Emergency supply of doctors by the Mais Médicos (More Doctors) Program and the quality of the structure of primary health care facilities

Abstract The health policy context in Brazil has featured a series of measures to improve primary health care (PHC), including a national access and quality improvement program (Programa Nacional de Melhoria do Acesso e Qualidade, PMAQ-AB) and the Mais Médicos Program (More Doctors, PMM) and upgrading PHC centers (‘Requalifica UBS’). The paper examines the PMM’s placement of doctors, by quality of PHC structure, in an endeavor to identify synergies among the three programs. It reports on a transverse study based on secondary data from PMAQ-AB Cycles 1 and 2, the PMM and ‘Requalifica UBS’. The PHC facilities inventoried during PMAQ-AB Cycle 1 were classified, on pre-established typology, into five groups ranked from A (best) to E (failed). They were then compared in terms of PMM personnel allocated and Requalifica UBS proposals. The results point to convergences in investments by the three programs. Incentives targeted predominantly PHC facilities of types B and C, indicating a concentration of efforts on PHC facilities with potential for structural quality improvements. In addition to expanding access, the provision of doctors by the PMM, added to infrastructure upgrades and work process improvements, contributes to addressing high turnover and guaranteeing retention of doctors in PHC.

Keywords Primary health care, Human resources, Health evaluation
Introduction

The recent implementation of healthcare policies in Brazil has shown a convergence of actions aimed at upgrading primary healthcare procedures throughout Brazilian national territory. The National Primary Healthcare Policy (PNAB) is the basic principle for organizing primary healthcare services. In addition to the PNAB, the Federal Government programs promoting improved PHC access and quality, investments in the primary healthcare units (PHUs) and the supply of physicians. This highlights the National Primary Healthcare Access and Quality Improvement Program (PMAQ-AB) with financing potential for evaluating the performance of the PHC teams and the significant adherence by the municipalities from all regions.

The UBS Requalification Program (Requalifica UBS) is responsible for financial investments in construction, renovations, and expansion of the primary healthcare units, and plays a vital intervention role in the SUS. In order to counter the insufficiency and high turnover of physicians, the PMM has offered financial aid for the emergency supply of physicians to the primary care and family health strategy teams (ESF), and directs medical training to primary healthcare action.

The three government programs are united on the need to address consensual problems involved in forming a strong and wide-ranging primary healthcare service, and, hopefully, one that will successfully coordinate the care dispensed by the healthcare sector. These problems are: the precarious infrastructure of a number of UBS, scarcity of human resources, particularly physicians, and the absence of an evaluating ethos in the primary healthcare environment.

Problems involving the healthcare force began before the establishment of the SUS, and involve a background of ineffective policies and planning. As from 2000, a more strategic reorganization was noted, aimed at overcoming the insufficient and faulty supply of health professionals. This reorganization involved strategies to expand the training, professional capacity, and value of the health worker force.

In 2013, Brazil had an average of 1.8 physicians per thousand inhabitants, a number significantly lower than the average for the majority of OECD (Organization for Economic Operation and Development) countries, which show an average of 3.3 physicians per thousand inhabitants, and of other Latin-American countries, such as Argentina (3.8 physicians/1,000 inhabitants) or Uruguay (4.5 physicians/1,000 inhabitants). Moreover, there is significant regional disproportion between Brazilian professionals and in each region and state, i.e., concentration of these professionals in capital cities and the larger urban centers, to the detriment of the interior, small municipalities, and less developed regions.

Nowadays, Hart’s concept of Inverse Care Law, compiled in 1971 for the UK scenario, still applies. He showed that the inhabitants of major social exclusion areas and with correspondingly greater health needs were precisely the populations with less primary healthcare coverage and worse services. This was the scenario in place 23 years after the advent of the National Health Service.

A close examination of the number of medical work posts underscores their scarcity in Brazil. Annual Social Information Report data show a significantly higher availability of formal job positions in relation to the number of individuals entering the medical profession. Regional distribution scarcities and inequities constantly undermine the formation of family healthcare teams (EqSF) and play a role in the high turnover of professionals.

Primary healthcare has encountered considerable difficulties to establish and satisfactorily qualify medical professionals to work in the EqSFs since its inception in the nineteen-nineties. Studies have identified factors associated with these professionals’ turnover rates and with the problems inherent to resolving such problems, such as unfavorable working conditions, precarious labor relations, low pay, negligible opportunities to progress, minimal social recognition by peers, and the lack of training compatible with the ESF.

Many of these factors reveal a healthcare policy stage when decentralization led to a diversity of experiments by local governments of different political parties. These parties wavered between following the State neo-liberal reforms, reducing the regulations governing the work force and organizing healthcare services, and implementing primary healthcare as the basis of a strong and inclusive SUS.

The gap in state regulation of the healthcare work market, particularly, in medicine which has a strong power of self-regulation, is an impediment in the eyes of physicians in priority SUS areas. This phenomenon which is, by no means, restricted to Brazil, is in line with the logic of economic globalization. According to Rovere, this factor has resulted in a migration of physicians, following market trends, in direct opposition to policies. This explains the migration, on a global scale, of healthcare professionals from small
towns and rural areas to capital cities and other metropolitan areas. In Brazil, the paucity and inequities in regional distribution hamper the formation of the EqSF and contribute to these professionals’ high turnover rate. This problem is exacerbated in remote and less favored zones. In this context, in response to political and social demand, in 2013 the PMM was formed with “the mission to train medical area human resources for the SUS” in order to comply with the Brazilian Constitution requirement to organize human resources in the healthcare sector. This policy is built on three strategic bases: training personnel for the SUS, improving the infrastructure of the UBSs, and ensuring the emergency supply of physicians (Chart 1).

### Chart 1. Features of the programs qualifying primary healthcare procedures: PMAQ-AB, PMM, and Requalifica UBS.

<table>
<thead>
<tr>
<th>Features</th>
<th>PMAQ-AB</th>
<th>Mais Médicos Program</th>
<th>Requalifica UBS Program</th>
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<tr>
<td>Objectives</td>
<td>Expedite the expansion of access to, and improved quality, of Primary Healthcare, by introducing continuous quality evaluation procedures. Creation of the PAB-variable quality component.</td>
<td>Reduce the scarcity of physicians in priority SUS areas and minimize inequities. Introduce human resources into the medical area for SUS based on the following 3 bases: - creation of new jobs and new medical courses, and a review of curriculum guidelines; - expansion and improvement of the UBS infrastructure; - emergency supply of physicians.</td>
<td>Create financial incentives for the renovation, expansion, and construction of UBS and provide appropriate conditions for healthcare work and an improved environment for serving their users.</td>
</tr>
<tr>
<td>Legislative support of creation of the Program</td>
<td>Ordinance No. 1.654, of July 19, 2011</td>
<td>Law No. 12.871, of October 22, 2013</td>
<td>Ordinance No. 2.206, of September 14, 2011</td>
</tr>
<tr>
<td>Sector responsible</td>
<td>DAB/MS</td>
<td>SGTES/MS and MEC</td>
<td>DAB/MS and MPOG</td>
</tr>
<tr>
<td>Year established</td>
<td>2011</td>
<td>2013</td>
<td>2011</td>
</tr>
<tr>
<td>Membership criteria</td>
<td>Complete teams. SCNES monitoring. The limit figure for team adherence by municipality varies in accordance with the respective cycle.</td>
<td>More vulnerable municipalities (where 20% or more of the population lives in extreme poverty, or among the 100 municipalities with a population in excess of 80,000, with the lowest levels of per capita public revenue), and a SUS covered population not covered by Primary Healthcare.</td>
<td>Each UBS should implement one of the following projects at a time: construction, renovation, or expansion. Municipality to issue periodic reports on the progress of the project. SISMOB monitoring.</td>
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*In 2009 and 2010, the UBS National Implementation Plan paid out financial incentives for UBS construction projects.
This emergency supply has occurred in cycles. In its initial stage, recruitment for physicians in areas of precarious habitation, targeted Brazilian and foreign (specifically in that order) physicians who had voluntarily applied to work with the PMM, offering three-year contracts with the possibility of extension for a further three years. Subsequently, the authorities contracted physicians supplied under the international commitment of the Pan-American Healthcare Organization - Cuba³. The formal registration of these professionals is granted by the Ministry of Health and is restricted to the PMM¹⁴ environment. In 2015, the final cycle was completed by physicians with registered Brazilian professional qualifications, who were also Provab (Primary Healthcare Professional) registered.

The selection process for municipalities and supply physicians was regulated by the definition of inclusion criteria, in accordance with the degree of vulnerability of the respective population¹⁶. In the short-term, the PMM led to a reduction of more than 50% of municipalities with an insufficient supply of physicians, which dropped from 1,200 in early 2013 to 558 by September 2014. In the North, 91% of short-supply municipalities received PMM physicians¹⁵.¹⁷. In September 2015 17,074 PMM physicians were working in Brazil¹⁸.

The three programs, as defined in Table 1, joined forces to strengthen primary healthcare, with the aim of reversing the trend to favoring the private sector, since the latter represented an obstacle to overcoming the insufficient supply problem which, in turn, undermined the capacity to structure efficient and quality healthcare services.

The quality of the UBS infrastructure is an important factor affecting these physicians’ work satisfaction and turnover¹⁹. Among the more pressing arguments for institutionalizing the PMM, the unsatisfactory quality of the units’ infrastructure was highlighted as one of the factors impacting primary healthcare physicians’ commitment to settling in their respective areas²⁰.

Although it is obvious that the structural features of a healthcare service cannot, on their own, guarantee quality care, there is no doubt that adequate structures lead to an improved healthcare service²¹.²². While the combination of structural and operational factors in the healthcare service results in analyses that do not reflect their direct impact on the health of the population in general, they are still the means whereby improved healthcare results are achieved.

Given that one of the three bases of the PMM is an improved UBS infrastructure, and that the unsatisfactory quality of this infrastructure impacts the settlement of physicians, the aim of this article is to examine the insertion of the PMM physicians in the context of the structure of the UBS in terms of actions and to discuss the potential of the program in improving the supply of physicians to primary healthcare. The proposed analysis would also reveal the synergies between the three programs, i.e., the PMM, PMAQ-AB and Requalifica UBS, and discuss the potential for identifying potential adjustments in these public policies.

**Methodology**

This is a transversal study containing information selected based on secondary data found in the National Program for Improved Access and Quality, cycles 1 and 2, of the PMM and UBS Requalifica Program.

In order to analyze the quality of the UBS structure, based on the Brazilian infrastructure census taken in 2012 as part of the external evaluation of cycle 1 of the PMAQ-AB, a UBS typology was constructed. This typology consists of five structural dimensions deemed crucial for attention processes that are accessible, resolve problems, and are of high quality: types of teams, professional members, work shifts, services available, premises, and consumption materials²³.

For each dimension, certain PMAQ-AB variables were selected and the corresponding standards defined. Based on factual analysis the weight of each dimension was established. The final score for each UBS was calculated by multiplying the score obtained by the standard coefficient for each dimension. Based on the total final score, the UBS were grouped in five categories: Type A, final score equal to 1, corresponding to the reference standard, attaining the highest possible value in all variables and sub-dimensions analyzed; Type B, score of 0.750 to 0.999; Type C, score of 0.500 to 0.749; Type D, score of 0.250 to 0.499; Type E, score below 0.250. The detailed methodology can be consulted in Giovanella et al.²³.

The basis of the present article is typology, relating results to PMM and Requalifica UBS data.

Five analytical models were carried out:

1. Application of the structure quality typology to UBS that received PMM physicians, compared with the proportional distribution of the UBS by structure typology between the UBS that received PMM physicians and those that did not.
2. Identification of the number of physicians recorded in the the PMAQ-AB cycle 1 census of the UBS that received PMM physicians, with a structure typology comparison between UBS with and without PMM professionals. This examination enabled a verification of the proportion of PMM professionals allocated to UBS by Type, with or without physicians. For this comparison, a variable representing the identification number of the National Healthcare Establishment Register (CNES) unit was applied.

3. A comparison of PMM teams against PMAQ-AB cycle 2 teams. Almost all (94.5%) of the country’s primary healthcare teams opted for cycle 2, with the majority of data gathered prior to PMM implementation. This revealed whether the PMM physicians were inducted into previously existing teams or formed new teams. In order to identify each team, the CNES registration numbers and area codes of the teams which opted for the PMAQ-AB were paired with those shown in the listing of PMM physicians. This is how the teams that opted for cycle 2 of the PMAQ-AB and which received PMM physicians were identified.

4. Classification of the UBS that opted for the Requalifica UBS according to structure quality, showing the types of UBS that received infrastructure upgrade investments.

5. Lastly, the CNES codes of the UBS that opted for the Requalifica UBS were compared with the CNES of the UBS that received PMM physicians to arrive at the proportion of UBS members of both programs.

The PMAQ-AB cycle 1 database is accessible to the public, and is available in the DAB/SAS/MS (Primary Healthcare Department) website: http://dab.saude.gov.br/portaldab/ape_pmaq.php?conteudo=micrados. Access to the PMAQ-AB cycle 2 database is temporarily restricted to universities affiliated to the Program’s external evaluation membership. 38,812 UBS were counted in the infrastructure census in cycle 1 of the PMAQ-AB, and 24,055 UBS, which included 30,522 member teams of the PMAQ-AB were counted in cycle 2.

The PMM data were obtained from the CNES, with September 2015 as the reference date. It identified 17,074 PMM medical professionals in place up to that date, active in 14,348 UBS throughout Brazil18. This listing of professional staff and related data was made available by DAB/SAS/MS.

The Requalifica UBS Program data were made available by the DAB/SAS/MS, based on SISMOB (Works Monitoring System) relating to 26,277 proposals in place through November 201524.

Although this article has availed itself only of secondary data, it should be noted that the PMAQ-AB study was approved by the Ethics Committee for Ensp/Fiocruz Research on Human Beings and, on June 6, 2012, it received Opinion No. 32.012.

Results

In September 2015, 17,074 physicians were enrolled in the PMM, and were active in 14,348 UBS throughout Brazilian national territory. The majority of these UBS (86.4%) received one PMM physician, 9.9% received 2 physicians, 2.6% received 3 physicians, and 1.2% received between 4 and 9 physicians18.

On comparing the CNES identification data of the 14,348 UBS with PMM professionals with those working with UBS members that took part in the PMAQ-AB, cycle 1 census, we see that, of the 38,812 UBS that underwent a Brazil-wide PMAQ-AB recensus, 12,284 UBS received PMM physicians, i.e., 31.7% (Table 1).

The 12,284 UBS members that took part in the census which received PMM professionals were classified based on the typology of the previously constructed UBS structure quality23. The distribution of the UBS PMAQ-AB with PMM professionals and total UBS that underwent the PMAQ-AB cycle 1 recensus, according to type of UBS is shown in Table 1.

The UBS with PMM professional membership show a more positive distribution by type of UBS than that for the group of UBS in Brazil. Among the UBS with PMM professionals, 65.6% are concentrated under typologies B and A (the best), while, for Brazil, the concentration is 55.8% in types B and A. Among the UBS with PMM membership, 6.9% correspond to types D and E (the more precarious UBS) while, in the total UBS counted in the census, this proportion is greater: 15.0% are concentrated under D and E (Table 1).

The last column of Table 1 shows that 31.7% of Brazil’s UBS received PMM physicians and the UBS classified under best typology received PMM physicians in a greater proportion. Of the 1,916 UBS classified as type E (the worst performers in 2012), 161 (8.4%) received PMM physicians, and 3,930 classified as type D, 686 (17.5%) received PMM physicians. On the other hand, of the 1,874 UBS classified as type A (the best performers in 2012), 760 (40.6%) received PMM physicians.

In 2012, of the 38,812 UBS in the recensus, 5,532 had no physicians (14.3%). Among these
UBS with no physicians, 1,229, or 22.2%, received PMM professionals.

Table 2 lists the distribution of the UBS of the PMAQ-AB 2012 census, with PMM physicians, according to the number of physicians in the UBS, by UBS types. Considering the total of 12,284 UBS that took part in the PMM census, 8.7% are UBS with no physicians, 56.7% had one physician and 34.6% had two or more physicians in 2012.

In turn, among 161 type E UBS and among the 686 Type D UBS, that received PMM physicians, 95.7% and 47.7%, respectively, had no physicians, and the PMM professionals filled this gap. In the other Types, over 80.0% of the UBS that received PMM physicians already had one or more physicians in 2012 (Table 2).

During 2013/4, 24,055 UBS took part in the PMAQ-AB, i.e., they had teams that were part of PMAQ-AB cycle 2. Of these UBS, 9,419 received PMM physicians, equivalent to 39.2% of the total UBS members of cycle 2.

However, of the 17,074 PMM physicians at September 2015, 9,398 (55%) were allocated to already existing teams. In other words, they had physicians during a certain period of 2013/4 and joined PMAQ-AB cycle 2, since to qualify for PMAQ-AB membership, the team must be complete. This implies a combination of complementary and substituting effects intrinsic to the emergency supply of physicians by the PMM.

The Requalifica UBS Program, instituted by the Ministry of Health in 2011, focuses on structuring and upgrading Primary Healthcare via financial transfers to the municipalities that qualify under requirements for construction, renovation, or expansion of the UBS in the respective municipalities, via a PAC (Growth Acceleration Program) and parliamentary amendments.

According to SISMOB data, up to November 2015, 26,277 Requalifica UBS Program reform proposals had been received, to expand or build UBS in Brazil. The present analysis covers the 18,036 UBS under the Requalifica UBS Program.
and registered with the CNES, excluding repeat proposals with the CNES (492) and the 7,749 new unit construction proposals (ongoing and, thus, without the CNES). Of the 18,036 proposals registered with the CNES, 44.2% (7,970) represent funds for expansion projects, 43.3% (7,816) for renovation projects, and 12.5% (2,250) for new unit construction projects.

By 2011, 6,466 (35.8%) UBS infrastructure improvement proposals had been activated, as was the case between 2012 and 2015, for 11,570 (64.1%) Requalifica UBS proposals. These more recent UBS renovation proposals certainly cover structure quality with the probability of upgrading the UBS Classification in the typology prepared based on 2012 data.

A listing of the Requalifica UBS and PMM Programs shows that, among the 18,036 UBS that took part in the Requalifica Program, 6,178 (34.3%) received PMM physicians. However, of the 14,348 UBS with PMM physicians, 6,178 (43.1%) take part in the Requalifica UBS, indicating an inter-program convergence of efforts to improve these UBS.

Table 3 shows a higher participation probability for UBS Types B (47.9%) and A (46.7%) in Requalifica UBS. Of UBS Types E and D one-third (31%) took part in Requalifica UBS. Despite the fact that a higher proportion of the better typology classified UBS took part in Requalifica UBS, there was a partial convergence of the two programs and the potential for improvements in these UBS with positive typology relocation.

Graph 1 shows the number of UBS by type which receive incentives from every program. We noted a predominance of incentives in UBS B and C, suggesting a concentration of efforts in UBS with the potential of improved structural quality.

**Discussion**

The three PMM, PMAQ-AB, and Requalifica UBS programs converge for team qualification and the UBS and its implementation resulted in a major increase in financial aid for the PHC group over the last five years. According to the Transparency Portal data, federal costs incurred on primary healthcare increased by almost R$11 billion in 2011 to R$15 billion in 2015. The three programs involved R$9.8 billion, representing more than 80% of expenses incurred in one year for the AB group. This fact underscores the importance, and strong support of federal management, of actions that can lead to changes in the quality of healthcare, either directly via construction, expansion, and renovation of the UBS, or by the guaranteed presence of physicians on the

<table>
<thead>
<tr>
<th>Types of UBS</th>
<th>Participation in the Requalifica UBS Program</th>
<th>Total</th>
<th>% of UBS Requalifica UBS by Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Não</td>
<td>Sim</td>
<td>%</td>
</tr>
<tr>
<td>A</td>
<td>998</td>
<td>876</td>
<td>53.3</td>
</tr>
<tr>
<td>B</td>
<td>10.315</td>
<td>9.486</td>
<td>52.1</td>
</tr>
<tr>
<td>C</td>
<td>7.136</td>
<td>4.155</td>
<td>63.2</td>
</tr>
<tr>
<td>D</td>
<td>2.713</td>
<td>1.217</td>
<td>69.0</td>
</tr>
<tr>
<td>E</td>
<td>1.319</td>
<td>597</td>
<td>68.8</td>
</tr>
<tr>
<td>Total</td>
<td>22.481</td>
<td>16.331</td>
<td>57.9</td>
</tr>
</tbody>
</table>

Sources: PMAQ-AB cycle 1 database; SISMOB, 2015.
teams. These encourage ESF working practices and the official process of continuous evaluation to ensure ongoing quality improvements.

The high turnover rate for professionals leads to increased financial expenses, which can undermine productivity and quality. At country-wide level, there are few studies examining the turnover of professionals in organizations. Scarcer still are systemic ventures addressing this problem which impacts crucial primary healthcare areas, such as the coordination and long-term aspects of care. Campos and Malik point out the high cost of replacing a professional requiring extensive training. A study of the PSF in the municipality of São Paulo shows that infrastructure conditions impact satisfaction and are negatively associated with professional turnover. Satisfaction is associated with the contracting methods, the background of the physician selected to work in the PSF, and the respective working conditions, including the physical nature of the workplace. Higher turnovers occur where physicians encounter greater UBS access difficulties, feel underqualified for their roles, and lack the material resources to take action.

In other environments, where it is not unusual for professionals to migrate, especially in the case of physicians and nurses relocating to countries with stronger economies, who are driven by factors such as the lack of challenging work in an environment with minimal resources, and no resources, the unstable quality of everyday life, and the impossibility of progressing in a professional career, are regarded as the reason for these professionals’ reluctance to settle in primary healthcare working stations in their countries of origin.

In this respect, Requalifica UBS shows promise thanks to its wide range of activity, as it reaches almost half the total UBS in Brazil, with its upgrading and renovation work, in addition to a further 7,749 under construction. As can clearly be seen, primary healthcare units included under Requalifica UBS and the allocation of the PMM physicians are mostly represented by the Type B classification UBS, followed by those of Type C, where, in theory, there is a convergence favorable to qualifying the healthcare procedures in such UBS. UBS Type C are those that mainly require investments in overall infrastructure, and in primary and dental service equipment. To a lesser degree, UBS Type B lack certain rudimentary infrastructure items, particularly internet access, where with minimal investments, they could attain A Type standards.

Throughout its entire existence, the PMM, in line with international strategies designed to counter the problem of lack of professionals, has taken on the responsibility for providing Brazilian and foreign physicians to areas lacking primary healthcare professionals. Its chief role is to meet the distribution priorities which the Program itself established, in addition to the organizational needs of the health management organizations it serves.

Graph 1. PHU from the PMAQ-AB census by type and adherence to the ‘Requalifica UBS’ and PMM programs, Brazil.

Sources: PMAQ-AB cycle 1 data bases; SISMOB, 2015; List of PMMs, September 2015, from SCNES, 2015.
Despite the scarcity of turnover measurement studies, evidence exists that physical working conditions attract the professionals and ensure their satisfaction and trust, over and above their professional capacities\(^{19,29}\). This is crucial in the context of primary healthcare, insofar as, in Brazil, we lack a tradition of a general practice background, with ESF physicians of varying professional abilities, in terms of length of training, action, and professional qualifications. Another factor is the restructuring of the healthcare system did not include appropriate regulating of the labor market. In this respect, our analysis points out that the PMM has been a key support for the ESF by ensuring a certain degree of stability in retaining physicians in the EqSF.

This study compares the UBS which underwent a second PMAQ Cycle 1 census, classified according to their respective typologies, with the allocation of PMM professionals, seeking to understand how this emergency supply system actually functions. There is absolutely no doubt that the PMM professionals prefer UBS that provide better structural conditions (standard of quality including category of team, professional personnel, shifts, services available, equipment, and consumption materials), where the absence of a primary healthcare team member places their professional performance at risk and where a qualified physician is crucial to ensure resolution. Accordingly, upon allocating a PMM professional to these Types A and B UBS teams, the chief aim is to consolidate a given situation or to respond to an emergency absence caused by the loss of a professional team member. The allocation of PMM professionals to Type C UBS also relies on the qualifications of these primary healthcare workers.

The Type E and D UBS are those with the worst infrastructure conditions. These require crucial interventions to ensure the presence of conditions crucial to carrying out healthcare activities. This involves the infrastructure, the settlement of the healthcare professionals in order to meet the minimum quality requirements of a primary healthcare unit\(^{21}\). However, interventions from the Requalifica UBS Program did not reach the UBS with the worst structures. The Type E and UBS were also received the least number of PMM physicians. The chief reason for this is that because most of them lacked complete teams, they were not permitted to be part of the PMAQ-AB.

The reasons given to explain the features of these investments cannot be verified in this study. However, the supposition is that the autonomy of the municipal management department to decide whether or not to take part in these programs with a financial investment by the federal management departments, unstable management, and insufficient technical management capacity of the Municipal Health Authorities to prepare projects, and a reluctance to invest in municipal territories, could partially explain the results found. Here, it is essential to recognize and build strategies that could attain these UBS in such a way as to create suitable conditions under which to receive and settle professionals, including the physicians, to provide them with the means to carry out quality services and to attain better healthcare results.

Our identification of the high proportion of PMM physicians with the UBS, according to PMAQ-AB data, suggest that these professionals are allocated into teams that are either incomplete, or that experience a high degree of turnover or substitution by PMM physicians. Although no official statistics are available in the proportion of incomplete EqSF over time, this proportion is estimated at up to 30% with intermittent physician presence, but with regular absences of the latter. In 2012, for example, it was estimated that, in Natal, 47% of the 116 existing EqSF were incomplete due to the absence of physicians\(^{29}\). A study carried out on ESF physician turnover in the city of São Paulo showed a high turnover rate (>25%) in eight of the eleven partner institutions researched where, in the case of five, the annual turnover was greater than 40%\(^{19}\). These results indicate that the presence of incomplete teams is a frequent occurrence, with the intermittent presence of a medical professional, even in towns with a significant availability rate, such as São Paulo with its tally of 4.65 physicians per thousand inhabitants\(^{5}\).

These estimates correspond to the results found in the present study, and also with the increased growth in the number of EqSF as a result of the presence of PMM physicians. In December 2012, according to data found in the Histórico de Cobertura da Saúde da Família (DAB/2016), there were 33,404 EqSF active in 5,297 municipalities with an estimated coverage of 105.5 million individuals throughout Brazil. By December 2015, 40,162 EqSF were present in 5,463 municipalities with an estimated coverage of 123.6 million inhabitants\(^{51}\).

Thus, there was an increase of 6,758 teams set up in that period, in more than 166 municipalities with a coverage of over 18.1 million individuals. If 30% of the 33,404 teams set up in 2012 had intermittent physician presence, it is esti-
mated that close to ten thousand EqSF remained incomplete for a certain period of time. Thus, it is conceivable that, of the 17 thousand PMM physicians in activity through September 2015, ten thousand completed these teams by their intermittent presence teams given the problems intrinsic to obtaining settlement by such physicians. A further seven thousand PMM physicians enabled the creation of new EqSF. In this context, we simply cannot state that there was a process of substitution, but of the regular presence of physicians, thereby completing the teams.

**Final considerations**

These three programs show synergy in the manner in which they rose to historic challenges to the qualification of primary healthcare in Brazil. In its role as the introducer of quality standard primary healthcare access, that, in its second cycle, was joined by almost all the existing EqAB, the PMAQ-A made available a wide range of UBS infrastructure diagnostics. Additionally, it also introduced the concept of team work, of producing data capable of generating institutional and professional advances, in a context of institutionalization of healthcare evaluation, besides introducing the prospect of performance-based evaluation.

If it is accepted that infrastructure conditions impact satisfaction and become negatively associated with professional turnover, this simply confirms the importance of Requalifica UBS as a strategy for settlement of primary healthcare work force via upgrading the physical structure of its services. Another finding in this study appears to suggest that, in addition of the evident expansion of PHC access via the formation of new EqAB and the construction of new UBS via Requalifica UBS, the supply of physicians has always been a crucial strategy, even in its emergency circumstances, to broaden access to guarantee a regular presence of the professional in the EqAB for anywhere from three to six years. In this respect, and added to upgraded infrastructure and qualified work process, this concept of settlement would appear to converge to counter the problem of primary professional healthcare turnover and settlement.

Nevertheless, via a comparison of the typology of the UBS with the distribution of the PMM and UBS physicians, considered by the Requalifica UBS, we also noted that, the worse the UBS the more unlikely it will have an opportunity to take part in these programs. This weakens the potential of minimizing the disgraceful situation of primary healthcare resource access. Consideration should also be given to the fact that the Type E and D UBS are located in all regions of Brazil, but, in a greater proportion in the Northern and North-Eastern Regions where, historically, obstacles to accessing primary healthcare services have always been present. In this context, it could be useful for the PMM, Requalifica UBS, and PMAQ-AB to target the more vulnerable teams, services, and populations.

The guarantee to supply healthcare professionals, particularly, physicians, to primary healthcare – in the volume and quality needed, and satisfactorily distributed – is a challenge faced by many countries\textsuperscript{28,32,33}. Even Britain, with its National Health System rooted in a strong primary healthcare system, has encountered a number of problems in providing an adequate supply of physicians to their primary healthcare system (General Practitioners - GPs), including an increased percentage of retirements among GPs\textsuperscript{34}.

It should be noted that, despite the huge disparities between different countries and their respective healthcare systems, some points have frequently been identified as factors that influence the settlement of physicians, and their qualifications for a primary healthcare practice: financial and career aspects, the possibility of ongoing qualifications, and study, and the assurance of structural conditions enabling a good medical practice performance\textsuperscript{35}.

Efficiently regulating a healthcare work force is a global challenge. According to Rovere\textsuperscript{32}, the migration movements of physicians usually follows a “market-guided” logic rather than a “policy-guided” logic. The complexity of healthcare market work dynamics and work force distribution determinants result in well recognized problems in the implementation of effective policies. The existence of a web of factors influencing the availability of the healthcare work force, the construction of a project to counter the drain in remote and vulnerable areas is a challenge faced all over the world. Brazil is in this position, and encounters problems relating to the healthcare work force that existed even before the formation of the SUS. The three programs examined are the more systemic and strategic ventures dealing with this problem.

Lastly, our conclusion is that the PMM, specifically its provision and training components, in alliance with the Requalifica UBS and the PMAQ AB, is a systemic but not a timely concept that deals with the chief faults that undermine the training, supply, and settlement of physicians in Brazil’s many regions.
Collaborations

L Giovanella, MHM Mendonça, MCR Fausto, PF Almeida, AEM Bousquat, JG Lima, and H Seidl contributed to the development, analysis, and final text of this article: E Fusaro - methodology and statistical analysis; SZF Almeida – analysis of the Requalifica UBS Program; CM Franco – analysis of the PMM. L Giovanella, MHM Mendonça, MCR Fausto, PF Almeida, AEM Bousquat, JG Lima, H Seidl, E Fusaro, SZF Almeida, and CM Franco contributed equally to the critical final review of this article.

References

7. Scheffer M, coordenador. Demografia médica no Brasil 2015. São Paulo: Departamento de Medicina preventiva da faculdade de Medicina da USP, Conselho Regional de Medicina do Estado de São Paulo (CREMESP), Conselho Federal de Medicina (CFM); 2015.

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