Donabedian has developed for more than two decades one of the most mentioned models to evaluate the quality of health services<sup>22,24</sup>. The usefulness of the triad structure, process and outcome for evaluating health services has multiplied across the world after the International Conference on Primary Health Care, held between 6 and 12 of September 1978, in Alma Ata, Republic of Kazakhstan. Convened by the World Health Organization (WHO) and the United Nations Children's Fund, the Conference demanded efforts by governments in the pursuit of health promotion to all the peoples around the world. The Conference produced a consensus that universal, comprehensive and equitable PHC was the model of qualified care to achieve a level of health that would enable the population of the world to lead a socially and economically active life. The proposal of Alma Ata was based on small-scale and low-cost primary care experiences offered to poor populations in countries of Asia, Africa and Latin America<sup>9</sup>. Despite the regression imposed by selective PHC as early as 1980<sup>27</sup>,

after Alma Ata, PHC ceased to be a proposal of international doctors and pioneers in distant villages and became an endorsed approach and an incentive to its worldwide expansion.

The wide use of the Donabedian approach<sup>22,24</sup> in studies on PHC was accompanied by new conceptual formulations to improve the characterization of the quality of basic services. From 1991, Starfield, in a classic study<sup>4</sup>, has initiated the development of the theoretical and operational formulation of the PHC attributes in relation to the health system and the care model. First contact access, continuity care, comprehensiveness and coordination of care, together with cultural competence, family and community orientation, were defined as attributes of the quality of care model. The author evidenced the association of a strong PHC with greater satisfaction of users with the system and with better health results<sup>28</sup>.

In Brazil, the theoretical contributions on PHC evaluation were remarkable in the last 15 years, especially with the implementation of the FHS and with the institutionalization of the evaluation of Primary Care (PC) in the Ministry of Health (MH)<sup>6,10,29,30</sup>. There is an abundant documentation on the expansion of FHS to the whole Country, one of the largest systemic experiences of PHC in the world. Multiprofessional teams, responsible for specific territories and populations defined as first contact with the system, represent one of the most significant innovations in PHC since Alma Ata<sup>17</sup>.

In 2005, the Baseline Studies of the Project for the Expansion and Consolidation of Family Health (Proesf), conducted by a network of academic institutions, deepened the evaluation of the PHC in Brazil, with emphasis on access and use of services in PC, encouraging reflection on the quality of care offered to the Brazilian population in the large urban centers of the Country<sup>7,10,23,31-33</sup>. In 2011, the quality theme gained a major boost in the Brazilian PC with the implementation of the Access and Quality

Improvement Program (PMAQ), which institutionalized the financial incentive of the MH to improve the standard of care offered to the user of the SUS in the Basic Health Units (BHU) and through family health teams<sup>16,34,35</sup>. The external evaluation of the PMAQ, conducted by a network of more than 40 universities and federal research centers, has promoted the expansion of the conceptions of Donabedian and Starfield<sup>16</sup>, when facing multiple theoretical and methodological challenges to estimate the quality of PHC services in Brazil<sup>3,17,36,37</sup>.

In a brief selection of contemporary studies on the dimensions of access and quality in the FHS, many of them come from the external evaluations of Proesf and PMAQ, which outline a complex and coherent panel, allowing to appreciate the strengths and weaknesses of the model of care to guarantee in an equitable and integral way the universal right to health in SUS<sup>3,10,17,36-38</sup>. The equitable expansion of access and use of health services and actions of the FHS is consensual, coinciding with strong evidence of its effect on the improvement of the health situation of the Country in 30 years of the SUS<sup>39-41</sup>. The studies also highlight systematic problems in the quality of services and actions of the FHS, which affect its completeness, the comprehensiveness of actions, be it in the health of women<sup>36,42,43</sup>, or in the care of chronic health conditions of adults and the elderly<sup>44</sup>. The articles reveal multiple approaches to quality of health care, but two consensuses emerge: access is quality and quality is process. Quality is to go beyond, to achieve more and better, is an essential measure to evaluate the comprehensiveness, to verify the responsiveness of the SUS to the health needs of the Country. The dimensions of the whole individual, the integration of actions and intersectoral action presented in the Federal Constitution of 1988 and Law n° 8.080 of 1990<sup>38,39</sup> can be operationalized through quality indicators that express organizational processes

and professional practices within each FHS team, in the network of health services and in relation to the geopolitical territory. The quality of care and, consequently, comprehensiveness are made explicit, for example, in reaching completeness or totality of actions foreseen in official documents for each health condition. This measure entails estimating the integration of planned actions, including health promotion, disease prevention, treatment and rehabilitation<sup>3,36,42-44</sup>.

In this article, based on a non-systematic review, we initially gathered a set of evidences with advances and problems in the access and quality of Brazilian PC, with special interest in the comprehensiveness of care, expressed in the completeness of health actions. In the second part, we highlight proposals to face the challenges identified in the literature. It is showed that the available knowledge reinforces the relevance of strengthening the FHS to improve the health conditions of the population.

## Advances and problems in the quality of the Brazilian PHC

The consolidation of PHC in the last decades represents one of the most relevant advances of SUS as public policy and universal health system in Brazil. Such advance is anchored in the scope of the FHS, its main healthcare model, which surpassed the mark of 40 thousand teams nationwide by 2016<sup>40</sup>. The significant expansion and maintenance of the coverage of the FHS over the last 20 years provoked an increase in the supply of care and services and contributed to important positive effects on the health of the population.

It is worth highlighting the reduction of infant and under-5 mortality<sup>29,41-43</sup> in Brazilian municipalities, even when the action of other determinants is controlled. Also, several studies<sup>11,42,44</sup> have highlighted

the role of FHS in reducing primary care sensitive hospitalization.

The superiority of the FHS model over the traditional model has become national and international consensus in the last decade. In the study by Macinko et al.<sup>10,45</sup>, adherence to the attributes of the PHC of Starfield was more marked in the FHS, in the dimensions of access in first contact, comprehensiveness, family focus and community orientation<sup>12,46</sup>. Facchini et al.<sup>17,23,47</sup> reported that the provision of health actions, their use and contact by programmatic actions were more adequate in the FHS than in the traditional BHU.

The increasing access of the population to the wide service network was documented in three National Surveys by Sample of Domicile (PNAD) and more recently in the National Health Survey<sup>48</sup>. The proportion of people who reported using BHU was 41.8% in 1998<sup>49</sup>, 52.4% in 2003<sup>50</sup>, 56.8% in 2008<sup>51</sup>, reaching 65.5% in 2013<sup>48</sup>. Almost 90% of the BHU have Community Health Agents (CHA), and more than 70% have teams with care on five or more days a week, in two shifts or more, with nursing consultation and bandages<sup>52</sup>.

In less than a decade, investments in infrastructure of PC were expressive, particularly with the Infrastructure and Requalification Program of Basic Health Units (Requalificação UBS)<sup>53</sup>. In 2005, about 70% of the BHU evaluated in cities with over 100.000 inhabitants in the Northeast and South regions, in the Baseline Study of Proesf, had structural problems and deficiencies<sup>54</sup>, in contrast to the external evaluation of PMAQ in 2012, which found 15% of the total BHU in the Country in poor infrastructure conditions, mainly installations and inputs<sup>53</sup>. Neves et al.<sup>37</sup>, when analyzing the structure of BHU to care for people with diabetes between cycles 1 and 2 of PMAQ, observed that the prevalence of adequate structure of materials, medicines and physical were higher in 2014, compared to 2012. The adequate material and equipment went from 3.9% to 7.8%;

medicines, from 31.3% to 49.9%; and service infrastructure, from 15.3% to 23.3%.

The launch of the More Doctors Program (PMM) in 2013 marked important progress in addressing the historical shortage of professionals in number and adequate training to meet the health needs of the population, mainly doctors<sup>55-57</sup>. The PMM is the most comprehensive intervention to increase access to health care in FHS<sup>48,58</sup>, through a large-scale emergency provision (about 18,000 doctors at its peak) combined with interventions to improve service infrastructure and medical training and lifelong education<sup>55</sup>.

The presence of professionals of the PMM in 4,058 municipalities benefited approximately 63 million people, promoting the integration of teams and strengthening health actions<sup>58-60</sup>, with a positive impact also on the reduction of primary care sensitive hospitalization. In addition, about 90% of the population is satisfied with the program, reinforcing its legitimacy and acceptability<sup>57,61</sup>.

Recent studies on the use and quality of care provided at BHU, notably those which analyzed data from the PMAQ, reinforce these advances in programmatic actions typical of primary care. During prenatal care, 89% of the pregnant women had six or more consultations, more than 95% updated the tetanus vaccine and received a prescription of ferrous sulfate<sup>3</sup>. The access to the preventive screening for cervical cancer reached 93% of the women between 25 and 59 years old<sup>36</sup>, and the coverage of breast cancer screening was 70%, exceeding the recommendation of the WHO and the MH<sup>62</sup>.

About 90% of users with diabetes diagnoses had access to the consultation at the BHU in a six-month period and underwent blood tests to control the disease<sup>63</sup>. Facchini et al.<sup>47</sup> identified a similar pattern in the elderly with the disease in a national survey on access and quality of the health network, and there was no difference according to the socioeconomic level.

Confirming the expansion of oral health services, Casotti et al.<sup>64</sup> registered a high percentage of demand for consultation with the dentist reported by the interviewees at the BHU in the first cycle of PMAQ. The highest proportion of users were able to schedule between two and fifteen days, indicating improvement in access<sup>65</sup> to oral health care among populations with greater social vulnerability.

In a complex picture of the reality of PC in the SUS, in the midst of so many positive results, obtained in just over two decades of implementation of the FHS, consistently emerges its most important problems. Despite the observed improvements in BHU infrastructure, even in short periods evaluated in the PMAQ, problems still persist<sup>37,53</sup>. The inequalities in the service infrastructure are marked by the characteristics of the geopolitical region, the population size of the municipality, the HDI and the coverage of FHS<sup>3,37,62</sup>. Poças et al.<sup>52</sup> evidence that 74.6% do not have adequate external signaling and that 89.6% do not have professionals to listen and classify the user demand.

In the field of personnel provision and continuing education, the ability of the PMM to equitably improve the performance of the FHS in a short period of intervention remains a complex challenge for intervention studies. The evaluation gains relevance considering possible changes in the patterns and trends of the FHS outcomes, in a context of severe financial constraint. This issue threatens the continuity of the PMM in its magnitude and coverage, putting at risk the provision of doctors in territories and vulnerable populations of the Country<sup>55</sup>.

In addition to structural and provision of staff problems, the organization of services, the management of the FHS and the professional practice of its teams suffer from a systemic problem of the incompleteness of the offer of actions and health care, despite the availability of reference standards, guidelines, goals and working protocols. In the

case of prenatal care, only 15% of the pregnant women received all the procedures, exams and guidelines recommended. Breast examination was reported by 56% of the pregnant women, while the gynecological and oral cavity exams were not even given to half of them<sup>3</sup>.

Regarding the preventive screening for cervical cancer, 11% of PHC users had exams behind schedule, and 19% did not receive guidance<sup>36</sup>. The infrastructure for this screening was adequate for 49% of the BHU. Vaginal speculums, fixatives and forms of the Cervical Cancer Information System (Siscolo) were unavailable for one in five BHU. Information regarding the organization and management of care revealed that only 30% of the teams could be classified with an adequate work process<sup>66</sup>.

For breast cancer screening, the findings of Barcelos et al.<sup>62</sup> are of concern, because 38% of users between 40 and 69 years who had been interviewed at the BHU had never received a clinical examination of the breasts, and about 25% of the women between 50 and 69 years had never done a mammogram.

Considering the care of diabetes patients, less than half of the users with the problem interviewed in the BHU, reported feet care counseling, and only 30% reported having their feet examined in the year prior to the interview<sup>63</sup>, a similar finding from a population-based national survey<sup>17,47</sup>. Only 14.3% of users reported receiving the full set of diabetes care. In an adjusted analysis, when considering the set of recommended items<sup>16</sup>, it was observed that the prevalence of complete care increased significantly in BHU due to the adequacy of the infrastructure, organization and management of services and clinical practice.

Clementino et al.<sup>67</sup>, when analyzing the health actions directed at people with tuberculosis in PC based on data from the second cycle of the PMAQ, found that 81.1% of the FHS teams in Brazil had an annual estimate of the number of confirmed cases of tuberculosis and respiratory symptoms. In contrast,

only 48% of the teams had records of case follow-up and directly observed treatment. The authors conclude by the presence of barriers in structuring BHU regarding the operationalization and sustainability of care for tuberculosis patients. Souza et al.<sup>68</sup> point out the need to, in addition to transferring the essential actions to the tuberculosis carrier to the PC, structure these BHU, making them capable of performing the appropriate management of the user in terms of clinical, structural and organizational services, reinforcing the comprehensive care.

For oral health care, Casotti et al.<sup>64</sup> reported that infrastructure and access problems were still reasons for users to move to other services<sup>64</sup>. Fragilities of the local management on the work process and absence of preferential flows and structured complementary network for early diagnosis of oral cancer or for provision of prosthetic procedures were also relevant problems. The authors also pointed out that the lack of conditions for the teams to coordinate access to complementary services subtracts the possibility of ensuring comprehensive clinical care.

Another gap that needs to be faced concerns Information and Communication Technologies (ICT) which, in their full potential, contribute to care. Data from the PMAQ Cycle I, with more than 17,000 participating teams, report that only 13.5% of the teams had optimal conditions of hardware, software and information use<sup>61</sup>. Bousquat et al.<sup>53</sup> reported that, in general, 51.2% of the BHU had a computer and 35.4% had access to the Internet.

A recent systematic review article on the satisfaction of PHC users showed that BHU users evaluated as unsatisfactory the attributes of first contact access, family focus and community orientation, considered fundamental for health care that is more equitable and competing for autonomy and social control, even in the Family Health Units<sup>69</sup>. Protasio et al.<sup>70</sup> found that solving their

problems at BHU and feeling respected by health professionals are the most important factors for the user, in all regions of Brazil, regarding their satisfaction. However, other factors can be highlighted by region: opening hours (Northeast); professionals asking for relatives (North); interest of professionals in other health needs (Central West); being listened to without an appointment (South); and clarifying their doubts after the consultation (Southeast).

In a balance of advances and problems of the Brazilian PC, the findings showed consistent and synergistic relationships between infrastructure, work process and quality of the FHS services in the Country<sup>36,63</sup>. The accumulated knowledge indicates the need for systemic improvements in SUS and PC, whose problems affect large contingents of the Brazilian population, with greater repercussion in vulnerable groups and remote regions.

## Proposals to face the challenges of the quality of PHC services in SUS

Results of scientific researches, experience in management and health care, innovation and technological development achieved in Brazil in the last 30 years provide a wide knowledge to successfully face the problems of PC and qualify the FHS. However, the cycle of incremental improvement observed in the Brazilian PC, since the Alma Ata Conference<sup>9</sup>, can be reversed as a result of the ongoing democratic breakdown in the Country, signaling gloomy perspectives on social rights. The systematization of proposals to face the challenges refers to suggestions for improving the quality of health services, through feasible changes in structural and organizational characteristics of health teams and units and professional practices.

The first and most important proposal to overcome the challenges of PC in Brazil is the universalization of the FHS, solving

its structural and organizational problems. The political commitment to the priority of the FHS, expressed in sufficient funding to guarantee the fullness of high-quality health care to the entire population, will result in more extensive investments in the FHS infrastructure<sup>37,53,54,62,64,66</sup>. The adequate funding is fundamental to increase the superiority of FHS in improving the care and health conditions of the population, compared to traditional, specialized and centralized medical models<sup>10,12,41</sup>.

Improvements in the construction, renovation and expansion of BHU are still necessary, but a complex and integrated policy is needed to expand and qualify clinical, support and information and communication technology equipment. Unfortunately, the restrictions imposed on SUS and social policies by Constitutional Amendment 95<sup>71,72</sup> seriously threaten the development of a rational and integrated public policy of expanding and updating labor tools, connectivity and inputs.

The effects of the economic recession and the budgetary constraint on SUS may already be observed in the BHU, affecting, for example, the supply of vaccines and medicines and the provision of personnel in a context of increased demand for public services resulting from the increase in unemployment, the reduction of labor rights and the purchasing power of the population. The precariousness of services may result in increased occurrence of health problems and a resurgence of fully controlled and eliminated diseases, such as, measles and poliomyelitis. The preponderance of market interests, expressed in the private management of public services, through social health organizations and other commercial strategies, fragments the supply and fore-shadows uncertainties for the qualification of the infrastructure of BHU and the ways of working of the FHS teams. By prioritizing economic and commercial interest in health, the Country jeopardizes the quality

of services to meet the comprehensive health needs of the population, with negative repercussions on the performance of the FHS and the organization of the BHU.

The infrastructure of the PC of the SUS will not be complete without the guarantee of sufficiency and quality of health workers with full dedication to FHS<sup>16,58</sup>. The implementation of PMM occurred in a context of development and consolidation of governance initiatives that have encouraged PC in the last ten years, such as PMAQ<sup>16</sup>, REQUALIFICA UBS and the training and continuing education programs of health professionals of the SUS, developed through the Open University of the SUS (UNASUS)<sup>17</sup>. Democratic rupture threatens rules, norms and decisions concerning not only the PMM, but all workers of PC, with the possibility of affecting the roles and responsibilities of social actors, discontinuing interactions and interconnections, fomenting national and regional disparities and inequalities<sup>73</sup>. For example, the effects of the National Basic Attention Policy (PNAB) of 2017 on the configuration of the FHS teams can make the Community Health Workers (CHW) into a professional category in extinction, not only by the reduction in the contingent tied to each team, but also by the defacement of their attributions<sup>72,74</sup>. The essential proposal for the universalization of the FHS and for the quality of care is the guarantee of complete teams with doctors, nurses, dentists, nursing technicians and CHW throughout the national territory. Considering the increasing demand of the elderly, users with multimorbidity and mental health problems, a more effective presence of the Family Health Support Teams (Nasf) in daily care is needed, such as, physiotherapists, physical educators, psychologists, psychiatrists, nutritionists, cardiologists and dermatologists. Telehealth strategies and distance technical supervision for all professionals qualify their practices, improving the resolubility of the service. Such resources would strengthen

the matrix approach of chronic health conditions, following and monitoring the comprehensiveness and coordination of health promotion actions, disease prevention and care of clinical problems for each user of the service.

Addressing training and the lifelong education of health professionals and managers, for the attributes of PHC and for the health needs of the population and users under the responsibility of the FHS teams, through the expansion of approaches and devices of distance education, will benefit the quality of clinical care and collective action. Doctors, nurses, dentists and CHW, but also professionals of the Nasf, require programs of provision, lifelong education and development of the workforce in health, with special focus on the universalization of the FHS<sup>48</sup>. By emphasizing the daily routine of the service in the problematization of study themes, the specialization, residency and professional master's degrees in Family Health provide students with access to evidence of health policy evaluations and actions useful for solving local problems and their generalization for the BHU. Some experiences of lifelong education with emphasis on quality of clinical practice value the use of tools such as self-learning modules, interactive clinical cases and electronic spreadsheets for automated monitoring of programmatic actions, designed according to the profile of PC users<sup>75</sup>. Training strategies and lifelong education are essential for the success of interventions aimed at the qualification of professional practice. Educational activities can develop professional assignments, improving the scope and coverage of care provision.

The provision of health care in the basic network and, particularly, in the FHS depends greatly on organizational processes and professional practices. In addition to the challenges related to the improvement of the infrastructure of services, the qualification of processes of organization and management of care by multiprofessional team is essential to increase the

effectiveness of the FHS, considering its mediating effect on health care.

In order to ensure access, comprehensiveness and resolubility, it is required to improve the flow of users within the service, from the reception to the end of the assistance. Scheduling, reception, bonding, acute demand and scheduled demand, assignment of each professional, relation of the BHU with health care network and diagnostic and therapeutic support services need to be discussed and agreed with teams and municipal management<sup>76</sup>.

Ouverney and Noronha<sup>77</sup> has contributed to this debate by listing organizational principles and health care integration technologies that apply unequivocally to PHC: guidance for health needs; complexity of approach; multidisciplinary of intervention; continuity care; interdependence and sharing of clinical analysis; clinical accountability; territorialization; intersectoriality; economic efficiency and continuous quality improvement. The analysis of the current situation of principles, attributes and categories of PHC in FHS teams highlights the coordination of care as a critical challenge in the reorganization of health actions. A broad effort to develop the coordination of care in the FHS will promote the articulation of the work of the members of the health team, among themselves, with the other spheres of the SUS, with the users and with the population<sup>78</sup>, reinforcing the effectiveness of PHC and SUS.

A crucial element for the qualification of the FHS coverage is the improvement of the e-SUS for the production of useful information to the teams and managers, through access to automated reports of individuals and communities about health situation and actions offered. Accelerating the incorporation of information and communication technologies facilitates the use of up-to-date information and enhances the improvement of care<sup>78</sup>. On a daily basis, data are collected in different subsystems, many of which are not computerized, or face major

implementation or operational difficulties. For example, the National Immunization Program Information System (SI-PNI), which has been in operation since 2010, faces major difficulties in expanding and using information due to the lack of computer equipment in all vaccine rooms in the Country<sup>79</sup>. In addition, SI-PNI is vulnerable to the lack of registration of vaccines carried out in private clinics that multiply in the national territory, affecting its capacity of epidemiological surveillance of immunization coverage.

In order to optimize ICT resources, data from different systems should be automatically exported to e-SUS, which would allow the use of information to effectively support teams in their professional practice, as well as strategic management of services. Thus, it will be possible to overcome problems such as the obligation of professionals to fill data fields in multiple continuous registration systems, which generate inconsistencies in the records and the scarce use of information by health teams. In a context of fragmentation and multiplicity of systems and software, the recording of data in the electronic medical record becomes one of the bureaucratic tasks performed by health professionals<sup>80</sup>, to the detriment of health care actions.

The full institutionalization of monitoring and evaluation practices of actions in the BHU is an essential device to qualify the management and organization of services, guiding initiatives and strategies to reach objectives and goals. Access to ICT resources and the use of automated electronic tools, such as the Notebook of Health Actions, facilitate monitoring and evaluation at BHU<sup>75</sup>, producing crucial estimates, such as coverage of actions and health programs.

Overcoming the fragmentation and incompleteness of clinical practices and health promotion is one of the most urgent challenges to improve the quality of PC in Brazil<sup>81</sup>. It is imperative to integrate, evenly, clinical care, prevention and health promotion,

orienting the FHS to work processes with a matrix approach to user demands, especially chronic health conditions. Strengthening teamwork and the role of CHW is essential to ensure the comprehensiveness and coordination of health promotion, disease prevention and care of problems and clinical disorders, for each user of the service. For example, qualifying knowledge and skills in performing physical examination, procedures and clinical reasoning, supported by protocols, alerts, active search strategies and tracking, can improve clinical intervention, case management and coordination of care, promoting the comprehensive care.

Collective efforts or quality campaigns, capable of mobilizing academic institutions and the BHU, may universalize postpartum care, immunization of children, pregnant women and the elderly, screening cervical and breast cancer, the care with the feet of people with diabetes, cardiovascular risk evaluation of adults and elderly, the promotion of healthy eating and physical activity. For example, the decision to universalize postpartum care, by a home visiting in the first week of the baby's life, is fully feasible and increases both coverage and quality (completeness) of the planned actions in official guidelines. Another example refers to care to people with tuberculosis in the BHU. In most municipalities, the program is centralized, with the restriction of the actions of the teams in the treatment, with displacement of the users and risk of interruption and non-adherence to the treatment. In order to ensure the access, diagnosis and treatment of tuberculosis, it is necessary, in addition to the transfer of the essential actions for the PC, to structure the BHU for the proper management of the user<sup>67</sup>.

However, it is needed more in-depth studies, capable of scrutinizing the organizational details of services and the nuances

of professional practice and interaction with users, to define and characterize quality in PHC. Critical and comprehensive studies regarding conceptual models, comparison groups, definition of indicators, instrument standardization and statistical approaches need incentives and support, considering their relevance to subsidize policies aimed at improving PC quality, such as the PMAQ.

Despite a context of reduction of the funding of SUS, it is worth proposing the continuity and improvement of the PMAQ due to its importance for the institutionalization of the assessment and definition of quality standards and their trends in the PC around the Country. Comprehensiveness is the principle of the SUS more directly connected with the efforts to define the quality standard of the FHS, feeding a virtuous cycle with the universalization and equity of the care. The analysis of the completeness of health actions can be a valuable proxy of the comprehensiveness and makes it possible to capture aspects of structural, organizational and professional quality<sup>10,17,63</sup>.

The proposals listed may result in the systemic improvement of the quality of the FHS in Brazil, promoting a multiplicative effect on the equity of its results, contributing to a significant reduction of health inequalities<sup>3,17,36,41</sup>.

## Collaborators

Facchini LA and Tomasi E contributed to the elaboration of the manuscript with the following activities: conception, planning and interpretation of data; elaboration of the draft and critical review of content; and participation in the approval of the final version. Dilélio AS contributed to the critical review of the content and approval of the final version of the manuscript. ■

## References

1. Viacava F, Lagrardia J, Ugå M, et al. Projeto desenvolvimento de tecnologia de avaliação do desempenho do sistema de saúde brasileiro (PRO-ADESS). Rio de Janeiro: Fiocruz; 2012.
2. Facchini L, Piccini R, Tomasi E, et al. Contribuições do Estudo de Linha de Base da UFPEL às políticas, aos serviços e à pesquisa em atenção básica à saúde. In: Hartz Z, Felisberto E, Silva LV, organizadores Meta-avaliação da atenção básica em saúde: teoria e prática. Rio de Janeiro: Fiocruz. 2008. p. 167-97.
3. Tomasi E, Fernandes PAA, Fischer Oliveira T, et al. Qualidade da atenção pré-natal na rede básica de saúde do Brasil: indicadores e desigualdades sociais. *Cad Saúde Pública*. 2017; 33(3):e00195815.
4. Starfield B. Primary Care and Health: a cross-national comparison. *JAMA*. 1991; 266(16):2268-71.
5. Oxman AD, Thomson MA, Davis DA, et al. No magic bullets: a systematic review of 102 trials of interventions to improve professional practice. *CMAJ*. 1995; 153(10):1423-31.
6. Felisberto E, Freese E, Bezerra LCA, et al. Análise da sustentabilidade de uma política de avaliação: o caso da atenção básica no Brasil. *Cad Saúde Pública*. 2010; 26(6):1079-95.
7. Viana AA, Rocha JSY, Elias PE, et al. Modelos de atenção básica nos grandes municípios paulistas: efetividade, eficácia, sustentabilidade e governabilidade. *Ciênc Saúde Colet*. 2006; 11(3):577-606.
8. Hartz ZMA. Avaliação em saúde: dos modelos conceituais à prática na análise da implantação de programas; 1997.
9. Declaração de Alma-Ata. Conferência Internacional sobre cuidados primários de saúde. Alma-Ata, URSS. 1978; 6:a12.
10. Fachini L, Piccini R, Tomasi E, et al. Desempenho do PSF no Sul e no Nordeste do Brasil: avaliação institucional e epidemiológica da atenção básica. *Ciênc Saúde Colet*. 2006; 11(3):669-81.
11. Macinko J, Dourado I, Aquino R, et al. Major expansion of primary care in Brazil linked to decline in unnecessary hospitalization. *Health Aff (Millwood)*. 2010; 29(12):2149-60.
12. Harzheim E, Duncan BB, Stein AT, et al. Quality and effectiveness of different approaches to primary care delivery in Brazil. *BMC Health Services Research*. 2006; 6(1):156.
13. Bruin SR, Baan CA, Struijs JN. Pay-for-performance in disease management: a systematic review of the literature. *BMC Health Serv Res*. 2011; 11(1):272.
14. Roland M, Guthrie B. Quality and Outcomes Framework: what have we learnt? *Bmj*. 2016; 354:i4060.
15. Gillam S, Steel N. QOF points: valuable to whom? *Bmj*. 2013; 346(7903):21-3.
16. Brasil. Ministério da Saúde. Programa Nacional de Melhoria do Acesso e da Qualidade da Atenção Básica. Saúde mais perto de você: acesso e qualidade Programa Nacional de Melhoria do Acesso e da Qualidade da Atenção Básica (PMAQ- AB). Brasília, DF: Ministério da Saúde; 2012.
17. Facchini L, Thumé E, Nunes B, et al. Governance and health system performance: national and municipal challenges to the Brazilian Family Health Strategy. *Governing health systems: for nations and communities around the world Brookline: Lamprey & Lee*; 2015.
18. Bourcier E, Charbonneau D, Cahill C, et al. An evaluation of health impact assessments in the United States, 2011-2014. *Prev Chronic Dis*. 2015; 12:E23.
19. Mehring M, Donnachie E, Bonke FC, et al. Disease management programs for patients with type 2

- diabetes mellitus in Germany: a longitudinal population-based descriptive study. *Diabetol Metab Syndr*. 2017; 9(1):37.
20. White H. A contribution to current debates in impact evaluation. *Evaluation*. 2010; 16(2):153-64.
  21. Lee RI, Jones LW. The fundamentals of good medical care. *Publications of the Committee on the Costs of Medical Care*. 1933; 22.
  22. Donabedian A. Evaluating the quality of medical care. *The Milbank memorial fund quarterly*. 1966; 166-206.
  23. Facchini LA, Piccini RX, Tomasi E, et al. Avaliação de efetividade da Atenção Básica à Saúde em municípios das regiões Sul e Nordeste do Brasil: contribuições metodológicas. *Cad Saúde Pública*. 2008; 24:s159-s72.
  24. Donabedian A. The quality of care: How can it be assessed? *Jama*. 1988; 260(12):1743-8.
  25. Trad LAB, Bastos ACS, Santana EM, et al. Estudo etnográfico da satisfação do usuário do Programa de Saúde da Família (PSF) na Bahia. *Ciênc Saúde Colet*. 2002; 7(3):581-9.
  26. Joint Commission on Accreditation of Healthcare Organization. Characteristics of clinical indicators. *QRB Qual Rev Bul*. 1989; 15(11):330-9.
  27. Cueto M. The origins of primary health care and selective primary health care. *American journal of public health*. 2004; 94(11):1864-74.
  28. Starfield B, Shi L. Commentary: primary care and health outcomes: a health services research challenge. *Health services research*. 2007; 42(6p1):2252-6.
  29. Macinko J, Souza MFM, Guanais FC, et al. Going to scale with community-based primary care: an analysis of the family health program and infant mortality in Brazil, 1999–2004. *Soc Sci Med*. 2007; 65(10):2070-80.
  30. Giovanella L, Mendonça MHM. *Atenção Primária à Saúde: seletiva ou coordenadora dos cuidados*. Rio de Janeiro: Cebes; 2012.
  31. Piccini RX, Facchini LA, Tomasi E, et al. Efetividade da atenção pré-natal e de puericultura em unidades básicas de saúde do Sul e do Nordeste do Brasil. *Rev. Bras. Saúde Matern. Infant*. 2007; 7(1):75-82.
  32. Tomasi E, Facchini LA, Thumé E, et al. Características da utilização de serviços de Atenção Básica à Saúde nas regiões Sul e Nordeste do Brasil: diferenças por modelo de atenção. *Ciênc Saúde Colet*. 2011; 16:3689-96.
  33. Rodrigues MAP, Facchini LA, Piccini RX, et al. Uso de serviços básicos de saúde por idosos portadores de condições crônicas, Brasil. *Rev. Saúde Públ.* 2009; 43(4):604-12.
  34. Brasil. Ministério da Saúde. Portaria nº 1.654, de 19 de julho de 2011. Institui, no âmbito do Sistema Único de Saúde, o Programa Nacional de Melhoria do Acesso e da Qualidade da Atenção Básica (PMAQ-AB) e o Incentivo Financeiro do PMAQ-AB, denominado Componente de Qualidade do Piso de Atenção Básica Variável - PAB Variável. *Diário Oficial da União*. 19 Jul. 2011.
  35. Fausto MCR, Giovanella L, Mendonça MHM, et al. A posição da Estratégia Saúde da Família na rede de atenção à saúde na perspectiva das equipes e usuários participantes do PMAQ-AB. *Saúde debate*. 2014; 38:13-33.
  36. Barcelos MRB, Lima RCD, Tomasi E, et al. Quality of cervical cancer screening in Brazil: external assessment of the PMAQ. *Rev. Saúde Pública*. 2017; 51:67.
  37. Neves RG, Duro SMS, Muñiz J, et al. Estrutura das unidades básicas de saúde para atenção às pessoas com diabetes: Ciclos I e II do Programa Nacional de Melhoria do Acesso e da Qualidade. *Cad Saúde Pública*. 2018; 34(4):e00072317.
  38. Brasil. *Constituição da República Federativa do*

- Brasil [internet]. Brasília, DF; 1988. [acesso em 2018 abr 22]. Disponível em: <http://www2camaralegbr/legin/fed/consti/1988/constituicao-1988-5-outubro-1988-322142-publicacaooriginal-1-plhtml>.
39. Brasil. Ministério da Saúde. Lei nº 8.080 de 19 de setembro de 1990: Dispõe sobre as condições para a promoção, proteção e recuperação da saúde, a organização e o funcionamento dos serviços correspondentes e dá outras providências. Diário Oficial da União. 20 Set. 1990.
  40. Brasil. Ministério da Saúde. Departamento de Atenção Básica. Histórico e Cobertura da Estratégia Saúde da Família [internet]. Brasília, DF: Ministério da Saúde, 2018. [acesso em 2018 abr 10]. Disponível em: [dabsaudegovbr/portaldab/historico\\_cobertura\\_sfphp](https://dabsaudegovbr/portaldab/historico_cobertura_sfphp).
  41. Aquino R, Oliveira NF, Barreto ML. Impact of the family health program on infant mortality in Brazilian municipalities. *Am J Public Health*. 2009; 99(1):87-93.
  42. Guanais F, Macinko J. Primary care and avoidable hospitalizations: evidence from Brazil. *J Ambul Care Manage*. 2009; 32(2):115-22.
  43. Macinko J, Guanais FC, Souza MDFM. Evaluation of the impact of the Family Health Program on infant mortality in Brazil, 1990–2002. *J Epidemiol Community Health*. 2006; 60(1):13-9.
  44. Dourado I, Oliveira VB, Aquino R, et al. Trends in primary health care-sensitive conditions in Brazil: the role of the Family Health Program (Project IC-SAP-Brazil). *Med Care*. 2011; 49(6):577-84.
  45. Macinko J, Almeida C, Sá PK. A rapid assessment methodology for the evaluation of primary care organization and performance in Brazil. *Health Policy Plan*. 2007; 22(3):167-77.
  46. Harzheim E, Stein AT. Effectiveness of primary health care evaluated by a longitudinal ecological approach: The expansion of primary health care in Brazil is shaping the agenda for health care policy in the Latin American region. *J Epidemiol Community Health*; 2006; 60(1):3-4.
  47. Facchini LA, Nunes BP, Saes MO, et al. Os sentidos da pesquisa nos processos organizativos da Estratégia Saúde da Família. *Saúde da família nos municípios brasileiros: os reflexos dos 20 anos no espelho do futuro*. Campinas: Saberes; 2014.
  48. Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional de Saúde. Brasília, DF: IBGE; 2013.
  49. Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional por Amostra de Domicílios - Acesso e Utilização dos Serviços de Saúde 1998. Rio de Janeiro: IBGE; 2000.
  50. Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional por Amostra de Domicílios - Um Panorama da Saúde no Brasil. Acesso e utilização dos serviços, condições de saúde e fatores de risco e proteção à saúde: 2003. Rio de Janeiro: IBGE; 2004.
  51. Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional por Amostra de Domicílios - Um panorama da saúde no Brasil: acesso e utilização dos serviços, condições de saúde e fatores de risco e proteção à saúde 2008. Rio de Janeiro: IBGE; 2010.
  52. Poças KC, Freitas LRS, Duarte EC. Censo de estrutura da Atenção Primária à Saúde no Brasil (2012): estimativas de coberturas potenciais. *Epidemiol. Serv. Saúde*. 2017; 26(2):275-84.
  53. Bousquat A, Giovanella L, Fausto MCR, et al. Tipologia da estrutura das unidades básicas de saúde brasileiras: os 5 R. *Cad Saúde Pública*. 2017; 33(8).
  54. Siqueira FCV, Facchini LA, Silveira DS, et al. Architectonic barriers for elderly and physically disabled people: an epidemiological study of the physical structure of health service units in seven Brazilian states. *Ciênc Saúde Colet*. 2009; 14(1):39-44.
  55. Facchini LA, Batista SR, Silva Jr AG, et al. O Programa Mais Médicos: análises e perspectivas. *Ciênc Saúde Colet*. 2016; 21(9):2652.

56. Girardi SN, Stralen ACS, Cella JN, et al. Impact of the Mais Médicos (More Doctors) Program in reducing physician shortage in Brazilian primary healthcare. *Ciênc Saúde Colet*. 2016; 21(9):2675-84.
57. Santos LMP, Costa AM, Girardi SN. Mais Médicos Program: an effective action to reduce health inequities in Brazil. *Ciênc Saúde Colet*. 2015; 20(11):3547-52.
58. Brasil, Ministério da Saúde, Secretaria de Gestão do Trabalho e da Educação na Saúde. Programa mais médicos – dois anos: mais saúde para os brasileiros. Brasília DF: Ministério da Saúde; 2015.
59. Tasca R, Silva FAM. More Doctors Project. In: New York UNOfS-SC, editor. *Good Practices in South-South and Triangular*. 2016 [acesso em 2018 set 13]. Disponível em: <https://www.unsouthsouth.org/2016/05/30/good-practices-in-south-south-and-triangular-cooperation-for-sustainable-development-2016/>.
60. Kemper ES, Mendonça AVM, Sousa MFd. Programa Mais Médicos: panorama da produção científica. *Ciênc Saúde Colet*. 2016; 21:2785-96.
61. Santos LMP, Oliveira A, Trindade JS, et al. Implementation research: towards universal health coverage with more doctors in Brazil. *Bull World Health Organ*. 2017; 95(2):103.
62. Barcelos MRB, Nunes BP, Duro SMS, et al. Utilization of Breast Cancer Screening in Brazil: An External Assessment of Primary Health Care Access and Quality Improvement Program. *Health Systems & Reform*. 2018:1-14.
63. Tomasi E, Cesar MADC, Neves RG, et al. Diabetes Care in Brazil: Program to Improve Primary Care Access and Quality – PMAQ. *The Journal of ambulatory care management*. 2017; 40(supl. 2):S12.
64. Casotti E, Contarato PC, Fonseca ABM, et al. Atenção em Saúde Bucal no Brasil: uma análise a partir da Avaliação Externa do PMAQ-AB. *Saúde debate*. 2014; 38(esp):140-57.
65. Peres KG, Peres MA, Boing AF, et al. Redução das desigualdades sociais na utilização de serviços odontológicos no Brasil entre 1998 e 2008. *Revista de saúde pública*. 2012; 46(2):250-8.
66. Tomasi E, Oliveira TF, Fernandes PAA, et al. Estrutura e processo de trabalho na prevenção do câncer de colo de útero na Atenção Básica à Saúde no Brasil: Programa de Melhoria do Acesso e da Qualidade-PMAQ. *Rev BrasSaúde Matern Infant*. 2015; 15(2):171-80.
67. Clementino FS, Marcolino EC, Gomes LB, et al. Ações de Controle da Tuberculose: análise a partir do programa de melhoria do acesso e da qualidade da atenção básica. *Texto & Contexto Enfermagem*. 2016; 25(4):1-9.
68. Souza MSPL, Pereira RAG, Pereira SM, et al. Fatores associados ao acesso geográfico aos serviços de saúde por pessoas com tuberculose em três capitais do Nordeste brasileiro. *Cad Saúde Pública*. 2015; 31(1):111-20.
69. Paula WKAS, Samico IC, Caminha MFC, et al. Primary health care assessment from the users' perspectives: a systematic review. *Revista da Escola de Enfermagem da USP*. 2016; 50(2):335-45.
70. Protasio APL, Gomes LB, Machado LS, et al. Satisfação do usuário da Atenção Básica em Saúde por regiões do Brasil: 1º ciclo de avaliação externa do PMAQ-AB. *Ciênc Saúde Colet*. 2017;22(6):1829-44.
71. Brasil. Ministério da Saúde. Emenda Constitucional nº 95, 15 de dezembro de 2016 [internet]. Altera o Ato das Disposições Constitucionais Transitórias, para instituir o Novo Regime Fiscal, e dá outras providências. *Diário Oficial da União*. 15 Dez. 2016. [acesso em 2018 mar 25]. Disponível: [www.planalto.gov.br/ccivil\\_03/constituicao/emendas/emc/emc95htm](http://www.planalto.gov.br/ccivil_03/constituicao/emendas/emc/emc95htm). 2016.
72. Brasil. Ministério da Saúde. Política Nacional de Atenção Básica. Portaria nº 2.436, de 21 de setembro de 2017 [internet]. Aprova a Política Nacional de Atenção Básica, estabelecendo a revisão de diretri-

- zes para a organização da Atenção Básica, no âmbito do Sistema Único de Saúde (SUS). Diário Oficial da União. 21 set 2017. [acesso em 2018 abr 20]. Disponível: <http://18928128100/dab/docs/publicacoes/geral/pnabpdf>.
73. Brasil. Ministério da Saúde. Secretaria de Gestão do Trabalho e da Educação na Saúde. Programa mais médicos – dois anos: mais saúde para os brasileiros. Brasília, DF: Ministério da Saúde; 2015.
  74. Morosini MVGC, Fonseca AF, Lima LD. Política Nacional de Atenção Básica 2017: retrocessos e riscos para o Sistema Único de Saúde. Saúde debate. 2018; 42(116):11-24.
  75. Universidade Federal de Pelotas, Universidade Aberta do SUS, Fundação Oswaldo Cruz. Plataforma Educacional de Saúde da Família. 2018. [acesso em 2018 set 13]. Disponível em: <https://dms.ufpel.edu.br/p2k>. 2018.
  76. Ramos LH. Gestão de Serviços de Saúde. Módulo Político Gestor. Especialização em Saúde da Família [internet]. [acesso em 2018 mar 7]. Disponível em: [http://www.unasus.unifesp.br/biblioteca\\_virtual/esf/1/modulo\\_politico\\_gestor/Unidade\\_11.pdf](http://www.unasus.unifesp.br/biblioteca_virtual/esf/1/modulo_politico_gestor/Unidade_11.pdf).
  77. Ouverney AM, Noronha JC. Modelos de organização e gestão da atenção à saúde: redes locais, regionais e nacionais. In: Fundação Oswaldo Cruz, organizador. A saúde no Brasil em 2030. Rio de Janeiro: Fiocruz; 2013. p.143-82.
  78. Tomasi E, Facchini LA, Maia MFS. Health information technology in primary health care in developing countries: a literature review. Bulletin of the World Health Organization. 2004; 82(11):867-74.
  79. Brasil. Ministério da Saúde. Programa Nacional de Imunizações [internet]. 2017 [acesso em 2018 mar 10]. Disponível em: <http://portalmssaudegovbr/acoes-e-programas/vacinacao/si-pni>.
  80. Oliveira AEC, Lima IMB, Nascimento JA, et al. Implantação do e-SUS AB no Distrito Sanitário IV de João Pessoa (PB): relato de experiência. Saúde debate. 2016; 40:212-8.
  81. Teixeira MB, Casanova A, Oliveira CCM, et al. Avaliação das práticas de promoção da saúde: um olhar das equipes participantes do Programa Nacional de Melhoria do Acesso e da Qualidade da Atenção Básica. Saúde debate. 2014; 38:52-68.

---

Received on 06/25/2018  
 Approved on 08/18/2018  
 Conflict of interests: non-existent  
 Financial support: non-existent