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Mais Médicos (More Doctors) Program: its contribution in view of WHO recommendations for provision of doctors

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Abstract *In order to examine whether Brazil's Mais Médicos (More Doctors) Programme (PMM) reflected World Health Organisation (WHO) recommendations for improved attraction, retention and recruitment of health workers in remote and rural areas, this descriptive, qualitative study drew on document analysis in order to compare the WHO recommendations published in 2010 with Brazil's Law No. 12,871/13, which instituted the PMM. Of the 16 WHO recommendations systematised here, the PMM met 37.5%. Recommendations not incorporated into the PMM include career development programmes and public recognition strategies. Although reflecting WHO recommendations and already in place elsewhere in the SUS prior to announcement of the PMM, the National Retention Grant Programme and multi-professional teams (as in the Family Health Strategy) were not implemented by the PMM. The programme contains innovative components such as a new curriculum for medical schools and compulsory medical service. On the other hand, the PMM could have invested more in personal and professional support.*

Key words *Shortages of doctors, Unequal distribution, Attraction, retention and recruitment of health workforce, Provision of health workers, Rural doctors*

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Introduction

Maldistribution of doctors, a problem in several countries, has been studied systematically since the 1960s[1]. The number of health service vacancies attests to the lack of health workers in both wealthy and poor countries[2]. In addition, shortages of health workers, particularly doctors, are more severe in remote and socioeconomically vulnerable areas[3,4].

According to World Health Organisation figures[5], half the world's population lives in rural and remote areas, while most health workers live and work in cities. The geographical distribution of health workers is a factor that cannot be addressed in isolation, because a doctor's decision to remain in or leave a rural area depends on several factors[4,6]. Dussault & Franceschini[2] report that strategies to address maldistribution of health workers often involve reactive measures developed in response to crises, but should take account of factors outside what is exclusively the health sector domain, to set up integrated, coordinated agencies able to arrive at more comprehensive appraisals of the environment where health workers operate. Carvalho & Sousa[7] stress that provision policies should focus on changing the work process by fostering integration between universities and services in order to modify local conditions.

As conditions of life and access to information have improved, so people have come to hold higher expectations for the kind of health services they should receive[8]. In recent years, Brazil's national health service (*Sistema Único de Saúde*, SUS) has been restructured to prioritise primary care, which is the main system gateway to user care. Notwithstanding these changes, however, people living in remote or rural areas still have difficulty accessing health services[9,10].

Family medicine is not new to Brazil or the world[11] and can be considered a strategic medical speciality focussed on Primary Health Care (PHC), because it reduces both hospital admissions for causes amenable to primary care[12] and mortality[13]. It can be considered a comprehensive medical speciality, because it offers inclusive, continuous care for users of all ages, genders, cultures and creeds, with special regard for each patient's social context[11,14]. Preparation of doctors who specialise in family medicine can be considered key to a strong PHC structure in any health system, but especially for those offering universal coverage, such as the SUS[8,9,15-17].

The health of populations of rural and remote areas cannot be treated in the same way as the health of urban populations, because their contexts are different. In addition, populations of rural and remote areas are exposed to different kinds of risk, present more frequently with certain health problems, differ in terms of health indices and social determinants and face more acute difficulties in, for instance, accessing health services – all of which leads to lower coverage rates than in urban areas and lesser quantity and variety of health workers[18-20].

In order to meet the health needs of populations in rural and remote areas, health workers should take a bio-psycho-social approach to the process of health and illness, focussing on: i) understanding the context of the disease; ii) prioritising care centred on individuals, always encouraging their autonomy; iii) maintaining a close relationship with the community, perceiving that the health worker belongs to an broad health care system; iv) see every contact with users as an opportunity for prevention and health education; v) develop skills to deal with typically rural health conditions; and vi) encourage teamwork and vocational training directed to developing different skills in order to treat individuals who, in urban areas, would normally be referred to other sites in the health system, and thus reduce the obstacles to comprehensive access to health[11,19-22].

Gustavo Gusso[23], Culture and Communication Director of the Brazilian Society for Family and Community Medicine (*Sociedade Brasileira de Medicina de Família e Comunidade*, SBMFC), writes that family and community doctors (the title can differ by country), who may be considered the health worker of first contact in countries such as Canada, United Kingdom, Holland and Portugal, account for 55% of all doctors in Canada and 51% in the United Kingdom.

Canada depends on Canadian medical graduates and international medical graduates to supply rural areas. In order to be able to provide sufficiently and stably for such areas, it has to increase the numbers of Canadian doctors interested in working in rural areas[24]. Australia also has to cope with shortages in rural and remote areas, and increasing the numbers of medical internships alone is not enough to meet current needs[25]. The Rural Health Workforce Australia (RHWA) reports that, in 2015, Australia recruited about 549 health workers to operate in rural communities and in Aboriginal Medical Services, provided rural relocation grants to 58 dentists, supported more than 2,500 rural doctors' families and some 6,000 health workers and 1,800 rural practices, in

addition to engaging university health students in positive rural experiences[26].

In that context, the World Health Organisation developed a series of strategies to improve the attraction, retention and recruitment of health workers in rural areas. These are set out in the document "Increasing access to health workers in remote and rural areas through improved retention: Global policy recommendations"[5], which is designed as a guide for countries proposing to address the difficulty of attracting, recruiting and retaining health workers in rural and remote areas. It recommended strategies for all types of health worker, from health science course candidates/students to formal health workers, such as managers and doctors.

Developing countries invest in training health workers, but may see no return on that investment in the event workers decide to emigrate, generally to countries that are economically more developed than their country of origin[17,27].

Sheffer[28] compared the numbers of doctors registered with Brazil's Federal Medical Council (*Conselho Federal de Medicina*, CFM) and SUS doctors registered with the national register of health establishments (*Cadastro Nacional de Estabelecimentos de Saúde*, CNES), finding a higher concentration of doctors in the private sector. He also found that, by region of Brazil, the ratio of doctors providing services to the SUS per 1,000 population was highest in the Southeast (1.35), followed by the South (1.21), Mid-West (1.13), the Northeast (0.83) and the North (0.66)[28].

The *Mais Médicos* Programme was introduced by Law 12.871 of 22 October 2013[29], for the purpose of expanding human resources for the SUS, particularly in areas with low densities of doctors. In January 2013, a campaign titled "Where's the Doctor?" (*Cadê o médico?*) was launched during a national meeting of mayors in Brasília, which called on the federal government to move proactively to provide doctors to the various regions of the country and to relax the rules on foreign doctors' entering Brazil, so that such doctors could work in Primary Health Care[7]. In response to those demands and to relieve those regions in greatest need and produce impact on health indicators in the short term, the government introduced the *Mais Médicos* for Brazil Project (*Projeto Mais Médicos para o Brasil*, PMMB), to provide Brazilian and foreign doctors to work in such areas[30].

In order to achieve its goals, the PMM is structured with a view to: i) changing the curricular matrix and reorganising supply of medicine courses, as well as expanding the number of vacancies to prioritise locations where doctors are scarce; ii) introducing compulsory medical service for final-year medical students in SUS primary care or prompt response and emergency services, as of the first semester of 2015; and iii) engaging Brazilian doctors, Brazilians trained abroad and foreign doctors for a three-year period (extendable for a further three years) to work in municipalities with few health workers. By July 2014, the programme had expanded primary health care and was benefiting some 50 million Brazilians: under the PMMB, 14,462 doctors began to offer care in about 68% of municipalities nationwide, as well as in the 34 Special Indigenous Health Districts[31]. In addition, it is providing for 11,500 new places on undergraduate medicine courses by 2017 and 12,400 medical residence vacancies for specialist training by 2018, with the emphasis on improving primary care, the Family Health Strategy and SUS priority areas[32].

With a view to examining the maldistribution of doctors in Brazil in the light of the WHO global guidelines, this study was designed to ascertain whether the PMM contemplated the WHO's recommendations regarding improving the attraction, recruitment and retention of health workers in remote and rural areas.

The study is important and relevant both in that the PMM is currently the main public policy on providing human resources for health and reformulating medical training in Brazil[33], and that the WHO – as an international organisation with representation in numerous countries – exerts strong influence worldwide. Another factor is that the WHO recommendations were developed on the basis of experience in other countries, which helped identify which strategies were successful and which were not, underscoring the importance of evidence-based decision making.

Method

This descriptive, qualitative study drew on document analysis to compare the recommendations published in 2010 by the WHO with Brazil's Law 12.871/13, which introduced the *Mais Médicos* Programme. The sources used for document analysis were the WHO publication "Increasing access to health workers in remote and rural areas through improved retention: Global policy recommendations"[5] and Brazil's Law 12.871/13[29]. The information they contain was then systematically catalogued and critically analysed.

The recommendations were developed by a broad expert panel convened by the WHO, which involved from policy makers to representatives of professional associations and was tasked with examining the existing scientific evidence in favour of "practical guidance to policy-makers on how to design, implement and evaluate strategies to attract and retain health workers in rural and remote areas"[5]. The recommendations were drafted from a review of studies and reports on retaining, recruiting and attracting health workers for remote and rural areas, with additional input from meetings of the experts in 2009 and 2010. Evidence for interventions was evaluated using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) system, plus additional information from the experts to complement the GRADE system. The proposals were built around seven principles for improving recruitment and retention of health workers in remote and rural areas, which recommended: focus on health equity; ensure rural retention policies are part of the national health plan; understand the health workforce; understand the wider context of social, economic and political factors; strengthen human resource management systems; engage with all relevant stakeholders from the beginning of the process; and get into the habit of evaluating and learning from interventions.

The electronic version of the document of recommendations is available on the WHO website. Although the document states that the information it contains was valid up to 2013, it was decided to use this document here for three reasons: the first is that the *Mais Médicos* Programme was launched in 2013, i.e., within the period for which the information was valid; secondly, the 2010 recommendations were the first to be published on this subject[5]; and lastly, no other document of recommendations published after 2010 had been encountered at the time this study was conducted. As these are secondary data publicly available in the literature, there was no need to submit this study to a Research Ethics Committee.

The WHO recommendations were divided into four categories: i) Education; ii) Regulatory Aspects; iii) Financial Incentives; and iv) Professional and Personal Support. These categories can be seen in greater detail in Chart 1.

Results

Chart 2 shows the comparative analysis of the WHO recommendations and the measures implemented by the PMM. The study maintains the structure of the WHO report, which is divided into four categories: Education, Regulation, Financial Incentives and Professional and Personal Support.

In the Education category, the PMM embodies two of the five measures proposed by the WHO, meeting 40% of the recommendations. As regards unmet items, the regulations of the PMM make no explicit mention of prioritising students from rural areas for entry into medicine courses, of exposing undergraduate medical students to clinical rotations, specifically in rural areas, or of developing curricula that reflect the problems of rural and remote areas. Chart 2 shows descriptions of the items met, which relate to locating health professional schools outside the large cities (setting up new medicine courses in health regions with lower ratios of vacancies and doctors per head of population) and continued professional development for rural health workers (specialisation courses centred on the SUS).

Expanding course hours in medical internships in primary care and prompt and emergency services cannot be considered a measure that meets the need for clinical rotations in rural or remote areas, just as the new curricular guidelines for medicine courses cannot be considered as meeting the need for curricula to reflect rural health needs, because although doctors have to work in accordance with demand from the community where they are allocated, the law does not refer directly to the specific characteristics of rural and remote areas.

In the Regulation category, as can be seen in Chart 2, the PMM implements two of the four WHO proposals, meeting 50% of the recommendations. The two items not contemplated were the recommendation to extend incentives to other health professionals, besides doctors, and to regulate enhanced scopes of practice in rural and remote areas in order to increase the potential for job satisfaction.

The single item in the category of appropriate Financial Incentives for health workers was implemented by the PMM in the form of non-taxable monthly income and other travel, accommodation, meal and complementary training allowances (Chart 2).

Chart 1. Categories of interventions used to improve the attraction, recruitment and retention of health workersin remote and rural areas - WHO (2010).

Category of intervention	Examples	Explanation
A. Education	A1 – Students from rural origins	Use admissions policies for students from rural areas with a view to increasing the likelihood of graduates' working in rural areas
	A2 – Health schools for professionals outside the large towns	Set up medical schools in rural areas for the purpose of training more doctors who work in those areas
	A3 – Clinical rotations in rural areas during studies	Expose undergraduate students to experiences in rural areas, so as to exert a positive influence on the attraction and recruitment of health workers for such areas
	A4 – Curricula that reflect rural health problems	Curricular review to include subjects bearing on primary care and rural concerns
	A5 – Continued professional development for rural health workers	Continued education and professional development programmes
B. Regulatory	B1 – Enhanced scope of practice	Regulate to advanced forms of practice in rural and remote areasso as to increase potential for satisfaction at work
	B2 – Different types of health worker	Introduce different types of health workerswith training and practice in rural areas
	B3 - Compulsory service	Compulsory service in rural areas with appropriate support and incentives
	B4 – Subsidised education in exchange for service	Provide scholarships or other forms of education funding for students who propose to serve in in rural areas
C. Financial incentives	C1 – Appropriate financial incentives	Use a combination of fiscally sustainable financial incentives (free transport, paid holidays, housing allowance etc.).
D. Professional and personal support	D1 – Better conditions of life	Improve workers' conditions of life by investing in infrastructure and services, such as sanitation, electricity, telecommunications, schools etc.
	D2 – Secure, supportive work environment	Ensure all the equipment and materials necessary to the work environment
	D3 – Outreach	Take steps to inform and motivate health workersto foster professional cooperation
	D4 – Career development programmes	Support career development programmes for workers in and from rural areas
	D5 – Professional networks	Support the development of professional networks and associations so as to improve health workers' morale and reduce feelings of professional isolation
	D6 – Measures to foster public recognition	Formulate and encourage measures for public recognition to foster professional motivation

Source: prepared by the authors from data taken from the WHO report[5].

Chart 2. Categories of interventions used in the *Mais Médicos* Program as compared with the WHO recommendations for improving the attraction, recruitment and retention of health workers in remote and rural areas.

Category of intervention	Examples	***Mais Médicos* Program (Law 12.871/13 and MP. 621/13)**	
		Does the Program intervene in this respect?	
		Yes	**No**
A. Education	A1 – Students from rural origins		X
	A2 – Health schools for professionals outside the large towns	I – Reorganises the supply of Medicine courses and vacancies for medical residencies, prioritising health regions with lower ratios of doctors per person and with health service structure in a position to offer students a sufficient and quality field of practice	
	A3 – Clinical rotations in rural areasduring medical studies		X
	A4 – Curricula that reflect rural health problems		X
	A5 – Continued professional development for rural health workers	Art. 4 § 2. Internship activities in Primary Health Care and Prompt and Emergency Care in the SUS and Medical Residency activities shall be performed with academic and technical supervision, as pursuant to Art. 27 of this Law. Art. 14. Professional development of participating doctors shall occur by specialisation courses at public institutions of higher education and shall involve teaching, research and extension activities, which shall have a care component assured by integration between teaching and service (*Mais Médicos* for Brazil Project).	
B. Regulation	B1 – Enhanced scope of practice		X
	B2 – Different types of health worker		X
	B3 - Compulsory service	§ 1. The first year of the Residency Programme in General Family and Community Medicine shall be compulsory for entrants to the following Medical Residency Programmes: I – Internal Medicine (Clinical Medicine); II – Paediatrics; III – Gynaecology and Obstetrics; IV – General Surgery; V – Psychiatry; VI – Preventive and Social Medicine.	
	B4 – Subsidised education in exchange for service	Art. 19. Doctors on the *Mais Médicos* for Brazil Project may receive grants in the following forms: I – training grant; II – supervision grant; and III – tutorship grant.	

it continues

The Professional and Personal Support category contains the largest number of WHO proposals, a total of six recommendations. Of these, the PMM applies only one (improved working conditions) in that the PMM regulations mention that the SUS will have five years in which to furnish primary health facilities with quality equipment and infrastructure.

Chart 2. continuation

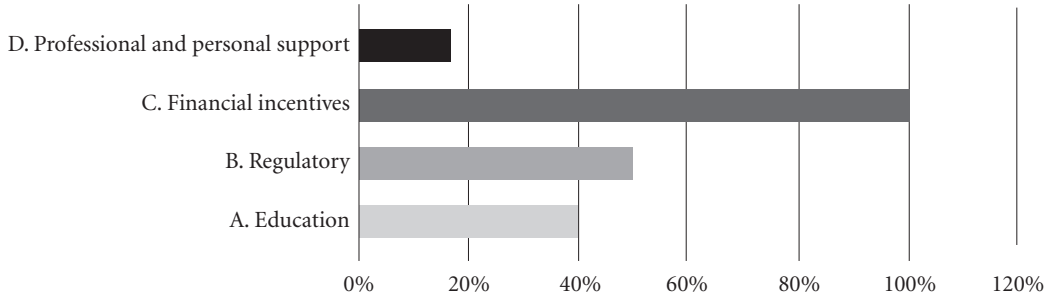
Category of intervention	Examples	*Mais Médicos* Program (Law 12.871/13 and MP. 621/13)	
		Does the Program intervene in this respect?	
		Yes	No
C. Financial incentives	C1 – Appropriate financial incentives	Art. 19. § 1. In addition to the provisions of the main clause, the Union shall grant expenses to defray the participating doctors' installation costs, which may not exceed the amount corresponding to of 3 (three) training grants. (*Mais Médicos* for Brazil Project) Art. 19. § 2. The Union is authorised to pay the travel expenses of participating doctors and their legal dependents, pursuant to the joint order by the Ministers of State for Planning, Budget and Management and Health. (Mais Médicos for Brazil Project) Meals, travel, drinking water and housing – Order SGTES/MS No. 30 of 12 February 2014. (*Mais Médicos* for Brazil Project)	
D. Professional and personal support	D1 – Better conditions of life		X
	D2 – Secure, supportive work environment	Art. 30. § 2. The SUS shall have 5 (five) years to furnish primary health care facilities with quality equipment and infrastructure, to be specified in the multi-year plans.	
	D3 – Outreach		X
	D4 – Career development programmes		X
	D5 – Professional networks		X
	D6 – Measures for public recognition		X

Source: prepared by the authors from WHO recommendations[5] and Law 12.871/13[29] and other laws, ministerial orders and provisional orders relating to the PMM[34-36].

Graph 1 summarises the percentage fulfilment of the WHO's recommendations. Of the 16 proposals, the PMM contemplated six, attaining 37.5%. The category that stands out most is Financial Incentives, although this category contains only one recommendation, suggesting that financial incentives should be fiscally sustainable, and is followed by the categories Regulation, Education and finally Professional and Personal Support.

Discussion

In Brazil, the extremely unequal geographical distribution of doctors is influenced by a number of factors, including the distribution of schools of medicine and residency programmes. Póvoa et al.[37] find that doctors are concentrated in economically more developed areas with higher concentrations of residency programmes, as occurs in the South and Southeast regions, which account for 70.1% of Brazil's medical schools. This favours the unequal distribution of doctors, because the Southeast not only offers 57%



Graph 1. Percentage of WHO recommendations met by the PMM.

Source: prepared by the authors.

of vacancies, but supplies 57.7% of all doctors. Brazil needs to increase the supply of family and community doctors and of incentives to attract health professionals to this field[38].

The World Organisation of Family Doctors (WONCA) argues that developing residency programmes in family medicine in rural areas can be considered a gold-standard strategy to increase human resources for rural health and decentralise the distribution of doctors, but should always be accompanied by strategies to guarantee the quality of the residency programme[17]. Family medicine is intrinsic to universal coverage and accordingly is concerned with equity and with the individual right to health[8]. The Brazilian Family and Community Medicine Society (*Sociedade Brasileira de Medicina da Família e Comunidade*, SBMFC[11]) reports that some countries, including Canada, United Kingdom, Cuba, Holland and Portugal have instituted the family medicine specialist as first-contact health care professional: in Canada, they account for 55% of all health professionals, in the United Kingdom, 51%, in Cuba, 65% and in Holland, 33%.

The creation and reordering of medical residency vacancies under the PMM are measures in keeping with the WHO recommendations, prioritising as they do areas with smaller numbers of doctors per inhabitant, as in the North and Northeast and towns in the interiors of all Brazil's regions. Approximately 40 municipalities are scheduled to receive new medicine courses, to produce a potential increment of 4,460 new undergraduate places and 2,822 new residency vacancies in 2014[32].

The Federal Medical Council[39] has positioned itself against the opening of new medicine courses, claiming that it would be of more advantage to invest funds in existing courses, because the sites selected do not have the capacity to offer quality training. Dr Maurício Marcondes Ribas[40], when vice-chairman of the Paraná Regional Medical Council, declared that "today Brazil has 400,000 doctors and is starting to train another 18,000 every year. The numbers are more than what is needed for our realities". According to the São Paulo Regional Medical Council (CREMESP[28]), if new medical schools and course places continue to open up at the same pace, by 2022 Brazil will have 2.52 doctors per 1,000 population, but that, if there is no change in the Brazilian health system and in measures to attract and retain doctors, that increase will not be enough to reduce existing inequalities among regions and between public and private health sectors.

In opposition to that, the Brazilian Health Studies Centre (*Centro de Estudos Brasileiros em Saúde*, CEBES[41]), disagreeing with the arguments put forward by medical associations that claim supply of doctors is sufficient, points to the lack and poor allocation of doctors as serious problems. Setting up medical schools in places which have no medicine courses is one way of improving the distribution of health services and professionals[37]; one example of how rural recruitment has been pursued with relative success by some courses, Dussault & Franceschini[2] report on Thailand, which intends to train 300 doctors per year to work in rural areas.

The WHO guidelines contain no recommendation on engaging international doctors. However, given the situation in Brazil, where doctors are not only in short supply, but poorly distributed, engagement of international doctors can

be seen as an important emergency measure to meet the population's needs. Some authors[2,42] argue that engaging doctors from other countries is an important measure for combating shortages of doctors in rural areas, as in Australia, for example, which since the 1990s has been seeking strategies para to address the scarcity of doctors in rural areas and has come to rely on foreign doctors to solve the problem and keep Australia's health system functioning[28,42,43].

Under the PMM, doctors who form part of the PMMB are offered continued professional development activities involving teaching, research and extension under the orientation of doctors as supervisors and tutors. White et al.[44], by way of the interviews and accounts of 429 doctors from rural communities, show the importance of continued professional development: 80% of the interviewees stated that, were it not for continued medical education, they would be less willing to continue to pursue their functions in rural areas. As regards the PMMB, continued education is implemented in the form of a postgraduate course, with the SUS as the specialisation context. The report by the Federal Court of Audit (*Tribunal de Contas da União*, TCU[45]) on the PMM declares that there is still room for improvement in the specialisation course, because the number of supervisor and tutor doctors is still less than specified in the PMM's own rules.

Compulsory medical service, as instituted by Provisional Order No. 621/13[34], forms part of the PMM and has been in force since 1 January 2015 for medical students. As this study was conducted the same year that compulsory service began, no data were available on compulsory medical service under the PMM. Although this is one dimension in which the PMM has innovated for the SUS, this kind of service is not exclusive to Brazil, but has been introduced in various parts of the world and can include not just doctors, but other types of health worker, such as nurses and midwives[46]. In Colombia, compulsory medical service is decentralised and strongly connected with the universities, while hospitals are responsible for administering the vacancies[1].

Opinions are divided on financial incentives for health workers. Garcia et al.[30] argue that, by opening up the labour market and offering financial incentives, the numbers of doctors per head of population can be boosted and the differences among regions, lessened. On the other hand, Dussault & Franceschini[2] believe that financial incentives may not be able to improve the distribution of health workers. Reis et al.[46] argued that although money is a good incentive, it is not enough, and that other kinds of recompense, such as courses and awards, may be more effective.

In the Work Environment category, where all the equipment and materials necessary to the work environment should be guaranteed, the SUS was allowed five years to equip primary health facilities with quality equipment and infrastructure, by means of measures to be specified in the multi-year plans. Mendonça et al.[47] note that health managers and health workers report a need for interventions to foster good organisation, a clean and comfortable work environment, reliable supply of appropriate material, physical and mental security and working conditions appropriate to the health workers' functions. The WHO[5] reiterates the importance of: investing in improvements to infrastructure in rural areas, which can not only improve retention of health workers, but make the overall environment more attractive to all economic sectors; outreach and motivation strategies to reduce feelings of professional isolation, particularly in remote areas, recommending the use of mechanisms such as Brazil's *Telessaúde* (remote consulting, diagnostic and education) programme and visits by doctors or teams to other localities; career plans to improve health workers' morale and professional status, which can increase satisfaction and performance at work; and a series of low-cost measures to assure public recognition, which can constitute an important step in improving recognition for rural health workers, in addition to suggesting awarding titles and publishing studies conducted in rural areas, for the purpose of making rural practices more widely known and possibly making it more attractive to young doctors to work in rural areas.

One of the WHO recommendations that was not embodied in the PMM was to use admissions policies to enrol students from rural areas. Law 12.871/13[29] and MP 621/13[34], which instituted the PMM, were not found to contain any provision corresponding to this recommendation, although there is a Retention Grant Programme (*Programa Bolsa Permanência*, PBP) which, although not directly connected to undergraduate health science studies, is designed to grant financial incentives to students at federal institutions of higher education who are in socioeconomically vulnerable situations and to indigenous and *quilombola* students[48]. In Australia, as noted by Maciel Filho[1], medical students with rural backgrounds showed interest in returning to their

place of origin after completing the Medicine course and, in view of that interest, the government introduced measures to motivate and encourage middle-school students in rural areas to study Medicine, backed by the incentive of study scholarships and a mechanism to facilitate admission to medical schools.

The recommendation of 'enhanced scopes of practice' for rural health workers – which means expanding the functions that a health professional can perform, such as allowing nurses to prescribe medicines for users – was not contemplated by the PMM. The WHO[5] reports evidence that care provided by health workers whose scope of practice has been expanded in this way shows no loss of quality and that such enhancement can contribute to increasing health workers' satisfaction with their work.

Nor does the PMM feature inclusion of different types of health workers, although such inclusion is already a feature of the SUS, as part of the Family Health Strategy, whose teams comprise a doctor, dentist, nurse, community health workers, dental health technician and/or auxiliary and nurse technician and/or auxiliary. The WHO[5] emphasises the importance of engaging and training new health workers as a means to mobilise human resources more quickly (given shorter training times) and economically, making this a useful option for localities with scant financial resources.

Final remarks

Shortages of doctors and the difficulty of attracting and retaining health professionals in rural and vulnerable areas are global problems. A number of factors can influence domestic migratory processes, such as career plans, location, professional status and recognition and the belief that better personal, professional and financial development is possible in urban areas.

A number of countries have introduced measures to address the shortages of health workers, each according to its particular conditions. However, it is possible that measures considered successful can be used by other countries as a basis for constructing new measures to improve the attraction and retention of health workers in rural and remote areas. The WHO stresses that it is important for interventions to be interrelated, because in such a complex process, the hoped-for results are unlikely to be achieved through any single intervention.

The PMM has many features that are innovative to the SUS, such as engaging professionals to work in vulnerable areas; investing in improvements to PHC facility infrastructure; curricular changes in medical training; rearrangement of medicine courses towards areas with fewer doctors; and the provision that 30% of medical internship should be taken in Primary Health Care and in Prompt and Emergency Care services. The PMM incorporated 37.5% of the recommendations made by the WHO. Some of the recommendations that were not included were already in place in the SUS, such as the National Retention Grant Programme and the inclusion of different categories of health workers (Family Health Strategy).

Compulsory medical service may also be considered an innovative feature of the PMM and an important measure for improving the quantity and distribution of doctors in Brazil. However, it is important to take steps so that compulsory service does not cause medicine graduates to come to see the SUS as a kind of punishment. Ongoing curricular changes in medicine courses are also an innovation, because these, of all the measures, can come to be the most effective in the long term, because they are designed to alter the professional profile of doctors trained in Brazil, which can bring change to the current model of care.

Even with all the advances introduced by the PMM, the programme could have been more daring and innovative, by giving greater prominence in the law to issues involved in providing health workers specifically for rural and remote areas. In addition, it could have given greater attention to the WHO recommendations on personal and professional support, which a number of authors stress are important and require little financial investment, besides indirectly influencing health professionals' decision to stay on at their location, thus bringing long-term, low-cost benefits, which make them useful measures given the current scarcity of resources faced by the SUS.

Collaborations

VKS Carvalho worked on the study design, data analysis and interpretation, the literature review and formatting the article. CP Marques and EN Silva assisted in the literature review, data analysis, formatting of the article and final text revision. All authors approved the final version of the article.

References

1. Maciel Filho R. *Estratégias para a distribuição e fixação de médicos em sistemas nacionais de saúde: o caso brasileiro* [tese]. Rio de Janeiro: Universidade Estadual do Rio de Janeiro; 2007.
2. Dussault G, Franceschini MC. Not enough there, too many here: understanding geographical imbalances in the distribution of the health workforce. *Human Resources for Health* 2006; 4(12):1-15.
3. Dal Poz MR. A crise da força de trabalho em saúde. *Cad Saude Publica* 2013; 29(10):1924-1926.
4. Dolea C, Stormonta L, Braicheta JM. Evaluated strategies to increase attraction and retention of health workers in remote and rural areas. *Bull World Health Organ* 2010; 88(5):379-385
5. World Health Organization (WHO). *Increasing access to health workers in remote and rural areas through improved retention: global policy recommendations*. Geneva: WHO; 2010.
6. Rourke JTB. Politics of rural health care: recruitment and retention of physicians [editorial]. *Can Med Assoc J* 1993; 148(8):1281-1284.
7. Carvalho MS, Sousa MF. Como o Brasil tem enfrentado o tema provimento de médicos? *Interface (Botucatu)* 2013; 17(47):913-926.
8. Anderson MIP, Rojas ML, Taureaux N, Cuba MS. Cobertura Universal en Salud, Atención Primaria y Medicina Familiar. *Rev bras med fam comunidade* 2016; 12(Supl. 1):4-30.
9. Starfield B. Atenção primária: equilíbrio entre necessidades de saúde, serviços e tecnologia. Brasília: Unesco, Ministério da Saúde; 2002.
10. Oliveira FP, Vanni T, Pinto HA, Santos JTR, Figueiredo AM, Araújo SQ, Matos MFM, Cyrino EG. "Mais Médicos": a Brazilian program in an international perspective. *Interface (Botucatu)* 2015; 19(54):623-634.
11. Sociedade Brasileira de Medicina da Família e Comunidade (SBMFC). A medicina de família e comunidade: o que, como, quando, onde, por que [um documento da sociedade brasileira de família e comunidade]. Sociedade Brasileira de Medicina e Família e Comunidade – SBMFC [internet]. 2004 [acessado 2016 maio 17]. Disponível em: http://www.sbmfc.org.br/media/file/documentos/medicina_de_familia.pdf.
12. Dourado I, Oliveira VB, Aquino R, Bonolo P, Lima-Costa MF, Medina MG, Mota E, Turci MA, Macinko J. Trends in primary health care-sensitive conditions in Brazil: the role of the Family Health Program (Project ICSAP-Brazil). *Med Care* 2011; 49(6):577-584.
13. Rasella D, Harhay MO, Pamponet ML, Aquino R, Barreto ML. Impact of primary health care on mortality from heart and cerebrovascular diseases in Brazil: a nationwide analysis of longitudinal data. *BMJ* 2014; 349:g4014.
14. Sociedade Brasileira de Medicina da Família e Comunidade (SBMFC). Projeto de Expansão da Residência em Medicina de Família e Comunidade. SBMFC [internet]. 2005 [acessado 2016 maio 17]. Disponível em: http://www.sbmfc.org.br/media/file/documentos/projeto_de_expansao_das_residencias_em_mfc.pdf
15. WONCA Europe. La definición europea de Medicina General/Medicina de Familia: Características clave de la disciplina de Medicina General El papel del médico generalista y Una descripción de las competencias centrales del médico generalista / médico de familia. Sociedad Española de Medicina de Familia y Comunitaria. 2007 [acessado 2016 maio 17]; 1-15. Disponível em: http://www.woncaeurope.org/sites/default/files/documents/Wonca%20definition%20spanish%20version.pdf
16. Cliff J, Mariano A, Munguambe K. Onde Não Há Médico. Edição em língua portuguesa para África: TALC 2009,c2008 [acessado 2016 maio 17]. Versão original Copyright The Hesperian Foundation 1977, 1992. Autores: David Werner, Carol Thuman, Jane Maxwell and Andrew Pearson . Disponível em: http://www.talcuk.org/work-with-talc/ONHM/onde-nao-ha-medico-book.pdf
17. WONCA. Statement on Rural Health in Developing Countries. XII WONCA World Conference on Rural Health, in Gramado, Brazil. 2014 [acessado 2016 maio 18]; Gramado. Brasil: WONCA, 2014. Disponível em: http://www.globalfamilydoctor.com/site/DefaultSite/filesystem/documents/policies_statements/gramadostatement.pdf
18. Targa LV. Area Rural. In: Gusso G, Lopes JMC, organizadores. *Tratado de Medicina de Família e Comunidade: Princípios, Formação e Prática*. Porto Alegre: Ed. Artmed; 2012.
19. Ando NM, Targa LV, Almeida A, Silva DHS, Barros EF, Schwalm FD, Savassi LCM, Breunig M, Lima MC, Amaral Filho R, Horta TCG. Declaração de Brasília "O Conceito de rural e o cuidado à saúde". *Rev bras med fam comunidade* 2011 abr-jun [acessado 2016 jun 23]; 6(19):142-144. Disponível em: https://www.rbmfc.org.br/rbmfc/article/view/390/317.
20. Targa LV, Silva AL, Silva DHS, Barros EF, Schwalm FD, Savassi LCM, Lima MC, Silva O, Amaral Filho RCG, Silveira R, Almeida M, Ando NM. Declaração de Belém: o recrutamento e a retenção de profissionais de saúde em áreas rurais e remotas. *Rev bras med fam comunidade*. 2014 [acessado 2016 jun 23];9(30):64-6. Disponível em: https://rbmfc.org.br/rbmfc/article/view/827

21. McWhinney I. Orígenes de la Medicina Familiar. In: Introducción a la Medicina Familiar. Libros Virtuales IntraMed. Capitulo II. Intramed, 2009 [acessado 2016 jun 23]. Disponível em: http://www.intramed.net/sitios/librovirtual13/pdf/librovirtual13_2.pdf
22. Andreson MIP, Demarzo MMP e Rodrigues RD. A Medicina de Família e Comunidade, a Atenção Primária à Saúde e o Ensino de Graduação: recomendações e potencialidades. *Rev Bras Med Fam e Com* 2007 [acessado 2016 jun 23]; 3(11). Disponível em: https://www.rbmfc.org.br/rbmfc/article/view/334/221.
23. Gusso G. A especialidade Medicina de Família e Comunidade. Médico de Família e Comunidade Diretor Cultural e de Divulgação da Sociedade Brasileira de Medicina de Família e Comunidade. [acessado 2016 jun 24]. Disponível em: http://www.sbmfc.org.br/media/file/documentos/artigo_para_o_jornal_do_cfm_final.pdf.
24. Rourke J. Increasing the number of rural physicians. *CMAJ* 2008; 178(3):322-325.
25. Australian medical graduates. Rural Health Workforce Australia. 2016 jan [acessado 2016 jun 24]. Disponível em: http://www.rhwa.org.au/client_images/1770752.pdf
26. Rural Health Workforce Australia. About US. [acessado 2016 jun 24]. Disponível em: http://www.rhwa.org.au/about-us
27. Hidalgo JS. The active recruitment of health workers: a defence. *J Med Ethics* 2012; 39(10):603-609.
28. Scheffer M. *Demografia Médica no Brasil: Cenários e indicadores de distribuição* [relatório de pesquisa]. São Paulo: Conselho Regional de Medicina do Estado de São Paulo, Conselho Federal de Medicina; 2013.
29. Brasil. Lei nº 12.871, de 22 de Outubro de 2013. Institui o Programa Mais Médicos, altera as Leis 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; 23 out.
30. Garcia B, Rosa L, Tavares R. Projeto Mais Médicos para o Brasil: Apresentação do Programa e Evidências Acerca de Seu Sucesso. *Temas de economia aplicada* 2014; 402:26-36.
31. Santos LMP, Costa AM, Girardi SN. Programa Mais Médicos: uma ação efetiva para reduzir iniquidades em saúde. *Cien Saude Colet* 2015; 20(11):3547-3552.
32. Cyrino EG, Pinto HA, Oliveira FP, Figueiredo AM. O Programa Mais Médicos e a formação no e para o SUS: por que a mudança [editorial]? *Esc Anna Nery* 2015; 19(1):5-10
33. Duncan MS, Targa LV. Médicos para atenção primária em regiões rurais e remotas no Brasil: situação atual e perspectivas. *Revista Brasileira de Medicina da Família e Comunidade* 2014[acessado 2016 maio 17]; 9(32). Disponível em: http://www.rbmfc.org.br/rbmfc/article/view/1004/635.
34. Brasil. Medida Provisória nº 621, de 8 de Julho de 2013. Institui o Programa Mais Médicos e dá outras providências. *Diário Oficial da União* 2013; 9 jul.
35. Brasil. Portaria Interministerial nº 46, de 16 de janeiro de 2015. Altera a Portaria Interministerial nº 1.369/MS/MEC, de 8 de julho de 2013. *Diário Oficial da União* 2015; 16 jan.
36. Brasil. Portaria Interministerial nº 1.369, de 8 de julho de 2013. Dispõe sobre a implementação do Projeto Mais Médicos para o Brasil. *Diário Oficial da União* 2013; 9 jul.
37. Póvoa L, Andrade MV, Moro S. Distribuição geográfica dos médicos no Brasil: uma análise a partir de um modelo de escolha locacional. In: XIV Encontro Nacional de Estudos Populacionais, ABEP, realizado em Caxambú/MG – Brasil, de 20-24 de Setembro de 2004. 2004 [acessado 2014 set 23]. Disponível em: http://www.abep.nepo.unicamp.br/site_eventos_abep/PDF/ABEP2004_573.pdf
38. 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.
39. Vidale G. Conselho Federal de Medicina é contra a criação de cursos de medicina no país. Entenda o porquê [internet]. VEJA; [publicado em 2015 Abr 06]. [acessado 2015 Jun 19]. Disponível em: http://veja.abril.com.br/noticia/saude/conselho-federal-de-medicina-e-contra-a-criacao-de-cursos-de-medicina-no-pais-entenda-o-porque/
40. Ribas MM. Pretexto de suprir médicos visa ocultar descaso da saúde [editorial]. *Revista do Médico Residente. Conselho Regional de Medicina do Paraná - CRM-P* 2013; 15(02).
41. Centro Brasileiro De Estudos De Saúde (CEBES). O SUS precisa de Mais Médicos e de Muito Mais! Saúde debate 2013 [acessado 2014 set 23]; 37(97):200-203. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-11042013000200001&lang=pt
42. Han GS, Humphreys JS. Overseas-trained doctors in Australia: Community integration and their intention to stay in a rural community. *Aust J Rural Health* 2005; 13(4):236-241.
43. Buykx P, Humphreys J, Wakerman J, Pashen D. Systematic review of effective retention incentives for health workers in rural and remote areas Towards evidence-based policy. *Aust J Rural Health* 2010; 18(3):102-109.
44. White CD, Willett K, Mitchell C, Constantine S. Making a difference education and training retains and supports rural and remote doctors in Queensland. *Rural Remote Health* 2007; 7(2):700.
45. Tribunal De Contas Da União (TCU). *Auditoria operacional executada sob a forma de Fiscalização de Orientação Centralizada (FOC), na modalidade relatório único, realizada no Programa Mais Médicos, sobretudo no projeto Mais Médicos para o Brasil, tendo como foco o período compreendido entre junho de 2013 e março de 2014*. Processo TC nº 005.391/2014-8. Relatório de Auditoria. Código eletrônico para localização na página do TCU na Internet: AC-0331-07/15-P. Data da Sessão: 4 mar. 2015 – Ordinária.
46. Reis AA, Alberto C, Souza CEM, Monteiro LL, Elias R, Tobias R. Administração Baseada em Evidências. Fundação Escola de Sociologia e Política de São Paulo. In: *III Seminário de Iniciação Científica da FESPSP*. 05 a 09 de Dezembro de 2011. FAD – Faculdade de Administração. São Paulo. 2011 Dez.
47. Mendonca MHM, Martins MIC, Giovanella L, Escorel S. Desafios para gestão do trabalho a partir de experiências exitosas de expansão da Estratégia de Saúde da Família. *Cien Saude Colet* 2010; 15(5):2355-2365.
48. Brasil. Ministério da Educação (MEC). O que é o Programa de Bolsa Permanência? 2013 [acessado 2015 jun 20]. Disponível em: http://permanencia.mec.gov.br/index.html.

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