

# Quality of care for patients with Diabetes Mellitus in the More Doctors Program, in a municipality in the metropolitan region of Recife (PE), Brazil

## *Qualidade da atenção aos pacientes com Diabetes Mellitus no Programa Mais Médicos, em um município da região metropolitana do Recife (PE), Brasil*

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**ABSTRACT** The research evaluated the quality of care for patients with diabetes, cared for by the teams of the More Doctors Program. A quantitative, cross-sectional study was carried out in Goiana, Pernambuco, between November 2016 and August 2017. Structured interviews were used from the Primary Care Assessment Tool. 41 professionals from Family Health Teams linked to the More Doctors Program and 437 users with Diabetes Mellitus monitored by those teams were interviewed. The findings evidence that regularity in doctors' attendance may have led to good results regarding longitudinality (users: 7,1; professionals: 8,2) and use of services (users: 8,5). Quality regarding the information system component (users: 7,6; professionals: 9,2) indicates that data about patients were complete and available. Structural deficiencies in the municipality may have contributed to the low performance of accessibility (users: 3,6; professionals: 3,9). Poor results for family (4,6) and community (2,88) counselling, according to users, reinforce the need to strengthen these attributes, specific to the Family Health Strategy. Additionally, as it is a program, there is the possibility of its discontinuity, due to the context created by Constitutional Amendment nº 95, 2016, which may compromise access and continuity of care, especially for users with chronic diseases who frequently use the health care system.

**KEYWORDS** Program evaluation. Health consortia. Primary Health Care.

**RESUMO** Avaliou-se a qualidade da atenção aos pacientes com diabetes nas equipes do Programa Mais Médicos. Tratou-se de um estudo quantitativo, transversal, realizado em Goiana, Pernambuco, entre novembro de 2016 e agosto de 2017. Utilizaram-se entrevistas estruturadas a partir do Primary Care Assessment Tool. Foram entrevistados 41 profissionais de Equipes de Saúde da Família ligadas ao Programa Mais Médicos e 437 usuários com Diabetes Mellitus acompanhados por essas equipes. Os achados demonstram que a presença regular dos médicos pode ter ocasionado bons resultados quanto à longitudinalidade (usuários: 7,1; profissionais: 8,2) e à utilização dos serviços (usuários: 8,5). A qualidade do componente sistema de informações (usuários: 7,6; profissionais: 9,2) indica preenchimento e disponibilidade de informações sobre pacientes. Deficiência estrutural do município pode ter contribuído para o baixo desempenho da acessibilidade (usuários: 3,6; profissionais: 3,9). Resultados insatisfatórios para orientação familiar (4,6) e comunitária (2,88), segundo usuários, reforçam a necessidade de fortalecimento desses atributos, peculiares à Estratégia Saúde da Família. Ademais, por tratar-se de um programa, existe a possibilidade de sua descontinuidade, sobretudo no cenário da Emenda Constitucional nº 95, de 2016, podendo comprometer o acesso e a continuidade dos cuidados, especialmente aos usuários com doenças crônicas que utilizam frequentemente o sistema de saúde.

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**PALAVRAS-CHAVE** Avaliação de programas e projetos de saúde. Consórcios de saúde. Atenção Primária à Saúde.



## Introduction

The commitment to strengthen primary care in order to achieve universal systems was renewed in 2018, during the Global Conference on Primary Health Care, held in Astana, capital of Kazakhstan<sup>1</sup>.

This new compact arrives at a time when many challenges remain in order to the consolidation of Primary Health Care (PHC) as an instrument in achieving the goal of health for all defended in Alma-Ata, in 1978, at the same time there is evidence of its impact on the indicators whenever there is a decision to strengthen it<sup>2,3</sup>.

In Brazil, despite the health suffering from underfunding and of the recent changes in the guidelines of the National Primary Care Policy (PNAB)<sup>4</sup>, the consolidation of the Family Health Strategy (FHS), until the end of 2018, proved to be the main way to reorganize the health care model.

The priority is evidenced by the expansion of coverage achieved each year. In December 2017, the FHS was present in 98% of the municipalities in Brazil, with coverage of 64% of the population, representing an important growth in recent years, as the coverage in 2005 was around 44%. Currently, the Northeast has the highest percentage of coverage (80.79%), followed by the South (66.72%), North (64.12%), Midwest (62.14%) and Southeast (53.9%)<sup>5</sup>.

In spite of these facts, difficulties are encountered in achieving the expansion of coverage in municipalities far from large centers and in vulnerable communities. This concern is not recent and the problems are well known, such as the unequal supply of health professionals between the regions of the country, especially physicians.

Brazil has presently about 2.18 doctors/1,000 inhabitants. When evaluating the regions in isolation, it is observed that the North and Northeast regions are below the national index, with 1.01 and 1.23 doctors/1,000 inhabitants, respectively,

while the Southeast occupies the best position with 2.67<sup>6</sup>. Among the states, 16 of them (located in the North, Northeast and Midwest) have a ratio of less than 1.5. Larger municipalities also concentrate the majority of these professionals, since the number of doctors in the capitals is up to four times higher than in the interior of the states<sup>6</sup>.

Reducing these inequalities and bringing training closer to the needs of the population have been recurring concerns in Brazil. The Rondon Project, the Program for the Interiorization of Health and Sanitation Actions (Piass), the Program for the Interiorization of the Unified Health System (Pisus) and the Program for the Interiorization of Health Work (Pits) are examples of government initiatives tested among the period of the military dictatorship and early 2000s, in addition to the Program for the Valorization of the Primary Care Professional (Provab), implemented in 2011<sup>7,8</sup>.

Only the More Doctors Program (PMM), launched in 2013, enabled the provision of doctors in priority areas with the magnitude and response, and in a timely manner to meet the demand of Brazilian municipalities. In fact, the Program reached 73% of Brazilian municipalities, in addition to 34 indigenous health districts, with 18,240 doctors<sup>8,9</sup>.

Since its implementation, the PMM has been the subject of studies, mostly authored by Brazilian researchers. Between 2013 and 2016, evaluative research and policy analysis accounted for the majority of scientific production on this topic<sup>10</sup>. Studies on the literature discuss access, equity, comprehensiveness, longitudinality, changes in the work process, impact on the provision, on the turnover of physicians and on user satisfaction after the implementation of the PMM. These surveys showed positive results<sup>3,11</sup>, also revealing the limits of the Program<sup>12</sup>. However, due to the short time of implementation of the PMM, there is still an absence of other studies, including

those that demonstrate its effects on health indicators<sup>3</sup>.

The Northeast was the region that received the largest number of doctors by the PMM in the first five cycles for adherence, with 590 municipalities qualified to fill vacancies, with the participation of 95 municipalities in Pernambuco<sup>13</sup>, among them Goiana, a municipality that is part of the Metropolitan Region of Recife and located in the extreme north of the state. With a population of 78,618 people<sup>14</sup>, this municipality joined the Program, fitting the profile of extreme poverty and with vulnerable areas<sup>13</sup>. Headquarters of the 12th Health Region of the state, Goiana (PE) also hosts the pharma-chemical center, led by the Brazilian Blood Products Company (Hemobrás) and the automotive center (Fiat/Jeep), which have direct influence in a set of municipalities in Pernambuco and Paraíba, as they are located at the border between the two states

It is well known that already consolidated development hubs, such as Macaé and Itaguaí, in Rio de Janeiro, and Suape, in Pernambuco, have shown economic growth without equivalent social development<sup>15,16</sup>.

In the case of Goiana (PE), in a study promoted by Hemobrás, in partnership with the Aggeu Magalhães Institute (IAM – Fiocruz Pernambuco), social and environmental fragility was identified. In the health sector, there was a FHS coverage of 68.4%, with insufficient inputs, medications and poor infrastructure in the units, in addition to the turnover of doctors and the inadequate profile of professionals hired for the FHS<sup>17</sup>.

After the implantation of the PMM, Goiana (PE) reached 100% coverage of the FHS with 22 implanted teams, reaching 22 physicians in the program in December 2013<sup>13</sup>. However, it should be emphasized that the expansion of coverage is only one of the dimensions of access. There are many additional factors hindering the entry and

permanence of users in the National Unified Health System (SUS)<sup>18</sup>.

According to Starfield<sup>19</sup>, in addition to access, other essential attributes, such as comprehensiveness, coordination and longitudinality are essential care qualities to guarantee adherence and continuity of care. Three other characteristics, called derivative attributes, such as family and community orientation and cultural competence, are also recognized as structuring axes.

Theoretical discussions and evaluation of services regarding the attributes of PHC have been carried out in recent years from the perspective of users and professionals<sup>11,20</sup>, demonstrating the relevance of their analysis to improve the quality of care.

Care given to patients with chronic diseases, such as Diabetes Mellitus (DM), constitutes an important example for the study of access and continuous care in public services, since it is subject to prevention, early diagnosis and, due to the fact that they present possible complications over the years, users need access to specialized exams and services, without losing their clinical monitoring by the PHC teams.

The Brazilian scenario of restricted funding for health and recent changes in the PNAB, with the provision of other models of health care, brings to the fore the discussion of the quality of care provided by teams working in PHC. In addition, as the headquarters of a Health Region (HR), Goiana (PE) concentrates greater quantity and complexity of health services in relation to the other 10 municipalities that make up this HR, a situation that combined with 100% coverage of the FHS, makes this municipality an suitable case for the study on the organization, functioning and work practices in health services.

Thus, the objective of the present study was to evaluate the quality of care for patients with DM in FHS linked to the PMM in a municipality in the metropolitan region of Recife (PE), Brazil

## Methodology

This is a cross-sectional quantitative study, carried out in the municipality of Goiana (PE), from November 2016 to August 2017 using primary data.

The studied population consisted of doctors and nurses with more than six months of experience in the PMM teams and users with DM registered and monitored by the Program teams, who, at the time of the interview, were aged over eighteen years and who used the Family Health Units (FHU) participating in the study to monitor their health.

During the research period, there were 21 teams participating in the PMM in the municipality. Thus, it was decided to interview the total number of professionals working in the units. Then, 21 nurses and 20 doctors participated, as one of the practitioners refused to participate.

A random sample of the total number of diabetic users registered in the teams was used, in order to allow all micro areas to be covered.

At the beginning of the study, there were 10,492 users with diabetes monitored by the FHS in Goiana (PE)<sup>23</sup>. A cluster sampling was performed, considering 21 teams (clusters), using 95% confidence intervals, 3% estimation error, 10% prevalence, totaling 378 users. However, a 1.4 design effect was considered, resulting in 520 users.

Of the total of 520 users, 5 were excluded due to form mistakes, thus, in the initial sample of 515 users, it was observed that 72 did not fit the inclusion criterion regarding the use of the FHUs participating in the study for health monitoring, 6 were under 18, resulting in 437 users. It is noteworthy that the design effect was 1.16, less than the programmed (1.4).

After starting the interviews, there was an interruption due to the termination of six Cuban doctors' tenure in December 2016. To fulfill the inclusion criteria, it

was necessary to wait six months after the arrival of the new doctors to resume field work, timing involved to get to know the territory, the health network, the administrative procedures of the municipality, in addition to building the bond with the community. And so that users could assess the quality of service after the arrival of these professionals.

Structured interviews were conducted by previously selected and trained professionals. Doctors and nurses were interviewed in the units and the users, in their homes. For this end the research used versions for adult users and professionals of the Primary Care Assessment Tool validated in Brazil (PCATool-Brasil).

The PCATool<sup>24</sup>, created based on Donabedian's<sup>25</sup> model of quality assessment of the structure, process and result, is adopted by the World Health Organization and validated nationally and internationally, having a tradition of use in Brazil and in some countries in America, Europe and Asia for its great potential to measure the quality of PHC<sup>20,24,25</sup>.

This tool measures the presence and extent of PHC attributes (first contact access, comprehensiveness, coordination of care, longitudinality, family and community orientation) and is divided into questions according to the assessed attribute and its components. Cultural competence is not included in the version validated for Brazil.

As the PCATool-Brasil does not have questions that make it possible to a priori outline the profile of the subjects, the research used a form prepared by the research team, applied before PCATool.

For data analysis, tool masks were used to enter data using the EPI Info program, version 3.5.4, 2012. PCATool responses are structured according to a Likert scale ranging from 1 to 4 for each attribute<sup>26</sup>. The answers to the PCATool questions are: certainly yes (value = 4), probably yes (value = 3), probably not (value = 2), certainly not

(value = 1), in addition to the option I don't know / no remember (value = 9)

A score was created for each attribute, using the average of the responses to the items that make up each component by attribute. Then, standardization of the quality scores was performed so that all were on the same scale, ranging from 0 to 10. Then, the variables were analyzed from the average and standardized scores. Scores with values equal to or above 6.6 show strong PHC orientation, representing the 3 value on the Likert scale, which indicates the answer 'probably yes'<sup>27</sup>.

Statistical software R, version 3.3.2 was used in the statistical analysis. Differences in means were assessed using Anova followed by the Tukey *post hoc* test. All conclusions were accepted at the 5% significance level.

Tables were used to present the measured variables, including the use of averages. Variables with answers probably yes and certainly yes were considered yes. The same occurred for probably not and certainly not, grouped as not.

The study was approved by the Research Ethics Committee of IAM - Fiocruz

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## Results and discussion

Majority of users were female (71.2%), brown (55.9%), aged between 30-59 years (42.2%), with an income of 1 minimum wage (50.8%) and residents of houses without connection to the public sewer system (77.3%). As for schooling level, 47.60% of the interviewees had only incomplete primary education, followed by 33.18% of illiterates. With regard to diabetes, only 39.8% reported time of diagnosis less than 5 years. The existence of complications was reported by 9.6% of the interviewees (*table 1*).

Table 1. Profile of users with diabetes monitored in the units participating in the Mais Médicos Program. Goiana, Pernambuco, 2017. Goiana, Pernambuco, 2017

| Characteristics |           | n (%)      |
|-----------------|-----------|------------|
| <b>Personal</b> |           |            |
| Sex             | Masculine | 126 (28.8) |
|                 | Femenine  | 311 (71.2) |
|                 | Total     | 437 (100)  |
| Race            | White     | 113 (26)   |
|                 | Brown     | 243 (55.9) |
|                 | Black     | 79 (18.2)  |
|                 | Total     | 435 (100)  |
| Age range       | <30       | 2 (0.5)    |
|                 | 30-59     | 183 (42.2) |
|                 | 60-64     | 73 (16.8)  |

Table 1. (cont.)

| <b>Characteristics</b>           |                            | <b>n (%)</b> |
|----------------------------------|----------------------------|--------------|
|                                  | 65+                        | 176 (40.6)   |
|                                  | Total                      | 434 (100)    |
| Schooling                        | No instruction             | 145 (33.2)   |
|                                  | Basic education incomplete | 208 (47.6)   |
|                                  | Basic Education complete   | 38 (8.7)     |
|                                  | High School complete       | 39 (8.9)     |
|                                  | Tertiary education         | 7 (1.6)      |
|                                  | Total                      | 437 (100)    |
| Income                           | Less than 1 minimum wage   | 48 (11)      |
|                                  | 1 minimum wage             | 221 (50.8)   |
|                                  | Above 1 minimum wage       | 102 (23.5)   |
|                                  | No income                  | 64 (14.7)    |
|                                  | Total                      | 435 (100)    |
| <b>Sanitation</b>                |                            |              |
| Água encanada                    | No                         | 204 (46.7)   |
|                                  | Yes                        | 194 (44.4)   |
|                                  | Sometimes                  | 39 (8.9)     |
|                                  | Total                      | 437 (100)    |
| Sewage                           | Yes                        | 95 (21.7)    |
|                                  | No                         | 338 (77.4)   |
|                                  | Don't know                 | 4 (0.9)      |
|                                  | Total                      | 437 (100)    |
| <b>Diabetes Mellitus records</b> |                            |              |
| Time since diagnostic            | <5 year                    | 127 (39.8)   |
|                                  | 5-10 year                  | 98 (30.7)    |
|                                  | 11 and above               | 94 (29.5)    |
|                                  | Total                      | 319 (100)    |
| Complication                     | Yes                        | 42 (9.6)     |
|                                  | No                         | 395 (90.4)   |
|                                  | Total                      | 437 (100)    |

Source: Own elaboration.



The findings corroborate studies on DM, which reveal a higher prevalence in women, the elderly and those with less education. A high frequency of the disease is also demonstrated in the literature in overweight/obese and sedentary people. The main comorbidities include, in addition to arterial hypertension, depressive symptoms, glaucoma and diabetic retinopathy<sup>28,29</sup>.

Brazil has increased its frequency of individuals with a medical diagnosis of diabetes on average, by 0.24 percentage points per year since 2006<sup>29</sup>. The social determination of the disease<sup>30</sup> is evident in this study, as demonstrated by the results for color/race, education

level and family income of the majority of the studied population.

Table 2 shows the average scores of the PHC attributes. For users, the general score, which includes essential and derivative attributes, presented a mean value of 4.8, below the essential score, which was 5.1, with a statistically significant difference (p-value = 0.0007). The scores were lower than the reference value and the value found in the country, which was 6.8 (general score) after the implantation of the PMM11. Different results for the general and essential scores were found from the interviews with the professionals: 7.8 and 7.3, respectively (table 2).

Table 2. Average scores of the attributes of Primary Health Care, according to users with diabetes and professionals of the teams participating in the Mais Médicos Program. Goiana, Pernambuco, 2017

| PHC Attributes  |  | Users |                |         | Practitioners |                |         |
|-----------------|--|-------|----------------|---------|---------------|----------------|---------|
|                 |  | n     | Average (0-10) | p-value | n             | Average (0-10) | p-value |
| Essentials      | Access (service use)                   | 437   | 8.5            | <0,0001 | 41            | *              | <0,0001 |
|                 | Access (accessibility)                 |       | 3.6            |         |               | 3.9            |         |
|                 | Longitudinality                        |       | 6.8            |         |               | 8.2            |         |
|                 | Coordination (Care integration)        | 147   | 6.0            |         |               | 7.5            |         |
|                 | Coordination (informaation system)     | 433   | 7.6            |         |               | 9.2            |         |
|                 | Comprehensiveness (services available) | 437   | 4.1            |         |               | 7.0            |         |
|                 | Comprehensiveness (services rendered)  |       | 3.8            |         |               | 8.2            |         |
| Derivatives     | Family orientation                     |       | 4.6            |         |               | 9.4            |         |
|                 | Community orientation                  |       | 2.9            |         |               | 9.4            |         |
| Overall score   |  | 437   | 4.8            | 0,0007  | 41            | 7.8            | 0,0007  |
| Essential score |  |       | 5.1            |         |               | 7.3            |         |

Source: Own elaboration.

\*The access attribute (use of services) is only found on the user's instrument.

When studied in isolation, most attributes proved unfavorable to users. For the professionals, the results were above the reference value for seven of the eight attributes evaluated: coordination: information systems (9.2), family and community orientation, both with a score of 9.4, comprehensiveness: services

provided (8.2), longitudinality (8.2), coordination: integration (7.5) and integrality: available services, whose score was 7.0 (table 2).

In view of this disparity, users' results should be analyzed more carefully, as they are the target of attention and their opinion must be prioritized. However, it must be considered

that the PMM has the function of expanding the FHS, which has shown better results when compared to traditional services<sup>20</sup>.

The discontinuity of doctors' contracts and the turnover of municipal managers, as Goiana (PE) had three health secretaries and three different primary care coordinators during the survey, and this fact may also have influenced the quality of services as measured by users.

From the analysis of *table 2*, it is observed that the attribute access (use of services) obtained the best performance according to users, with an average of 8.5, suggesting that the location close to people's homes and the more regular presence of professionals (the average performance in the municipal teams is 27 months for nurses and 21 months for doctors) have favored the search for units for routine consultations and the search for assistance for new health problems. This result confirms other studies on this access component in the literature<sup>31,32</sup>. In Goiana (PE), the

implantation of the program seems to have impacted the 'performance' of this attribute.

Accessibility achieved negative scoring according to users and professionals (*table 2*). However, even with the low score attributed to this component of access that portrays the structure dimension<sup>23</sup>, the favorable results found in the use of services (process dimension) demonstrate that, despite structural problems, users seek and recognize these services as the first source of health care<sup>34</sup>.

The insufficient accessibility was determinant for the low values of the general and essential scores of the services, according to users. The quality of this attribute has also been shown to be insufficient in other studies<sup>24,31,32</sup>, making it necessary to invest in expanding the opening hours, ensuring emergency care and the possibility of users' communication with the team over the phone for guidance and clarification of doubts, as shown in the results of *table 3*.

Table 3. Distribution of the more relevant variables for the scores of access (accessibility) and coordination of care (integration), according to users with diabetes and professionals of the teams participating in the Mais Médicos Program. Goiana, PE, 2017

| Attributes           | Variables                             | n   | n   | Yes (%) | n    | No (%) | n    | Don't know(%) |     |
|----------------------|---------------------------------------|-----|-----|---------|------|--------|------|---------------|-----|
| <b>Users</b>         |                                       |     |     |         |      |        |      |               |     |
| Accessibility        | Opening weekend                       | 437 | 4   | 0.9     | 415  | 95     | 18   | 4.1           |     |
|                      | Opening at night                      |     | 10  | 2.3     | 392  | 89.7   | 35   | 8             |     |
|                      | Telephone counseling with UBS* open   |     | 48  | 11      | 306  | 70     | 83   | 19            |     |
|                      | Telephone counseling with UBS* closed |     | 15  | 3.4     | 359  | 82.2   | 63   | 14.4          |     |
|                      | Emergency care at night               |     | 0   | 0       | 418  | 95.7   | 19   | 3.9           |     |
|                      | Emergency care at the weekend         |     | 436 | 2       | 0.5  | 416    | 95.4 | 18            | 4.1 |
|                      | Waiting time more 30 min.             |     | 433 | 331     | 76.5 | 99     | 22.9 | 3             | 0.7 |
| <b>Practitioners</b> |                                       |     |     |         |      |        |      |               |     |
| Accessibility        | Opening weekend                       | 41  | 3   | 7.3     | 37   | 90.2   | 1    | 2.4           |     |
|                      | Opening at night                      |     | 6   | 14.6    | 35   | 85.4   | 0    | -             |     |
|                      | Telephone counseling with UBS* open   |     | 15  | 36.6    | 26   | 63.4   | 0    | -             |     |
|                      | Telephone counseling with UBS* closed |     | 14  | 34.1    | 27   | 65.9   | 0    | -             |     |
|                      | Emergency care with service closed    |     | 6   | 14.6    | 35   | 85.4   | 0    | -             |     |
|                      | Emergency care at night               |     | 7   | 16.7    | 34   | 83.3   | 0    | -             |     |



Table 3. (cont.)

| Attibutes                | Variables   | n   | n   | Yes (%) | n   | No (%) | n | Don't know(%) |
|--------------------------|---|-----|-----|---------|-----|--------|---|---------------|
| <b>Users</b>             |   |     |     |         |     |        |   |               |
| Coordination integration | Consultation with specialist                        | 437 | 146 | 33.4    | 289 | 66.1   | 2 | 0.5           |
|                          | Referral to specialist by the team                  | 146 | 116 | 79.5    | 30  | 20.5   | 0 | -             |
|                          | Staff guidance on specialized services              | 144 | 52  | 36.1    | 92  | 63.9   | 0 | -             |
|                          | Staff assistance for scheduling specialized service | 146 | 72  | 49.3    | 74  | 50.7   | 0 | -             |
| <b>Practitioners</b>     |   |     |     |         |     |        |   |               |
| Coordination integration | Counter-referral                                    | 41  | 1   | 2.4     | 40  | 97.6   | 0 | -             |

Source: Own elaboration.

Likely yes; certainly yes=YES.

Likely no; certainly no=NO.

\*UBS: Basic Health Units.

A study that evaluated the quality of PHC in Brazil and its association with the PMM shows that the rapid supply of doctors in the program was associated with a small increase in the access score (added to the structure and process components) obtained with PCATool- Brasil, especially in regions with greater socioeconomic vulnerability, such as the Northeast<sup>11</sup>.

In line with other studies<sup>24</sup>, longitudinality had a high level of quality, with scores of 6.8 and 8.2, respectively for users and professionals (*table 2*).

For chronic diseases, this attribute, together with coordination, is essential as it reveals that there is a continuity of care by the same team, especially by the physicians<sup>20</sup>. This seems to be one of the great potentials of the PMM, especially in municipalities that previously were unable to retain the doctors in their jobs, such as Goiana (PE). In Brazil, a high longitudinality score (7.7) was identified after the program was implemented<sup>11</sup>.

This attribute has great potential to impact public health expenditures, since the greater extension in PHC, the greater diagnostic and therapeutic precision in glycemetic control, is associated with less

unnecessary referrals, less complications and less expenses with major procedures complexity<sup>33</sup>.

The three-year contracts with possible renewal for the same period have enabled continuous service to these users during this time, coupled with the guarantee of payment through the federal government, making the retention of professionals less dependent on the municipality's resources.

However, it is understood that this is not the ideal situation. It is a small consolation for the population, having health as a right, to be forced to make do with healthcare with expiration date. The PMM is provisional, depends on the renewal of these contracts and this is a real limit of the program. Further identified obstacles were: precarious employment contracts, remuneration through bursaries, without guarantee of labor rights<sup>12</sup>.

In any case and as long as the structural problems are not solved (e.g. through the SUS career path), the PMM seems to be fulfilling a function, bringing health care to places lacking of assistance. The results of the 3rd. cycle of the National Program for the Improvement of Access and Quality of Primary Care (PMAQ-AB) (external

evaluation between 2017 and 2018), demonstrate that, of the 22 FHS in the municipality of Goiana (PE), most were considered good (11 ESF) or very good (9 ESF)<sup>34</sup>.

With scores of 7.6 and 9.2, the coordination (information system) showed high performance according to users and professionals, confirming the findings of other studies that used the same instrument<sup>32</sup>. The coordination (integration of care) showed unsatisfactory quality for users – 6.0 and even for professionals who attributed a high score to this attribute – 7.5, the counter-referral system is pointed out as a problem still pending in the municipality (*tables 2 and 3*).

Additionally, regarding coordination (integration of care), it is important to highlight that only 33.4% of the interviewed users reported referral to specialists and of these, 70.4% were referred by the PMM team in the municipality (*table 3*).

To provide technical support to PHC professionals in the country, there are a series of rules and procedures issued mainly by medical entities and the Ministry of Health. These guidelines include the screening of users at high risk for developing the disease (primary prevention); in addition to those who have diabetes, but are unaware (secondary prevention). For users with an established diagnosis, preventing complications and controlling those already installed should be routine in the work process of PHC teams in the country<sup>35</sup>.

PHC should be able to treat 80% of cases, however, on the recommendation of the Ministry of Health, the doctor should refer users with difficulty in metabolic control to the secondary referral unit, after attempts to obtain control by the local team have been frustrated. Additionally, cases of gestational diabetes, pregnant women with diabetes and users who need a specialized consultation with cardiology, ophthalmology, endocrinologist, nephrologist or other specialty that may be necessary to be referred<sup>36</sup>.

Access to specialized consultations needs to be expanded in the municipality. There

is a polyclinic that had only one specialty commonly demanded by users with diabetes (cardiology) at the end of 2018, in addition to two mixed units in the countryside. Goiana (PE) became the headquarters of the XII health region (HR) in 2011<sup>5</sup>. As a result, the mid-complexity hospital that was previously municipal became regional, under state management, and also serves the other 10 municipalities encompassed by the HR, without the expansion of specialized consultations in the public network; and there is no purchase of consultations from the private network, only laboratory tests. It should be noted that the hospital underwent renovation during the study, making access to this service even more difficult.

A center for referral regulation is used for the state system, so, due to the difficulty of specialists in the municipal network, the users end up in line for assistance that may occur in the municipality itself or in the state capital.

The scheduling centers, even though they are necessary to order the flow, identify the real size of the waiting lines, monitor and improve planning, especially at the municipal level, are insufficient to guarantee accessibility and continuity of care. There is a need for solid regional arrangements that express the articulated work between the three federated entities in the perspective of promoting comprehensive care<sup>12</sup>. The PMM does not have the expressed purpose of interfering in the low capacity to exercise regulation and coordination of doctors and teams on the health system<sup>12</sup>.

Regarding comprehensiveness (available services), the score 4.1 assigned by users can be explained by the difficulty in obtaining information about assistance programs, such as a dietary supplementation program, in addition to performing sutures, placing splints, removing warts, removing ingrown toenails and identification of visual and hearing problems. Many were unable to inform about the availability of drug counseling, mental health and anti-HIV counseling and testing services (*tables 2 and 4*).

Table 4. Distribution of the most influential variables for the comprehensiveness score (services available and services provided), according to users with diabetes and professionals of the Mais Médicos Program teams. Goiana, PE, 2017

| Attributes  | Variables                                   | n   | n   | Yes (%) | n    | No (%) | n    | Don't know (%) |     |
|---|---|-----|-----|---------|------|--------|------|----------------|-----|
| <b>Users</b>  |   |     |     |         |      |        |      |                |     |
| Comprehensive-<br>ness<br>Available ser-<br>vices             | Advice on changes in aging                  | 436 | 112 | 25.7    | 237  | 54.4   | 87   | 20             |     |
|   | Information on care programs                | 437 | 65  | 14.9    | 288  | 66     | 84   | 19.2           |     |
|   | Information on food supplementation program |     | 16  | 3.7     | 305  | 69.8   | 116  | 26.5           |     |
|   | Drug counseling / treatment                 |     | 77  | 17.6    | 120  | 27.5   | 240  | 54.9           |     |
|   | Counseling / Mental health                  |     | 94  | 21.5    | 121  | 27.7   | 222  | 50.8           |     |
|   | Suture                                      |     | 77  | 17.6    | 235  | 53.8   | 125  | 28.6           |     |
|   | HIV counseling and testing                  |     | 131 | 30      | 75   | 17.2   | 231  | 52.9           |     |
|   | Identification of hearing problems          |     | 67  | 15.3    | 238  | 54.5   | 238  | 30.2           |     |
|   | Identification of visual problems           |     | 73  | 16.7    | 241  | 55.2   | 123  | 28.2           |     |
|   | Splint placement                            |     | 26  | 6       | 314  | 71.9   | 97   | 22.2           |     |
|   | Removal of warts                            |     | 14  | 3.2     | 268  | 61.3   | 155  | 35.5           |     |
|   | Advice on how to quit smoking               |     | 118 | 22.7    | 99   | 27     | 220  | 50.3           |     |
|   | Removal of ingrown toenail                  |     | 32  | 7.4     | 223  | 51.3   | 180  | 41.4           |     |
| Guidance on organ donation in case of coma                    |   | 435 | 60  | 13.7    | 193  | 44.2   | 184  | 42.1           |     |
| <b>Practitioners</b>  |   |     |     |         |      |        |      |                |     |
| Comprehensive-<br>ness<br>Available ser-<br>vices             | Suture                                      | 41  | 8   | 19.5    | 33   | 80.5   | 0    | -              |     |
|   | Splint placement                            |     | 4   | 9.8     | 37   | 90.2   | 0    | -              |     |
|   | Removal of warts                            |     | 2   | 4.9     | 39   | 95.1   | 0    | -              |     |
|   | Removal of ingrown toenail                  |     | 6   | 14.6    | 35   | 85.4   | 0    | -              |     |
| <b>Users</b>  |   |     |     |         |      |        |      |                |     |
| Comprehensive-<br>ness provided<br>services Guid-<br>ance re: | Home security                               | 437 | 192 | 43.9    | 222  | 50.8   | 23   | 5.3            |     |
|   | Ways to deal with family conflicts          |     | 45  | 10.3    | 349  | 79.9   | 43   | 9.8            |     |
|   | Possible exposures to dangerous substances  |     | 69  | 15.8    | 325  | 74.4   | 43   | 9.8            |     |
|   | Keeping Firearm at home, if any             |     | 2   | 0.5     | 415  | 95     | 2    | 5              |     |
|   | Prevention of burns                         |     | 89  | 20.4    | 323  | 73.9   | 25   | 5.7            |     |
|   | Fall prevention                             |     | 132 | 30.2    | 283  | 64.8   | 22   | 5              |     |
|   | Osteoporosis prevention (women only)        |     | 321 | 98      | 30.5 | 213    | 66.4 | 10             | 3.1 |
|   | Menstruation or menopause (women only)      |     | 77  | 24      | 228  | 71     | 16   | 5              |     |
| Use of seat belt and child seat                               |   | 437 | 11  | 2.5     | 380  | 87     | 43   | 10.5           |     |
| <b>Practitioners</b>  |   |     |     |         |      |        |      |                |     |
| Comprehensive-<br>ness provided<br>services Guid-<br>ance re: | Use of seat belt and child seat counseling  | 41  | 18  | 43.9    | 23   | 56.1   | 0    | -              |     |
|   | Guidance on keeping Firearm at home, if any |     | 2   | 4.9     | 39   | 95.1   | 0    | -              |     |

Source: Own elaboration.

Probably yes and yes = Yes.

Probably no and no = No.

Even when the comprehensiveness (services available) presented a good result according to professionals (average of 7.0), some issues pointed out as unsatisfactory by users were also indicated by most doctors and nurses, such as the unavailability of suture services, splint placement, removal of warts and ingrown toenails (tables 2 and 4).

As for the services provided by the comprehensiveness component, the most influential issues for the negative result (average of 3.8) according to users were: safety at home; guidance on the use of seat belts in the car and the use of child seats, ways of dealing with family conflicts, possible exposures to dangerous substances, keeping a gun at home, preventing falls and burns. In the specific case of women, it was the case of guidance given on osteoporosis,

menstruation and menopause. The answer to these questions was negative for the majority of the users interviewed, with the questions of guidance on keeping a gun at home and using a seat belt and child seat negative for most not only users, but also professionals (tables 2 and 4).

Another disagreement between the information provided by users and professionals refers to family and community guidance. For family guidance, the scores for users and professionals were 4.6 and 9.4, respectively, and for community guidance, respectively, 2.9 and 9.4 (table 3).

The low quality of family counseling, according to users, contributed to the difficulty of users' participation in planning their treatment and the team's lack of interest in the patients' family history (table 5).

Table 5. Distribution of variables referring to family and community guidance, according to users with diabetes monitored by the teams participating in the Mais Médicos Program. Goiana, PE, 2017

| Attribute             | Variables  | n   | n   | Yes (%) | n   | No (%) | n   | Don't know (%) |
|-----------------------|--|-----|-----|---------|-----|--------|-----|----------------|
| <b>Users</b>          |  |     |     |         |     |        |     |                |
| Family orientation    | Participates in treatment planning                                     | 437 | 133 | 30.4    | 289 | 66.1   | 15  | 3.4            |
|                       | Team interested in family health problems                              | 437 | 212 | 48.5    | 221 | 50.6   | 4   | 0.9            |
| Community orientation | Home visit   | 437 | 379 | 86.7    | 54  | 12.4   | 4   | 0.9            |
|                       | Staff knowledge of community health problems                           | 436 | 240 | 55.1    | 72  | 16.5   | 124 | 28.4           |
|                       | Community views and ideas are considered for improving health services | 437 | 132 | 30.2    | 96  | 21.9   | 209 | 47.8           |
|                       | Satisfaction surveys   | 437 | 91  | 20.8    | 151 | 34.6   | 195 | 44.6           |
|                       | Research to identify new health problems                               | 437 | 86  | 19.7    | 152 | 34.8   | 199 | 45.5           |
|                       | Encouraging participation in a local health council                    | 436 | 54  | 12.4    | 329 | 75.5   | 53  | 12.2           |

Source: Own elaboration.

Probably yes and yes = Yes.

Probably no and no = No.

The low score attributed to community guidance is due to the fact that many users do not know how to answer half of the questions related to this attribute (table 5). However, a

high percentage of users reported home visits (86.7%), an important aspect in the care of patients with chronic diseases. These two attributes run through four of the six elements

of the chronic disease care model: decision support; clinical information system, supported self-care and community resources. With well-informed people participating in the planning of their treatment, it is possible to develop self-management of health, so the results tend to be positive<sup>30</sup>. As they are pillars of the Family Health Strategy, this discussion must be followed up in other studies, suggesting the use of the qualitative approach.

As a limitation of the study, the methodology used was based on the PCATool, and it gives the same weight to all attributes, this shortcoming was already pointed out in the literature<sup>32</sup>. Different weights are suggested for the cases studied, such as those involving chronic diseases, in which the most relevant issues would receive greater weights.

Added to the previous discussion, some questions of the instruments deserve revision or adaptation to the reality, as is the case of the following issue: advice on the use of seat belts or safe seats for children when riding in a car, which was decisive for the low score of integrality attribute (services provided). As most users reported income of up to one minimum wage (50.8%), this question is debatable for this reality.

The study design without control groups is still considered an apparent limitation of the study, however, it is emphasized that the health units included in the study represented the universe of units of the family health strategy operating in the municipality and the rest of the network primary care would also not allow another design.

## Final considerations

The results suggest that the PMM contributed to the improvement of the service to the population studied, not only by increasing coverage, but also by the high-quality scores presented by important attributes for chronic diseases. The coordination attribute (information system) obtained a good evaluation for

both users and professionals. And for users, access (utilization) showed the best level of quality among all the attributes evaluated, confirming the great potential of the FHS as a preferred service for the study population.

However, PMM, even allocating doctors to previously unassisted places, may lose part of its potential due to local structural problems. Furthermore, its provisional character can interfere with quality when there are changes in professionals, even if it occurs only after 3 years.

New studies can be carried out at a time when doctors' contracts are in force to assess whether the results are maintained. The qualitative approach can also elucidate the issues raised in this study. It should be noted that the research that originated this article also used qualitative data from managers and professionals, being under analysis for future publication.

It is recommended that municipal management create access conditions that do not necessarily require physical presence, such as a telephone so that professionals can answer questions and can remotely monitor the health situation of registered users. In the case of a chronic disease, this can favor self-care, in addition to strengthening the pillars of the Family Health Strategy, i.e. family and community orientation, with a view to training and empowering these users, in addition to rescuing the stimulus to effective participation of these subjects in the treatment planning, including taking advantage of the community's own resources so that the established goals are achieved.

The importance of assessing the attributes of PHC in order to qualify the services was highlighted. It is important that the municipal management team may gain ownership of the quality assessment methodologies and transforms them into a culture in the municipality so that continuous improvement of services is pursued.

Finally, it is necessary to emphasize the limits of the PMM. In the case of a program,

there will always be the possibility of its discontinuity with each change of government. In addition, due to Constitutional Amendment N° 95 of 2016, which freezes health spending for 20 years, sets additional boundaries to public health and primary care, because without new resources, there is no way to guarantee access and continuity of care, especially to users with chronic diseases who frequently use the health system.

This scenario becomes more disturbing when considering the changes in the PNAB, which occurred in 2017, which provide for a decrease in the number of Community Health Agents (CHA) and a change in their performance profile, in addition to the prioritization of the so-called traditional Primary Care to the detriment of the FHS. Thus, care for users with chronic diseases tends to suffer a setback, questioning the purpose of concepts such as welcoming, bonding, users' attribution, territorialization, health responsibility

and multiprofessional teamwork. Thus, the FHS risk to cease to be the preferred gateway for PHC, losing its potential as the coordinator of the care network.

## Collaborators

Santos MPR (0000-0002-4420-0800)\*, Albuquerque MSV (0000-0002-1520-700X)\* and Lyra TM (0000-0002-3600-7250)\* contributed substantially to the design and planning or to the analysis and interpretation of data; contributed significantly to the drafting or critical review of the content; and participated in the approval of the final version of the manuscript. Mendes ACG (0000-0002-3381-134X)\*, Silva FL (0000-0002-2191-8262)\* and Diniz GTN (0000-0002-9620-2621)\* contributed significantly to the drafting or critical review of the content. ■

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