

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

Ligia Giovannella ¹

Maria Helena Magalhães de Mendonça ¹

Marcia Cristina Rodrigues Fausto ²

Patty Fidelis de Almeida ³

Aylene Bousquat ⁴

Juliana Gagno Lima ⁵

Helena Seidl ²

Cassiano Mendes Franco ⁵

Edgard Rodrigues Fusaro ⁶

Sueli Zeferino Ferreira Almeida ⁷

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.*

Key words *Primary health care, Human resources, Health evaluation*

¹ Departamento de Administração e Planejamento em Saúde, Escola Nacional de Saúde Pública (ENSP), Fundação Oswaldo Cruz (Fiocruz). Av. Brasil 4036/1001, Manguinhos. 21040-361 Rio de Janeiro RJ Brasil. giovanel@ensp.fiocruz.br

² Vice-direção de Escola de Governo em Saúde, ENSP, Fiocruz. Rio de Janeiro RJ Brasil.

³ Planejamento em Saúde, Universidade Federal Fluminense. Niterói RJ Brasil.

⁴ Departamento de Prática de Saúde Pública, Faculdade de Saúde Pública, Universidade de São Paulo. São Paulo SP Brasil.

⁵ ENSP, Fiocruz. Rio de Janeiro RJ Brasil.

⁶ Departamento Intersindical de Estatística e Estudos Socioeconômicos. São Paulo SP Brasil.

⁷ Departamento de Atenção Básica, Secretaria de Atenção à Saúde, Ministério da Saúde. Brasília DF Brasil.

Introduction

The recent implementation of healthcare policies in Brazil has shown a convergence of actions aimed at upgrading primary healthcare procedures throughout Brazilian national territory¹. The National Primary Healthcare Policy (PNAB)² is the basic principle for organizing primary healthcare services. In addition to the PNAB are 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 force³.

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)^{4,5}. 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^{6,7}.

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 Service⁸.

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 profession⁹. 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*¹⁰.

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 areas¹¹. This phenomenon which is, by no means, restricted to Brazil, is in line with the logic of economic globalization. According to Rovere¹², 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 zones¹³.

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"¹⁴, 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)^{14,15}.

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

Features	PMAQ-AB	Mais Médicos Program	Requalifica UBS Program
Objectives	Expedite the expansion of access to, and improved quality, of Primary Healthcare, by introducing continuous quality evaluation procedures.. Creation of the <i>PAB</i> -variable quality component.	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.	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.
Legislative support of creation of the Program	Ordinance N° 1.654, of July 19, 2011 ³⁵	Law N° 12.871, of October 22, 2013 ¹⁴	Ordinance N° 2.206, of September 14, 2011 ³⁶
Sector responsible	<i>DAB/MS</i>	<i>SGTES/MS</i> and <i>MEC</i>	<i>DAB/MS</i> and <i>MPOG</i>
Year established	2011	2013	2011*
Teams and UBS participant	Census: 38.812 UBS <i>EqAB</i> adherence cycle 1: 17.202 <i>EqAB</i> adherence cycle 2: 30.522 em 24.055 UBS	12.284 UBS 17.074 physicians (Sept.2015)	26.277 proposals, of which: 18,036 UBS with <i>CNES</i> and 7,749 for construction of new UBS with no <i>CNES</i>
Funds invested (Brazilian Reais)	Cycle 1: 770 million (2011/2) ³⁷ Cycle 2: ~4 billion (2013/4) ³⁷	~ 2 billion (2014) ²⁶	Total of ~ 5 billion (2011 through 2015) ³⁸ including <i>MS</i> + <i>MPOG</i> funds
Membership criteria	Complete teams. <i>SCNES</i> monitoring. The limit figure for team adherence by municipality varies in accordance with the respective cycle.	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 <i>per capita</i> public revenue), and a SUS covered population not covered by Primary Healthcare.	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. <i>SISMOB</i> monitoring.

* 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 - Cuba⁹. 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 physicians^{15,17}. 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 service^{21,22}. 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=microdados. 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 professionals, 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

Table 1. Distribution of UBS with a recensus taken by *PMAQ-AB* and of UBS with PMM physicians, in accordance with the type of UBS, Brazil.

Types of UBS	Total of recensus UBS (1)			UBS with PMM physicians (2)			% UBS with PMM physicians
	n	%	accumulated %	n	%	accumulated %	
A	1.874	4,8	4,8	760	6,2	6,2	40,6
B	19.801	51,0	55,8	7.297	59,4	65,6	36,8
C	11.291	29,1	84,9	3.380	27,5	93,1	29,9
D	3.930	10,1	95,0	686	5,6	98,7	17,5
E	1.916	4,9	100	161	1,3	100	8,4
Total	38.812	100		12.284	100		31,7

Source: *PMAQ-AB* cycle 1 database and PMM List- Sept.2015 based on SCNES, 2015.

Table 2. Distribution of UBS *PMAQ-AB* with PMM physicians, by type of UBS, by number of physicians in the UBS 2012 census, Brazil.

Types of UBS	Physicians by UBS							
	0		1		2 or more		Total	
	n	%	n	%	n	%	n	%
A	0	0	334	43,9	426	56,1	760	100,0
B	206	2,8	4.366	59,8	2.725	37,3	7.297	100,0
C	384	11,4	2.005	59,3	991	29,3	3.380	100,0
D	327	47,7	254	37,0	105	15,3	686	100,0
E	154	95,7	5	3,1	2	1,2	161	100,0
Total	1.071	8,7	6.964	56,7	4.249	34,6	12.284	100,0

Source: *PMAQ-AB* cycle 1 database and PMM List- Sept.2015 based on SCNES, 2015.

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 projects²⁴.

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.

To become familiar with the correlation between the *Requalifica UBS* proposals and circumstances of the unit under the UBS typology, *CNES* figures, via an initial comparison of the *CNES* numbers, we noted that, of the total of 38,812 UBS in the 2012 census, 16,331 took part in the *Requalifica UBS* (42.1%). With due regard for the distribution of these 16,331 UBS that took part in the *Requalifica UBS* that took part in the *PMAQ AB* Cycle 1 census, 58.1% were classified under Type B and 25.4% under Type C (Table 3, last column), with a slightly greater distribution for the Types of UBS with superior structures (A,

B, and C) than for the group of 38,812 UBS that took part in the census (Table 1).

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.

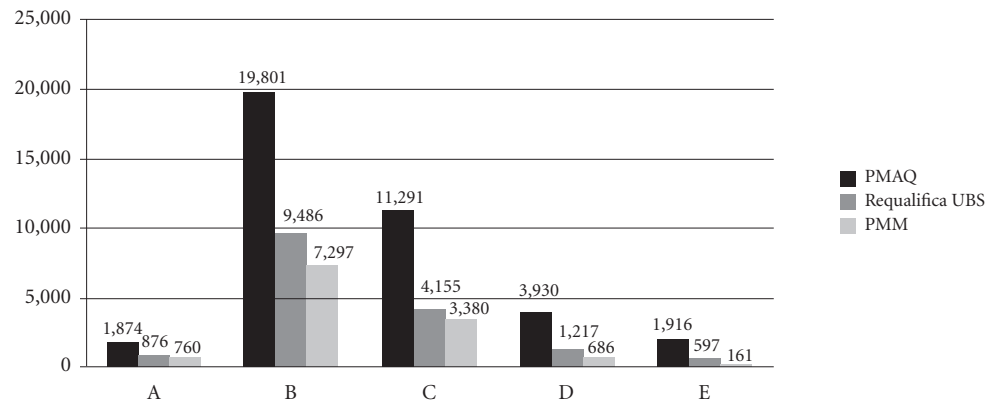
Discussion

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 2015²⁵. The three programs involved R\$9.8 billion, representing more than 80% of expenses incurred in one year for the AB group^{25,26}. 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 3. Distribution of UBS in the *Requalifica UBS* Program in accordance with participation in the *PMAQ-AB* Cycle 1, type of UBS, Brazil, 2012.

Types of UBS	Participation in the <i>Requalifica UBS</i> Program						% of UBS <i>Requalifica</i> UBS by Type
	Não		Sim		Total		
	n	%	n	%	n	%	
A	998	53,3	876	46,7	1.874	100,0	5,4
B	10.315	52,1	9.486	47,9	19.801	100,0	58,1
C	7.136	63,2	4.155	36,8	11.291	100,0	25,4
D	2.713	69,0	1.217	31,0	3.930	100,0	7,5
E	1.319	68,8	597	31,2	1.916	100,0	3,7
Total	22.481	57,9	16.331	42,1	38.812	100,0	100,0

Sources: *PMAQ-AB* cycle 1 database; *SISMOB*, 2015.



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.

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 quality¹⁹. 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 Malik¹⁹ 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^{19,27}.

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 origin²⁸.

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 standards²³.

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 serves¹⁵.

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 that 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 unit²³. 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 physicians³⁰. 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 inhabitants⁷.

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 inhabitants³¹.

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 *EqSF* 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^{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 GPs³⁴.

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 performance²⁹.

Efficiently regulating a healthcare work force is a global challenge. According to Rovere¹², 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

- Magalhães Junior HM, Pinto HA. Atenção Básica enquanto ordenadora da rede e coordenadora do cuidado: ainda uma utopia? *Divulgação em Saúde para Debate* 2014; 51:14-29.
- Brasil. Ministério da Saúde. Política Nacional de Atenção Básica. Portaria 2.488, de 21 de outubro de 2011. Aprova a Política Nacional de Atenção Básica, estabelecendo a revisão de diretrizes e normas para a organização da Atenção Básica, para a Estratégia Saúde da Família (ESF) e o Programa de Agentes Comunitários de Saúde (PACS). *Diário Oficial da União* 2011; 21 out.
- Carvalho M, Santos NR, Campos GWS. A construção do SUS e o planejamento da força de trabalho em saúde no Brasil: breve trajetória histórica. *Saúde em Debate* 2013; 37(98):372-387.
- OECD. OECD Health Statistics 2015 - Frequently Requested Data. [acessado 2016 mar 29]. Disponível em: <http://www.oecd.org/els/health-systems/oecd-health-statistics-2014-frequently-requested-data.htm>
- Giovanella L, Almeida PF, Vega Romero R, Oliveira S, Tejerina Silva H. Panorama de la Atención Primaria de Salud en Suramérica: concepciones, componentes y desafíos. *Saúde em Debate* 2015; 39(105):300-322.
- Scheffer M, coordenador. *Demografia médica no Brasil*. São Paulo: Conselho Regional de Medicina do Estado de São Paulo (CREMESP); 2013. Vol. 2. [acessado 2015 set 18]. Disponível em: http://portal.cfm.org.br/images/stories/pdf/demografiamedicanobrasil_vol2.pdf.
- 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.
- Hart JT. The inverse care law. *Lancet* 1971; 1(7696):405-412.
- Morais I, Alkmin D, Lopes J, Santos M, Leonel M, Santos R, Rosa W, Mendonça A, Sousa M. Jornais Folha de São Paulo e Correio Brasiliense: o que dizem sobre o Programa Mais Médicos? *Rev. esc. enferm. USP* 2014; 48(spe 2):107-115.
- Giovanella L, Mendonça MH. Atenção primária à saúde. In: Giovanella L, Escorel S, Lobato LVC, Noronha JC, Carvalho AL, organizadores. *Políticas e Sistema de Saúde no Brasil*. Rio de Janeiro: Fiocruz; 2012. p. 493-546.
- Rodrigues PHA, Ney MS, Paiva CHA, Souza LMBM. Regulação do trabalho médico no Brasil: impactos na Estratégia Saúde da Família. *Physis* 2013; 23(4):1147-1166.
- Rovere MR. El Programa Más Médicos: un análisis complementario desde la perspectiva de la salud internacional. *Interface (Botucatu)* 2015; 19(54):635-636.
- Seidl H, Vieira SP, Fausto MCR, Lima RCD, Gagno J. Gestão do trabalho na Atenção Básica em Saúde: uma análise a partir da perspectiva das equipes participantes do PMAQ-AB. *Saúde em Debate* 2014; 38(spe):94-108.
- Brasil. Lei nº 12.871 de 22 de outubro de 2013. Institui o Programa Mais Médicos, altera a lei nº 8.745 de 9 de dezembro de 1993 e nº 6.932 de 7 de julho de 1981, e dá outras providências. *Diário Oficial da União* 2013; 22 out.
- Santos MPS, Costa AM, Girardi SN. Programa Mais Médicos: uma ação efetiva para reduzir iniquidades em saúde. *Cien Saude Colet* 2015; 20(11):3547-3552.

16. Brasil. Ministério da Saúde (MS), Ministério da Educação (MEC). Portaria Interministerial MS/MEC nº 1369, de 8 de julho de 2013. Dispõe sobre a implementação do Projeto Mais Médicos para o Brasil. *Diário Oficial da União* 2013; 8 jul.
17. Estação de Pesquisa de Sinais de Mercado - EPSM/ NESCON/ FM/UFMG. *Dados Estatísticos sobre o impacto do Programa Mais Médicos no cenário de escassez de médicos em atenção primária no Brasil*. Belo Horizonte: NESCON/FM/UFMG; 2015. [acessado 2016 fev 23]. Disponível em: http://epsm.nescon.medicina.ufmg.br/epsm/Pesquisa_Andamento/Impacto_Programa_Mais_Medicos.pdf
18. SCNES. Cadastro Nacional de Estabelecimentos de Saúde. DATASUS. 2015. [acessado 2015 set 30]. Disponível em: <http://cnes.datasus.gov.br/>
19. Campos CVA, Malik AM. Satisfação no trabalho e rotatividade dos médicos do Programa Saúde da Família. *Revista de Administração Pública* 2008; 42(2):47-68.
20. Brasil. Ministério da Saúde (MS). Secretaria de Gestão do Trabalho e da Educação na Saúde. *Programa mais médicos – dois anos: mais saúde para os brasileiros*. Brasília: MS; 2015.
21. Donabedian A. La investigación sobre la calidad de la atención médica. *Salud Pública Mex* 1986; 28(3):324-327.
22. Silva L, Formigli V. Avaliação em saúde: limites e perspectivas. *Cad Saude Publica* 1994; 10(1):80-91.
23. Giovannella L, Bousquat A, Fausto MCR, Fusaro E, Mendonça MHM, Gagno J. *Tipologia das Unidades Básicas de Saúde Brasileiras*. [Nota Técnica], Pesquisa Regiões e Redes, 2015. [acessado 2015 Dez. 13]. Disponível em: http://www.resbr.net.br/wp-content/uploads/2015/09/NovosCaminhos05_ValeEste.pdf
24. SISMOB. Sistema de Monitoramento de Obras. Acesso restrito. [acessado 2015 Nov 20]. Disponível em: <http://dab2.saude.gov.br/sistemas/sismob/login.php>.
25. Brasil. Saúde com transparência. Portal da transparência. 2016. [acessado 2016 fev 18]. Disponível em: <http://aplicacao.saude.gov.br/portalthransparencia/index.jsf>
26. Dutra M. Mais Médicos tem orçamento de R\$1,9 bilhão em 2014. *Contas abertas* 2014 Fev 11. [acessado 2016 fev. 18]. Disponível em: www.contasabertas.com.br/website/arquivos/7779
27. Medeiros CRG, Junqueira AGW, Schwingel G, Carreno I, Jungles LAP, Saldanha OMFL. A rotatividade de enfermeiros e médicos: um impasse na implementação da Estratégia de Saúde da Família. *Cien Saude Colet* 2010; 15(Supl.1):1521-1531.
28. Moosa S, Wojczewski S, Hoffmann K, Poppe A, Nkomazana O, Peersman W, Willcox M, Derese A, Mant D. The inverse primary care law in sub-Saharan Africa: a qualitative study of the views of migrant health workers. *Br J Gen Pract* 2014; 64(623):e321-e328.
29. Willis-Shattuck M, Bidwell P, Thomas S, Wyness L, Blaauw D, Ditlopo P. Motivation and retention of health workers in developing countries: a systematic review. *BMC Health Services Research* 2008; 8:247.
30. Tribuna do Norte. Metade das equipes está incompleta. 3.8.2012. [acessado 2016 fev 19]. Disponível em: <http://tribunadonorte.com.br/noticia/metade-das-equipes-esta-incompleta/227754>.
31. Brasil. Departamento de Atenção Básica. Histórico de Cobertura da Saúde da Família. 2016. [acessado 2016 fev 26]. Disponível em: http://dab.saude.gov.br/portal-dab/historico_cobertura_sf.php.
32. Lehmann U, Dieleman M, Martineau T. Staffing remote rural areas in middle- and low-income countries: A literature review of attraction and retention. *BMC Health Services Research* 2008; 8:19.
33. Mash R, Almeida M, Wong WCW, Kumar M, Von Pressentin KB. The roles and training of primary care doctors: China, India, Brazil and South Africa. *Human Resources for Health* 2015; 13:93.
34. Sansom A, Calitri R, Carter M, Campbell J. Understanding quit decisions in primary care: a qualitative study of older GPs. *BMJ* 2016; 1:9.

Article submitted 15/03/2016

Approved 14/06/2016

Final version submitted 16/06/2016