

THE MAIS MÉDICOS PROGRAM IN THE NORTH HEALTH REGION OF MINAS GERAIS

O PROGRAMA MAIS MÉDICOS NA REGIÃO DE SAÚDE DO NORTE DE MINAS GERAIS

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Abstract: The MaisMédicos Program (PMM) was launched in response to the significant shortage of doctors in Brazil, especially in areas with high levels of health vulnerability. One example is the Northern Health Region of Minas Gerais (RSN), an area of 86 municipalities with a historical connection to the program. This research aimed to analyze the results of the PMM at RSN in relation to the supply of medical professionals for Primary Health Care (PHC). In this way, we assessed whether there was a benefit from the PMM in the most vulnerable municipalities, with high rates of population in extreme poverty, and with lower coverage of doctors in the primary areas of the SUS. This is an exploratory study, with a quantitative descriptive approach. The data was collected from a bank with restricted access to PMM tutors, called Work Plan, kindly provided by them. Analysis was carried out using the variables: PHC doctors; PMM doctors; proportion of PMM/APS doctors. For municipalities to join, the analysis was based on municipalities eligible and not eligible for the program, according to the criteria in the notices. As a result, the PMM reduced the lack of doctors in PHC in RSN and improved medical coverage in the municipalities. However, the program's eligibility criteria left out municipalities with significant health needs, pointing to a lack of

accuracy. Regarding the adhesion of municipalities, only 1/3 of them remained throughout the entire period, highlighting irregularities in continuity. Despite the difficulties, the PMM had positive impacts in the region, improving access to healthcare.

Keywords: Public health administration; Primary health care; Health policy.

INTRODUCTION

Historically, the lack of doctors in Brazil has been a limiting factor to access and universal coverage of health services. This scenario is not recent and the More Doctors Program (PMM) was not the first government program for the provision of doctors implemented in Brazil. Examples such as the Rondon Project, in the military dictatorial regime; the Program for the Internalization of Health and Sanitation Actions, in 1976; the Internalization Program of the Unified Health System, already in the democratic regime in 1993; the Program for the Internalization of Health Work, in 2001 and the Program for the Valorization of Primary Care Professionals, in 2012, among many others, were attempts to internalize and capillarize health care in Brazil, especially in Health Care Primary Health - APS⁽¹⁾.

Despite these efforts, overcoming the inequities in the distribution of doctors in Brazil and the insufficient number of professionals still presents itself as the great challenge in Brazil. The study "Medical demography in Brazil: scenarios and distribution indicators" conducted by the Regional Council of Medicine of the State of São Paulo in 2013, the year of creation of the PMM, pointed out that there were about 400,000 doctors in Brazil, corresponding to a rate of approximately 2 doctors per thousand inhabitants, far below the rate of 3.5 doctors per 1,000 inhabitants, a reference of the member countries of the Organization for Cooperation and Economic Development (OECD) ⁽²⁾.

In the specific case of health, the right of all and the duty of the State, according to the Federal Constitution of 1988, it must be guaranteed by public policies and with universal and equal access. Despite these guarantees, great inequities are still observed in its supply and performance. The main causes of these distortions are caused, in the view of Girardiet al.⁽³⁾, by the absence and irregular geographical distribution of doctors, which culminated in persistent problems for decades, whose resolution demanded the adoption of measures and the formulation of specific public policies.

Discussions on the need for public policies that guarantee greater equity in the regional distribution of doctors returned to prominence in 2013, unfolding protests such as the movement entitled "Where is the doctor", led by the National Front of Mayors, and the June 2013 Conference. The demonstrations of popular dissatisfaction and the pressures and charges against the federal

government fostered the creation of the More Doctors Program, launched in July 2013, by provisional measure N° 1,165, transformed into Law 12,871, that same year ⁽⁴⁾.

The program, therefore, is based on evidence that demonstrates a scenario of shortage of doctors, especially in primary care. In addition, the difficulties of attraction and fixation and the low interest in the career in primary care, especially in poorer and more remote areas, such as the North of Minas Gerais, were also identified factors that motivated the creation of the PMM ⁽³⁾.

The Northern Health Region (RSN), a mesoregion of the state of Minas Gerais, is characterized by low population density, marked by social inequalities, large distances between municipalities and extensive rural areas, a situation that refers to the different processes of socioeconomic development of the different areas of the North of Minas Gerais, and also has as one of its most striking characteristics the fact that it is located in a transition area, both from a physical and socioeconomic point of view. The RSN is home to 89 municipalities, distributed in 7 microregions, with an estimated population of 1,703,128 inhabitants, according to 2010 IBGE data, a scenario closer to the implementation of the PMM that was created in 2013 ⁽⁵⁾.

Due to the aforementioned territorial extension, associated with regional inequalities, socioeconomic and health advances, historically, did not happen homogeneously in the state of Minas Gerais, as well as in the rest of the country, directly affecting the balance of the supply of public goods and services in the region. Despite the constitutional guarantees, great inequities are still observed in health supply and performance.

Thus, this study sought to evaluate the implementation of the PMM in the RSN with regard to the axis "emergency provision of doctors" and "accession of municipalities". Specifically, the study aimed to describe how the dynamics in changes in physician coverage among the municipalities of this region would have evolved to prioritize the municipalities with lower medical coverage at the beginning of the implementation of the PMM, as well as to prioritize the municipalities with the worst health needs.

METHODOLOGY

A descriptive analysis of the adherence and provision of doctors in the 86 municipalities that make up the RSN was performed. For this purpose, the data of the provision of doctors during the PMM period, 2013 to 2021, was used. The data regarding Primary Care were obtained from the website of the Health System Performance Evaluation Project (PROADESS) / Institute of Communication and Scientific and Technological Information in Health (ICICT/FIOCRUZ). Data regarding the doctors linked to the PMM were obtained from the UNASUS System, from a bank of restricted access to the PMM tutors, called the Work Plan, kindly assigned by them.

The analysis of the provision of professionals for the NSR was made from the use of the following variables: (1) Number of doctors available to the SUS, in the primary specialties, for every 3,000 residents. In this variable, primary specialties are considered: (a) allopathic clinicians or generalists, (b) family health doctors or community doctors, (c) pediatricians, hebiatrics and neonatologists; (2) Average monthly number of doctors linked to the PMM, for every 3,000 residents; (3) Proportion of PMM doctors, in the year xx (Ratio between the number of doctors linked to the PMM and the number of doctors available to the SUS, in the primary specialties, in the reference year), using the analysis period from 2013 to 2021.

Regarding the analysis of the health vulnerability of municipalities, the following variables were used: (1) Health Needs Index (INS), a synthetic index composed of a set of demographic, socioeconomic and mortality variables, based on 2010 census data, developed by Ferreira Júnior et al.(6). For the purposes of this research, this variable was transformed into a binary variable, D_INS_North, assuming a value equal to 1, when the municipality presented NSA above the average observed in the northern health region, and a value equal to zero otherwise.

Another binary variable (2) used in the study is the eligibility of RSN municipalities in 2013, the year of implementation of the PMM. This variable assumes a value equal to 1 for municipalities that met the necessary criteria to be able to apply to participate in the PMM, in 2013, according to criteria defined in Interministerial Ordinance 1493 and Notices 40 and 41 of the PMM (7).

RESULTS

From the analysis of the data found on the increase of new doctors by the PMM and the relationship with the INS of the evaluated municipalities, it was possible to elaborate graphs and tables and make a comparative analysis between the local demands of medical professionals and the actual increase of these professionals.

Table 1 presents the descriptive statistics of the 86 municipalities of the RSN of Minas Gerais, with regard to the initial eligibility of the municipalities to join the PMM, according to Interministerial Ordinance N°. 1,369, of July 8, 2013(8), combined with the corresponding health needs indices (INS), estimated in the study by Ferreira Júnior et al (6).

It is noticed that 45 of the 86 municipalities of the RSN have health needs at levels above the average observed for the region and correspond to 52.3% of the total number of municipalities in that region. However, only 33 municipalities of this group (38.4% of the total RSN) were classified as eligible by the PMM at the beginning of its implementation. In turn, the other 41 municipalities belong to the group of those whose levels of health needs are lower or equal to the average of the NSN, and correspond to 47.7% of the municipalities in the region. However, 21

municipalities of this group (corresponding to 24.4% of the total RSN) were considered eligible by the PMM at the beginning of its implementation.

Table 1 - Profile of municipalities in the Health Region of Northern MG, according to initial eligibility defined in the PMM, in 2013, and levels of health needs

		Level in Health Needs (a)		Total Municipalities
		0	1	
PMM Eligibility, in 2013 (b)	0	Frequency	20	32
		%	23,3%	37,2%
	1	Frequency	21	54
		%	24,4%	62,8%
Total Municipalities		Frequency	41	86
		%	47,7%	100%

Source: Own elaboration based on research results.2023 **Notes:** (a) D_INS_Norte: Binary variable, indicating whether the municipality had an INS above the average for the Northern Health Region: (1: yes; 0: no). (b) Binary variable, indicating whether the municipality was considered eligible for the PMM in 2013: (1: eligible 0: not eligible).

The criteria established in 2013 to delimit the profile of municipalities eligible for the PMM obeyed the following provision: P1 - areas referring to 40% of the census sectors with the highest percentages of population in extreme poverty of the capitals, according to IBGE; P2 - areas referring to the 40% of the census sectors with the highest percentages of population in extreme poverty of the municipalities located in the metropolitan region, according to IBGE; P3 - areas referring to the 40% of the census sectors with the highest percentages of population in extreme poverty of the municipalities that are among the G100 (municipalities with more than 80,000 inhabitants, with the lowest levels of Public revenue per capita and high social vulnerability of its inhabitants); P4 - municipalities with 20% or more of the population living in extreme poverty, based on data from the Ministry of Social Development and Fight against Hunger; P5 - municipality that is located in the area of action of the Indigenous Special Sanitary District; and P6 - areas referring to 40% of the census sectors with the highest percentages of population in extreme poverty of the other municipalities, according to IBGE ⁽⁷⁾.

It is noticed that there is low adherence between the prioritization criterion established in 2013 and the simulated criterion in the present study, that is, to prioritize the municipalities with the highest NSS. Certainly, this low adherence is due to the fact that Interministerial Ordinance N°. 1.369/2013(8) uses a single variable as a criterion for defining priority areas (percentage of the population in extreme poverty), while the indicator of health needs was estimated based on the weighted average of a set of 10 socioeconomic variables, chosen based on the literature referring to the social determinants of health ⁽⁶⁾.

Table 2 presents the descriptive statistics of the 86 municipalities of the RSN of Minas Gerais, regarding the initial eligibility of the municipalities to join the PMM, combined with the total number of years in which the municipalities were adhered to the PMM. It is noticed that, of the 54 municipalities of the RSN considered eligible for the PMM in 2013 (corresponding to 62.8% of the total number of municipalities in the region), only 29 municipalities (33.7% of the total RSN) were adhered to the PMM in at least 5 years of the period under analysis. The other 25 eligible municipalities (29.1% of the total RSN) did not join the PMM or joined for less than 5 years. In turn, among the 32 municipalities (corresponding to 37.2% of the total region) initially considered ineligible for the PMM, 10 of them (corresponding to 11.6% of the total in the region) were adhered to the program in at least 5 years of the period under analysis.

The low adherence between the initial eligibility and its municipal adhesion can be the result of several factors, among them, (i) administrative issues at the municipal level, or low interfederative governance, (ii) the low attractiveness or high turnover represented by limitations in the infrastructure of the health units of the municipality, (iii) or insecurities regarding the remuneration criteria established in the PMM, among others.

Table 2: Municipalities belonging to the Health Region of Northern MG and number of years linked to the PMM, between 2014 and 2021.

		PMM eligibility, in 2013 ^(a)		Total Municipalities	
		0	1		
At least 5 years of membership in the PMM ^(b) PMM ^(b)	0	Frequency	22	25	47
		%	25,6%	29,1%	54,7%
	1	Frequency	10	29	39
		%	11,6%	33,7%	45,3%
Total Municipalities		Frequency	32	54	86
		%	37,2%	62,8%	100,0%

Source: Own elaboration based on research results.2023

Notes: (a) Binary variable, indicating whether the municipality was considered eligible for the PMM in 2013: (1: eligible; 0: not eligible). (b) Binary variable, indicating whether the municipality had PMM doctors in at least 5 years, from 2014 to 2019: (1: yes; 0: no).

Table 3, in turn, presents the descriptive statistics of the 86 municipalities of the RSN of Minas Gerais, regarding the levels of health needs, combined with the total number of years in which the municipalities adhered to the PMM, in the analysis period. It is noticed that, among the 45 municipalities of the RSN that have health needs above the regional average (corresponding to 52.3% of the municipalities in the region), only 21 municipalities (24.4% of the total RSN) adhered to the PMM in at least 5 years of the period under analysis. The other 24 municipalities in this group (27.9% of the total RSN) did not join the PMM or joined for less than 5 years. In turn,

among the 41 municipalities (47.7.2% of the total region) with levels of needs lower than or equal to the regional average, 18 of them (20.9% of the total region) joined the program in at least 5 years of the period under analysis.

Table 3 - Profile of municipalities belonging to the Health Region of Northern MG, according to the number of years it was linked to the PMM and the level of health needs.

		Level of Health Needs ^(a)		Total Municipalities	
		0	1		
At least 5 years of PMM membership ^(b)	0	Frequency	23	24	47
		%	26,7%	27,9%	54,7%
	1	Frequency	18	21	39
		%	20,9%	24,4%	45,3%
Total Municipalities		Frequency	41	45	86
		%	47,7%	52,3%	100,0%

Source: Own elaboration based on research results.2023 Notes: (a) D_INS_Norte: Binary variable, indicating whether the municipality had an INS above the average for the Northern Health Region: (1: yes; 0: no). (b) Binary variable, indicating whether the municipality had PMM doctors in at least 5 years, from 2014 to 2019: (1: yes; 0: no).

In a hypothetical situation of perfect adherence between the level of health needs and the years of adherence to the PMM, all 45 municipalities with INS above the regional average (52.3% of the region) would be linked to the PMM for 5 years or more, while the other 41 municipalities (47.7% of the region) would not be linked. There may be several reasons for the difference observed between the concrete case and the hypothetical situation, among them problems of municipal management or interfederative governance.

Also, it is convenient to verify whether the municipal eligibility criteria adopted in the PMM, at the beginning of its implementation, would have benefited some municipalities with low priority in terms of medical coverage, which could configure, at first glance, a distancing from the axis of action "emergency provision of doctors", which intends to prioritize municipalities with a problem of low medical coverage in primary care.

In this perspective, Table 4 presents the descriptive statistics of the 86 municipalities of the RSN of Minas Gerais, regarding the evolution of the coverage of doctors working in the SUS, in the primary specialties, grouped according to their eligibility for adherence to the PMM, initially defined in the Interministerial Ordinance N°. 1,369/2013(8). It can be seen that, in 2014, the average and median coverage of doctors in the group of non-eligible municipalities were 1.37 and 1.39 doctors for every 3,000 inhabitants, respectively, while in the group of eligible municipalities the statistics were 1.48 and 1.39 doctors per inhabitant.

Regarding heterogeneity, in 2014, the coefficient of variation in the group of non-eligible municipalities reveals that the standard deviation (of 0.37 doctors per 3,000 inhabitants) of the coverages in that group corresponded to 27.06% of their average coverage (1.37), while in the group of eligible municipalities the coefficient of variation was 35.39%, indicating that, at the beginning of the PMM, the group of non-eligible municipalities were less heterogeneous, compared to the group of eligible municipalities.

Comparing the minimum values between the two groups, in 2014, it can be seen that, in the group of ineligible, the municipality with the lowest coverage was 0.32 doctors per 3,000 inhabitants, while in the group of eligible, the smallest municipality had 0.52 doctors per 3,000 inhabitants. As for the maximum values observed that year, in the group of ineligible, the municipality with the highest coverage had 2.07 doctors per 3,000 inhabitants, while, in the group of eligible, the largest municipality had 3.92 doctors per 3,000 inhabitants.

Comparing the years 2014, 2019 and 2021, the results of Table 4 show that the averages and medians of municipal coverage of doctors were increasing in the two groups of municipalities.

At least with regard to the RSN, the results of Table 4 suggest that the eligibility criterion defined in Interministerial Ordinance N°. 1,369/2013 of the PMM(8) would not have benefited the "emergency provision of doctors" axis.

To serve municipalities with low coverage, ideally, the selection of priority municipalities should take into account not only the shortages of their populations, but also the respective municipal coverage of doctors in primary specialties should be observed, since any cases of municipalities that combine high rates of precariousness with relatively high levels of coverage may be signaling management problems at the municipal level or quality of their health units.

Table 4 - Coverage of doctors available to SUS, in primary specialties, between the group of municipalities eligible for the More Doctors Program and the group of non-eligible - Northern Health Region of MG.

Group of Municipalities	Estatistic	2014	2019	2021
Not eligible at the beginning of the Mais Médicos Program	Average	1,37	1,46	1,72
	Medium	1,39	1,41	1,62
	Standard Deviation	0,37	0,61	0,70
	Coef. Var. %	27,06	41,67	40,70
	Minimum	0,32	0,32	0,61
	Maximum	2,07	2,85	4,10
	Eligible at the beginning of the Mais Médicos Program	Average	1,48	1,52
Medium		1,39	1,46	1,62
Standard Deviation		0,53	0,69	0,78
Coef. Var. %		35,59	45,54	45,65
Minimum		0,52	0,41	0,00
Maximum		3,92	4,52	4,41

Source: Research results, based on data extracted from the PROADESS website - Health System Performance Assessment Project / Institute for Scientific and Technological Communication and Information in Health (Icict/Fiocruz): URL: <https://www.proadess.icict.fiocruz.br/>.2023

Table 5, below, presents the statistics of the ratio of PMM doctors between 2014 and 2021. It is noticed that in the first year after the implementation of the PMM, in 2014, the average was 0.22 PMM doctor for each doctor available to the SUS in primary specialties, while the median was 0.11. The year 2018 can be considered the lowest performing PMM coverage, when the average was 0.16 PMM doctor for each doctor available to the SUS, the median was 0.01. In 2014, heterogeneity between municipalities, measured by the coefficient of variation, was the lowest in the analyzed period, while in 2018 heterogeneity was the second highest in the period.

The first three years of the period (2014 and 2015) can be considered those with the best performance in PMM coverage. Certainly, the evolution of the economic and fiscal crisis, aggravated by the political clashes that culminated in the impeachment of the chief executive in

2016, and in the changes in the political agenda, plus the occurrence of the COVID-19 pandemic, from 2020.

It was chosen here to use the number of doctors available to the SUS, in the primary specialty, for every 3,000 inhabitants. The reference is the parameter of 3,000 individuals covered by the primary care team following the methodological standards of population coverage of the Ministry of Health.

Table 5 - Evolution of the ratio of PMM doctors, in relation to the total number of doctors in primary specialties, in the municipalities of the Northern Health Region of MG, between 2014 and 2021

	2014	2015	2016	2017	2018	2019	2020	2021
Average	0,22	0,21	0,23	0,19	0,16	0,21	0,19	0,18
Medium	0,11	0,10	0,08	0,04	0,01	0,04	0,05	0,05
Standard Deviation Variable	0,29	0,27	0,31	0,31	0,25	0,28	0,26	0,23
Coefficient % ^(a)	128,2	128,3	136,3	162,4	152,1	137,1	139,9	129,0

Source: Research results, based on data extracted from the UNASUS System, with restricted access: <https://sistemas.unasus.gov.br/webportfolio/> and the PROADESS website - Health System Performance Assessment Project / Institute of Communication and Scientific and Technological Information in Health (Icict/Fiocruz): URL: <https://www.proadess.icict.fiocruz.br/>.2023

Note: The ratio of PMM doctors refers to the ratio between the number of doctors linked to the PMM and the number of doctors available to the SUS, in the primary specialties (Allopathic Clinicians or Generalists; Family Health Doctors or Community Doctors; Pediatricians, Hebiatrists and Neonatologists), in the corresponding year. (a) It is the ratio between the standard deviation and the mean, with this result being multiplied by 100. Useful for comparing the evolution of heterogeneity between municipalities.

DISCUSSION

The More Doctors Program has been an important instrument for the expansion and strengthening of PHC and also in health equity reduction policies.

The preliminary data found in this study on the PMM in the RSN and shown in table 7 show that with the implementation of the program there was an increase of about 20% in the number of doctors attending the PHC in the average of the 8 years evaluated (2014 -2021). These values showed variations that were of a higher value that shows an increase of 23% in 2016, third year of the program and the lowest value with an increase of only 16% of new doctors in 2018, the year that coincides with the withdrawal of the Cuban Government from the agreement with Brazil and PAHO after disagreements with the new federal government of Brazil.

These data are corroborated by the findings of Girardi et al.⁽⁹⁾ in a nationwide study that suggests that there was a significant expansion in the coverage of doctors in small

municipalities, especially in those that showed great shortage before the Program and, therefore, required immediate interventions through federal public policies of provision.

Another important point demonstrated in the preliminary analyzes and present in table 2 is that of the 86 municipalities of the RSN 32.6% never joined the program between the years 2014 and 2019, which is a fact that draws attention since the RSN faces great challenges in its health network, both due to the lack of qualified and sufficient human resources, and the deficient physical structure⁽¹⁰⁾ which would justify a greater demand for the Program.

Similar analyzes show much lower values of non-adherence to the Program, a study by Mourão Netto et al.⁽¹⁾ that analyzed the contributions of the PMM to the health of Brazil points out that about 4.9% of the 1200 Brazilian municipalities with a shortage of doctors did not have PMM doctors.

On the other hand, most municipalities of the RSN, 67.4% adhered to the PMM at least one year between 2014 and 2019 and 57% participated for at least 4 years in the program (half of the validity analyzed) which suggests a great need for increases in doctors offered by the PMM. In addition, 34.9% always participated in the PMM, from its implementation until 2019, the final year of data analysis, a fact that suggests a relative constancy in participation in the program.

According to data evidenced in table 4, which presents the bivariate analysis between health needs of municipalities in the RSN and the percentage of municipalities eligible for the PMM according to the program, there was a discrepancy with the fact that 21 municipalities (24.4%) that did not have health needs above the average of the RSN were classified as eligible for the PMM in 2013. The question arising from this is about the fact that some of these municipalities have received contributions from professionals with lower needs compared to other municipalities.

This question becomes even more evident when it is observed that 12 municipalities (14%) of those who had health needs above the average of the RSN did not become eligible for the program according to the eligibility criteria defined by the PMM in 2013. Are the criteria in fact reliable and managed to detect the real needs of the target municipalities? From this point, the question arises about the possibility that part of the PMM services has not reached the municipalities of greatest need.

According to a study conducted by Oliveira et al.⁽¹¹⁾, the participation of municipalities in the program in Brazil was not restricted only to municipalities in priority regions and this could have influenced the achievement of the program's objectives, which would be the provision of professionals in regions of greater need. This finding was even more substantial in the Southeast regions, in which 592 of the registered municipalities did not meet eligibility criteria.

CONCLUSION

The More Doctors Program contributed to the reduction of the lag of doctors in Primary Health Care in the Northern Health Region of Minas Gerais between 2014 and 2021, represented by the improvements in the average coverage of doctors in the municipalities covered by the program and their better performance compared to the municipalities not covered, which highlights the benefits of the program.

However, the eligibility criteria of the Ministry of Health did not include a significant portion of municipalities in the region that had a higher NSA, which in the medium and long term can be added as a factor of inequality in access to health in the region. Therefore, studies are necessary that address with greater accuracy the effectiveness of such criteria and that seek to highlight their effects on the results of the program, both in the North of Minas Gerais and in other regions.

Also, there are indications of difficulties in staying the municipalities during the years raised, since only 1/3 of them remained adhered to for the entire period. This point shows irregularity in the continuity of the program in the studied period. In this sense, it is important to conduct studies that seek to demonstrate the factors associated with this difficulty of municipal adherence. It is suggested to focus on public management mishaps, effects of the COVID-19 pandemic and political effects - potential factors that may have affected the performance of the program.

Finally, despite the difficulties encountered by the program, it had positive effects in the evaluated region, strongly adding to the functioning of primary care and access to health by the population. The legacy left by the PMM is from a program that brought and brings important improvements to regions that were previously neglected and that for their better functioning must be constantly improved for the particularities of the regions in which it operates.

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