

Evaluation of implementation of primary care for people with *Diabetes mellitus*

Avaliação da implantação da assistência às pessoas com Diabetes mellitus na atenção básica

Evaluación de la implementación de la atención a personas con Diabetes mellitus en atención primaria

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ABSTRACT

Objective: to evaluate the Deployment Level of the measures developed by Primary Care to provide care to people with *Diabetes mellitus*. **Method:** this is an evaluative study, using a deployment analysis, carried out within the Family Health Strategy and the Municipal Pharmacy, through document analysis, interview, participant observation, and field diary, based on an Evaluation Model, approved by the Research Ethics Committee. **Results:** the Deployment Level of the measures performed was considered unsatisfactory (54.34%), with the Political-Organizational dimension reaching a critical Deployment Level (45.23%) and the Technical-Assistance dimension reaching an unsatisfactory Deployment Level (60.41%), which led to the proposition of recommendations aiming to subsidize decision making, aiming to improve assistance. **Conclusion:** the results reveal a reality that is still distant from what is proposed in public policies and can contribute to the establishment of novel and resolute forms of organizing services and producing health in participatory management.

Descriptors: Nursing; Aged; Health of the Elderly; Quality of Life; Violence.

RESUMO

Objetivo: avaliar o Grau de Implantação das ações desenvolvidas pela Atenção Básica para a assistência às pessoas com *Diabetes mellitus*. **Método:** estudo avaliativo, tipo análise de implantação, realizado em Estratégia de Saúde da Família e Farmácia Municipal, por meio de análise documental, entrevista, observação participante e diário de campo, a partir de Modelo Avaliativo, aprovado pelo Comitê de Ética em Pesquisa. **Resultados:** o Grau de Implantação das ações realizadas foi considerado insatisfatório (54,34%), sendo a dimensão Político-Organizacional com Grau de Implantação crítico (45,23%) e a Técnico-Assistencial com Grau de Implantação insatisfatório (60,41%), o que conduziu a proposição de recomendações com vistas a subsidiar a tomada de decisão, para a melhoria da assistência. **Conclusão:** os resultados mostram uma realidade ainda distante do que é proposto nas políticas públicas e podem contribuir para o estabelecimento de novas e resolutivas formas de organizar os serviços e produzir saúde na gestão participativa.

Descritores: Diabetes Mellitus; Atenção Primária à Saúde; Pesquisa sobre Serviços de Saúde; Mecanismos de Avaliação da Assistência à Saúde.

RESUMEN

Objetivo: evaluar el grado de implantación de las acciones desarrolladas por la Atención Básica para la atención a las personas con *Diabetes mellitus*. **Método:** estudio evaluativo, de tipo análisis de implantación, realizado dentro del programa Estrategia de Salud de la Familia y Farmacia Municipal, a través de análisis documental, entrevista, observación participante y diario de campo, a partir del modelo evaluativo, aprobado por el Comité de Ética en Investigación. **Resultados:** el grado de implantación de las acciones realizadas se consideró insatisfactorio (54,34%), siendo que la dimensión Político-organizacional obtuvo un grado de implantación crítico (45,23%) y la dimensión Técnico-asistencial un grado de implementación insatisfactorio (60,41%), lo que llevó a la propuesta de recomendaciones que objetivan subsidiar la toma de decisiones para la mejoría de la asistencia. **Conclusión:** los resultados muestran una realidad aún distante de lo propuesto por las políticas públicas y pueden contribuir en el establecimiento de nuevas y resolutivas formas de organizar el servicio y fomentar la salud en la gestión participativa.

Descriptorios: Diabetes Mellitus; Atención Primaria de Salud; Investigación sobre Servicios de Salud; Mecanismos de Evaluación de la Atención de Salud.

INTRODUCTION

The Family Health Strategy (FHS), the main gateway to the Unified Health System (*Sistema Único de Saúde, SUS*), is responsible for coordinating the assistance provided to people with *Diabetes mellitus* (DM)¹, which makes its evaluation essential for the improvement of the work and care process.

Health evaluations seek to transform an existing health situation into a more desirable one, contributing to the decision-making process, implementation, reformulation and consolidation of practices, according to the political, social and economic context².

Scientific paper extracted from the master's thesis "Assessment of the degree of implementation of assistance to persons with *Diabetes mellitus* in a municipality of Minas Gerais", defended in 2021, at the Graduate Program in Nursing at the Federal University of Alfenas (UNIFAL-MG, Brazil).

This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brazil (CAPES) - Finance Code 001.

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Editor in chief: Cristiane Helena Gallasch; Associate Editor: Magda Guimarães de Araujo Faria

Studies to assess reality, especially with an analysis of the degree of implementation (DI), are scarce and point to the inefficiency of Primary Health Care (PHC), with weaknesses identified in different dimensions, such as Political-Organizational (PO) and Technical-Assistance (TA)³⁻⁵.

Thus, it is necessary to evaluate actions due to the possibility of contributing to reorganizing and improving the quality of the care provided to people with DM, as it makes it possible to develop recommendations that enable more assertive decision-making for managers, professionals and formulators of the Municipal Health Care policy^{4,5}.

To contribute to progress in the evaluations of health services, a study was developed with the objective of evaluating the DI of the actions developed by PHC to assist people with DM from a municipality in the South of the state of Minas Gerais.

METHOD

An evaluative study analyzing the DI of an intervention based on the contextual characteristics, according to component 1b (Analysis of the contextual determinants corresponding to the degree of implementation of the intervention), which helps to understand the variations observed in the DI of the intervention⁶. It was conducted from July to October 2020 in an FHS unit consisting of a health team and the Central Pharmacy of a municipality in the South of the state of Minas Gerais.

The evaluative model used includes medication and input dispensing, which resulted in the need to include the Central Pharmacy. Choice of the Central Pharmacy was due to the restructuring of PHC in the low population density municipality.

The study participants were the health professionals from each locus under study predicted in the evaluative model. The participants from the FHS team were an FHS coordinating nurse, a physician and a nursing technician; from the Central Pharmacy, a pharmacist; and from management, a PHC coordinator and two management support health professionals. The inclusion criteria corresponded to health professionals who worked in the FHS, which has been in operation for the longest time in the municipality and has the highest number of people with DM registered. Professionals on any type of leave were excluded.

The data were collected by the main researcher, through documentary analysis, interview, participant observation, with registration in a field diary and based on an evaluative, validated and authorized model⁴, consisting in a theoretical model (TM), a logical model (LM) and an analysis and judgment matrix (AJM).

The evaluation model consists of the PO dimension, its sub-dimensions (People Management; Infrastructure; Care Network Integration; Monitoring and Evaluation) and its indicators (measures; parameters that make up the measure; expected score and score found); in addition to the TA dimension, its sub-dimensions (DM Care Organization; Diagnosis, Treatment and Monitoring; and Prevention and its complications) and its indicators (measures; parameters that make up the measure; expected score and score found)⁴. This model was chosen for the scope of the dimensions and for adapting to the PHC model of the municipality.

Data collection took place in four stages. The first was the documentary analysis of the registration of people with DM in the FHS; the second was the documentary analysis of the Municipal Health Plan and the Primary Health Care Service Card; the third consisted of participant observation and a field diary to analyze the work process and the infrastructure of the FHS and the Central Pharmacy, totaling 20 hours; finally, the fourth stage corresponded to semi-structured interviews carried out individually in a private place and recorded, with managers (PHC coordinator and management support), FHS professionals and pharmacist.

The data were read and re-read, with extraction of those that met the respective AJM measures, which were transferred to a column built in the matrix. The score for each measure was obtained according to a number of parameters, and the arithmetic mean between the answers given by the professionals and the researcher (according to the AJM) and the number of respondents was calculated. When the score obtained for the measure did not correspond to the exact score established by the AJM, we proceeded to approximate the best score in the matrix, depending on each participant's score, analyzing the context. The sum of these measures provided the score for the indicators, which, when added up, accounted for the score of the sub-dimensions. The sum of the sub-dimensions provided the score for the PO and TA dimensions. To determine the DI of the dimensions, the proportion between the score found and the maximum expected score was determined.

The DI of the actions developed by PHC was obtained by calculating the proportion between the maximum expected score for implementation of the actions and the sum of the scores found in the PO and TA dimensions.

The maximum expected score for implementation of the actions corresponds to 800 points and the TA dimension is expected to have 50% more weight than PO, as it is understood that the results of the care actions are directly related to the work process and to the care characteristics. $DI = \left(\frac{S_F}{800} \right) \times 100$. Where DI is the degree of implementation corresponding to the actions and S_F is the score found in the AJM.

The following cutoff points were used for DI determination: critical if < 50.0%; unsatisfactory if ≥ 50.0 and < 70.0%; satisfactory if $\geq 70.0\%$ and < 85.0%; and adequate if $\geq 85.0\%$ ⁴.

The research protocol was approved by the Research Ethics Committee of the proposing institution.

RESULTS

The DI of the actions carried out by the FHS and the Central Pharmacy aimed at people with DM, determined by the PO and TA dimensions and according to the AJM components, is shown in Figures 1 to 4.

Political-Organizational dimension					
	Indicator	Measures	Parameters	Score found	
PM	Professional coverage	Number of people living the FHS team coverage area	Between 2,500 and 3,500 people without a social interest area (10 points); Between 2,500 and 3,500 people with a social interest area (5 points); More than 3,500 people (0 points)	5	
		Perception of the FHS team regarding the number of people living in the coverage area	Adequate and convergent (10 points); Partially convergent (5 points); Inadequate or divergent (0 points)	0	
		Support provided to the FHS teams by the physical educator, nutritionist and pharmacist	By all 3 professionals (10 points); By 2 professionals (5 points); By 1 or no professional (0 points)	5	
		Perception of the support professionals' hour load made available to the FHS team	Adequate and convergent (10 points); Partially convergent (5 points); Inadequate or divergent (0 points)	5	
	Permanence of the professionals	Permanence time of the physician in the FHS team	Good: At least 2 years (20 points); Fair: From 1 to 2 years (10 points); Bad: < 1 year (5 points)	10	
		Perception of the FHS team regarding professional appreciation	Adequate and convergent (20 points); Partially convergent (10 points); Inadequate or divergent (0 points)	20	
	Qualification of the professionals	Training on organization/ functioning of the municipal network	Yes (10 points); No (0 points)	0	
		Update on CNCDS or DM	Yes (10 points); No (0 points)	0	
	-	Physical infrastructure of the FHS units	Percentage of items included in the checklist called "with accessibility to users"	Transformation into score, following the proportion (maximum: 10 points)	5
			Perception regarding users' accessibility to the FHS	Adequate and convergent (10 points); Partially convergent (5 points); Inadequate or divergent (0 points)	5
Percentage of items included in the checklist called "with adequate physical structure"			Transformation into score, following the proportion (maximum: 10 points)	10	
Perception regarding adequacy of the FHS physical structure			Adequate and convergent (10 points); Partially convergent (5 points); Inadequate or divergent (0 points)	5	
Materials and equipment		Percentage of items included in the checklist called "materials and equipment for actions"	Transformation into a score, following the proportion (maximum: 10 points)	7.5	
		Perception of the FHS team regarding the materials and equipment available for the actions	Adequate and convergent (10 points); Partially convergent (5 points); Inadequate or divergent (0 points)	5	
		Periodic maintenance of the materials and equipment in the FHS	Yes (10 points); Partial (5 points); No (0 points)	5	
Medications and inputs		Percentage of items included in the checklist called "supply of medications for treatment"	Transformation into a score, following the proportion (maximum: 7.5 points)	7.5	
		Percentage of items included in the checklist called "supply of inputs for application of insulin and GCSM in the FHS"	Transformation into a score, following the proportion (maximum: 7.5 points)	3.75	
		Perception regarding supply of the medication and inputs provided	Adequate and convergent (7.5 points); Partially convergent (3 points); Inadequate or divergent (0 points)	3.0	
		Strategies adopted to ensure provision of medications and inputs in case of shortage	Yes (7.5 points); Partial (3 points); No (0 points)	3.0	

PM: People Management; FHS: Family Health Strategy; CNCDS: Chronic Non-Communicable Diseases; DM: Diabetes *mellitus*; I: Infrastructure; CGSM: Capillary Glycaemia Self-Monitoring.

FIGURE 1: Analysis and Judgment Matrix of the actions aimed at Diabetes *mellitus* control in the Family Health Strategy - Political-Organizational dimension, sub-dimensions People Management and Infrastructure. Monte Belo, MG, Brazil, 2021.

Political-Organizational dimension				
	Indicator	Measures	Parameters	Score found
CNI	Care standardization	Use of a protocol and guidelines targeted at the care of people with DM (physician and nurse)	Yes (10 points); Partial (5 points); No (0 points)	0
		Use of a protocol with access flows between the different points of the care network (physician and nurse)	Yes (10 points); Partial (5 points); No (0 points)	0
	Regulation of access to the specialized services	Mechanisms to regulate access to the specialized services	Yes (10 points); No (0 points)	10
		Strategies for optimizing the offer to specialized services	Yes (10 points); Partial (5 points); No (0 points)	0
	Adequacy of the offer to specialized services	Perception of waiting time for laboratory tests	Adequate (10 points); Partially adequate (5 points); Inadequate (0 points)	0
		Perception of waiting time for consultation with an endocrinologist	Adequate (5 points); Partially adequate (3 points); Inadequate (0 points)	0
Perception of waiting time for consultation with an ophthalmologist in the health care network		Adequate (5 points); Partially adequate (3 points); Inadequate (0 points)	0	
ME	Information availability	Systematic update of the IS for registering users/families	Yes (30 points); Partial (15 points); No (0 points)	30
	Monitoring of the actions aimed at DM control	Indicators corresponding to monitoring of the actions aimed at DM control in the municipal network	Yes (15 points); Partial (7 points); No (0 points)	0
		Planning and organization of the actions aimed at DM control based on the evaluation of the indicators selected	Yes (15 points); Partial (7 points); No (0 points)	0

CNI: Care Network Integration; ME: Monitoring and Evaluation; DM: *Diabetes mellitus*; I: Infrastructure; IS: Information System;
FIGURE 2: Analysis and Judgment Matrix of the actions aimed at *Diabetes mellitus* control in the Family Health Strategy - Political-Organizational dimension, sub-dimensions Care Network Integration, and Monitoring and Evaluation. Monte Belo, MG, Brazil, 2021.

Technical-Assistance dimension				
	Indicator	Measures	Parameters	Score found
CO	Appropriation of the territory	Percentage of micro-areas covered by the CHAs	Transformation into a score, following the proportion (maximum: 20 points)	20
		Perception regarding the CHAs' performance in appropriation of the territory	Adequate and convergent (20 points) Partially convergent (10 points) Inadequate or divergent (0 points)	20
		Updated mapping of the PHC markers, including people with DM	Yes (20 points); No (0 points)	0
	Organization of the agenda	Prioritization in the care of people with DM	Yes (20 points); Partial (10 points); No (0 points)	20
		Ensuring follow-up appointments for people with DM	Yes (20 points); No (0 points)	20
		Urgent care for people with DM in case of complications	Yes (20 points); Partial (10 points); No (0 points)	10
	Interdisciplinary performance	Participation of the CHAs in the team meetings	Always (20 points); Sometimes (10 points); Never (0 points)	10
		Discussion of the cases between the FHS team and the support professionals	Always (20 points); Sometimes (10 points); Never (0 points)	10
		Dialogue of different professionals in organization of the educational activities	Always (20 points); Sometimes (10 points); Never (0 points)	0

CO: Care Organization; CHA: Community Health Agent; PHC: Primary Health Care; DM: *Diabetes mellitus*; FHS: Family Health Strategy.
FIGURE 3: Analysis and Judgment Matrix of the actions aimed at *Diabetes mellitus* control in the Family Health Strategy - Technical-Assistance dimension, sub-dimension Care Organization. Monte Belo, MG, Brazil, 2021.

Technical-Assistance dimension				
	Indicator	Measures	Parameters	Score found
DTM	Early DM diagnosis	Search for the risk factors for DM development in medical and nursing care	Always (20 points); Sometimes (10 points); Never (0 points)	10
		Requesting tests for early diagnosis in people aged at least 45 years old and/or with BMI > 25, associated with at least another risk factor	Always (20 points); Sometimes (10 points); Never (0 points)	20
		Request for tests for early diagnosis in pregnant women	Always (20 points); Sometimes (10 points); Never (0 points)	0
	Adequate treatment	Written guidelines about CLS	Always (20 points); Sometimes (10 points); Never (0 points)	10
		Dispensing with guidance for proper use of the medications for DM treatment	Adequate (20 points: guidance in most of the cases); Partially adequate (10 points: guidance in some of the cases); Inadequate (0 points: no guidance)	20
		R insulin prescriptions with guidance for dose adjustment according to HGT	Adequate (20 points: in most of the cases); Partially adequate (10 points: in some of the cases); Inadequate (0 points: fixed dose in most of the cases)	0
		Frequency of laboratory test requests (FG and/or Hb1Ac) for people with DM	Adequate (20 points: every 6 months, if compensated); Partially adequate (10 points: once a year, regardless of compensated or not); Inadequate (no defined periodicity)	20
	Systematic monitoring	Use of a specific instrument to monitor people with DM	Yes (20 points); Partially (10 points); No (0 points)	20
		Active search for absentees with DM	Always (20 points); Sometimes (10 points); Never (0 points)	10
		CGSM among people who make use of insulin	Adequate (20 points: the majority knows how to interpret the HGT results); Inadequate (0 points: the majority knows how to interpret the HGT results)	0
PDC	Health education activities	Periodic activities aimed at primary prevention of DM	Yes (20 points); No (0 points)	20
		Periodic activities aimed at DM control	Yes (20 points); No (0 points)	20
	Prevention of the complications associated with DM	Systematic evaluation of diabetic foot in people with DM	Yes (20 points); Partially (10 points); No (0 points)	10
		Systematic evaluation of the oral cavity in people with DM	Yes (20 points); Partially (10 points); No (0 points)	10
		Periodic referral of people with DM for ocular fundus evaluation	Yes (20 points); Partially (10 points); No (0 points)	10

DM: *Diabetes mellitus*; DTM: Diagnosis, Treatment and Monitoring; BMI: Body Mass Index; CLS: Changes in Lifestyle; HGT: Hemoglycote; FG: Fasting Glycaemia; Hb1Ac: Glycated Hemoglobin; CGSM: Capillary Glycaemia Self-Monitoring; PDC: Prevention of *Diabetes mellitus* and its Complications.

FIGURE 4: Analysis and Judgment Matrix of the actions aimed at *Diabetes mellitus* control in the Family Health Strategy - Technical-Assistance dimension, sub-dimensions Diagnosis, Treatment and Monitoring, and Prevention of *Diabetes mellitus* and its Complications. Monte Belo, MG, Brazil, 2021.

Political-Organizational dimension

The actions involving people management were evaluated as critical (DI=45.0%), with qualification of the health professionals as the indicator with the worst DI (0.0%), due to lack of training on organization/functioning of the municipal network and on DM. Coverage of the professionals also had a critical DI (37.5%), related to the perception of the FHS team regarding the number of people in the coverage area. Permanence of the professionals was evaluated as satisfactory (DI=75.0%).

The infrastructure was evaluated as unsatisfactory (59.75%). The “physical structure” indicator presented an unsatisfactory DI (62.5%), with deficient accessibility, absence of a ramp and handrail, and steep geographical location.

The materials and equipment were also evaluated as unsatisfactory (DI=58.33%), due to lack of a sphygmomanometer for obese people and a tuning fork, essential elements for clinical evaluation, and also due to lack of periodic maintenance.

Medication and input dispensing was centralized in the Central Pharmacy. The “medications and inputs” indicator was unsatisfactory (DI=57.5%) due to the absence of inputs provided for Capillary Glycaemia Self-Monitoring (CGSM), such as glucometers and reagent strips. The professionals adopted some strategies to ensure provision of the medications and inputs, such as availability of materials for dressings and prescription refills every six months.

The DI corresponding to Care Network Integration was critical (16.66%): the lowest value across the sub-dimensions. In the “care standardization” indicator, there was absence of protocols and guidelines for the assistance to be provided to people with DM, as well as of access flows between the different points of the care network.

Regulation of access to the specialized services obtained an unsatisfactory DI (50.0%). Although the municipality has access regulation mechanisms, city hall agreements and referrals to specialties, strategies aimed at optimizing the offer to specialized services were not evidenced. Adequacy of the offer to these services was critical (DI=0.0%). The waiting time for specific laboratory tests and consultations with an endocrinologist and ophthalmologist was inadequate, directly compromising the DI for the indicator.

Monitoring and evaluation were unsatisfactory (DI=50.0%). Although updated information was available for the registration of people (DI=100%), the unit did not use indicators for planning, organizing and monitoring the actions to assist people with DM.

Technical-Assistance dimension

An unsatisfactory DI (61.11%) was obtained in Care Organization. The “organization of the agenda” indicator was satisfactory (DI=83.33%), with prioritization of care and guarantee of follow-up appointments. On the other hand, emergency care was not resolute, limited to blood glucose measurement, guidelines and referral to the hospital unit, justified by lack of medications.

The “appropriation of the territory” indicator was unsatisfactory (DI=66.66%), as there was no updated mapping of the PHC markers, including people with DM.

“Interdisciplinary performance” obtained a critical result (DI=33.33%) – the worst indicator in the sub-dimension – mainly due to the absence of dialog between the professionals while organizing the educational actions. Team meetings occasionally took place and were attended by the Community Health Agents. The case discussions, when carried out, were limited to two professionals.

In relation to “Diagnosis, Treatment and Monitoring”, its DI was unsatisfactory (55.0%). The “early DM diagnosis” indicator obtained an unsatisfactory result (DI=50.0%), as the search for risk factors took place occasionally and the test requests in pregnant women were only performed by the Health Center. On the other hand, there were test requests for early diagnosis among people aged at least 45 years old and/or with Body Mass Index > 25, associated with at least another risk factor.

Adequate treatment of people with DM obtained an unsatisfactory DI (62.5%), attributed to the scarcity of written guidelines for changes in lifestyle and to the absence of prescriptions for insulin dose adjustment, according to the capillary glycaemia result. This course of action was justified by the difficulty understanding and by the cognitive deficit of people with DM in interpreting the capillary glycaemia results.

The “systematic monitoring” indicator was assessed as unsatisfactory (DI=50.0%), due to CGSM inadequacy among people who used insulin, as well as to the difficulty of the FHS in actively searching for absentees. The FHS had a specific instrument to monitor people with DM, although it was restricted to recording the glycemic and pressure values.

DM prevention was evaluated as satisfactory (DI=70.0%). The “health education activities” indicator obtained an adequate DI (100.0%), contemplating periodic activities aimed at DM prevention and control; however, it was limited to guidance, not representing a systematic and interprofessional action.

The “prevention of complications associated with DM” indicator was unsatisfactory (DI=50.0%), measured through the systematic evaluation of diabetic foot, which was performed sporadically and partially by the physician; through the evaluation of the oral cavity, inspected by the physician in some consultations; and through the difficulty in periodic referral to the ophthalmologist and endocrinologist.

The DI was considered unsatisfactory (54.34%), with the PO (DI=45.23%) and TA (DI=60.41%) dimensions respectively classified as with critical and unsatisfactory DIs (Table 1).

TABLE 1: Degree of Implementation corresponding to the actions aimed at *Diabetes mellitus* control in the Family Health Strategy, according to the dimensions and sub-dimensions from the Analysis and Judgment Matrix. Monte Belo, MG, Brazil, 2019.

Degree of Implementation	Expected maximum score		Score found	
	n	%	n	%
	800	100.0	434.75	54.34
Dimension/Sub-dimension				
Political-Organizational	320	100.0	144.75	45.23
People Management	100	100.0	45.0	45.0
Infrastructure	100	100.0	59.75	59.75
Care Network Integration	60	100.0	10.0	16.66
Monitoring and Evaluation	60	100.0	30.0	50.0
Technical-Assistance	480	100.0	290	60.41
Care Organization	180	100.0	110	61.11
Diagnosis, Treatment and Monitoring	200	100.0	110	55.0
Prevention of <i>Diabetes mellitus</i> and its complications	100	100.0	70	70.0

Based on the weaknesses identified and in an attempt to collaborate with qualification of the health service, a number of recommendations were prepared that may contribute for the advancement of Health Care for people with DM (Figure 3).

For the managers of PHC health services

Non-existence of indicators: using the IS functionalities and its interface with other systems to plan, monitor and evaluate the actions through indicators.

Absence of training on the HCN and DM: training the professionals about functionality of the HCN and actions for DM prevention, diagnosis, treatment and monitoring.

Inadequacy of the infrastructure: ensuring maintenance and adequacy of the physical structures, materials and equipment, as well as monitoring of medications and inputs.

Non-existence of care and access flow protocols: developing and implementing protocols for the assistance to be provided to people with DM and determining access flows in the HCN.

Inadequacy in relation to regulation of access to specialized services: promoting meetings with the regulatory center and the corresponding health region on access to medical specialties and specific tests.

Absence of dialogue between professionals: encouraging performance of health education activities on an interprofessional basis.

For the FHS and Central Pharmacy teams

Non-existence of updated mapping: mapping people with DM in the territory, which may contribute to appropriation of the area.

Absence of dialogue between professionals: encouraging elaboration of the Singular Therapeutic Plan (PTS) prepared by the FHS and the NASF, aiming at case discussions, with a view to preventing complications and for adherence to the treatment.

Non-existence of care protocols and access flow: together with PHC management, promoting the elaboration of care protocols for people with DM and determining access flows in the HCN.

Absence of collective and interprofessional activities for health education: incorporating collective and interprofessional health education actions in the work process.

PHC: Primary Health Care; IS: Information System; HCN: Health Care Network; DM: *Diabetes mellitus*; FHS: Family Health Strategy; NASF: Family Health Support Center (*Núcleo de Apoio à Saúde da Família*).

FIGURE 5: Recommendations for the advancement of Health Care for people with *Diabetes mellitus*. Monte Belo, MG, Brazil, 2019.

DISCUSSION

Although the number of residents in the area covered by the FHS is in line with the National Primary Care Policy¹, in the professionals' perception there is a high demand, due to the fact that the FHS is inserted in a context of social vulnerability.

A critical evaluation in relation to qualification of the professionals was also found in a study which identified that lack of training/qualification hinders performance of the Family Health Support Center (NASF), especially in interprofessional teams⁷.

The steep geographic location of the FHS and the architectural barriers, verified by the absence of ramps, handrails, inadequacy of corridors, doors and floors, and the lack of building maintenance were unsatisfactory elements, as found in another study⁸.

The lack of materials and equipment was considered unsatisfactory, a reality that is similar to the one reported in other studies^{9,10}. Provision of these resources is essential to monitor people with DM, and their absence interferes in quality of the results and on the indicators' scope¹¹. Difficulty of access to the inputs required for GCSM in people with DM was also found in another study¹², a situation that corroborated the difficulty adhering to GCSM.

The critical DI of "Care Network Integration" exerts a negative influence on care integrality, as this integration is fundamental to define priorities. The critical DI related to "care standardization" is due to the absence of protocols and guidelines aimed at care for people with DM, as well as of protocols with access flows between the different points of the Health Care Network (HCN).

It is worth noting that using the protocol contributed to standardizing the actions and to qualifying care, as well as to autonomy and expansion of the clinical practice¹³. The Clinical Protocol and Therapeutic Guidelines for Type 1 Diabetes *mellitus*¹⁴ aims at improving the assistance provided and at directing care and actions, optimizing resources, with a view to efficiency and quality in care.

Concerning regulation of access to specialized services, lack of strategies to optimize the offer to these services was observed, contributing to the formation of a long waiting list, with negative repercussions on the treatment and monitoring of people with DM.

This reality found in the municipality locus of this study is similar to that of other Brazilian cities, as the regulatory processes in health prioritize organization of waiting lists and care flows with a normative character, but they distance themselves from people's needs, especially in the production of comprehensive care¹⁵.

Access regulation is an instrument to adjust the existing offer to people's health needs. It allows for dialogue between municipalities and regions, qualification of the users' demands and definition of priorities, optimizing organization, monitoring and evaluation of the inter-management agreements and promoting equality¹⁶.

Adequacy of the offer to specialized services is critical in relation to the waiting time for specific laboratory tests and consultations with an endocrinologist and ophthalmologist, as the demand is higher than the municipal quota, compromising early diagnosis and prevention of complications. This situation was also found in a study¹⁷ that verified the difficulty scheduling specialized consultations, and the waiting time varied from 6 months to more than 1 year for appointments with the ophthalmologist and endocrinologist.

Waiting time in the services is linked to the imbalance between offer and demand, being considered an important barrier for access to care. Investments for its strengthening are necessary, with adequate funding, governance and management¹⁸.

In relation to information availability, it was found that, although the FHS resorts to the e-SUS Primary Care system, it does not use all the functionalities, as the survey of indicators for planning the actions was not carried out.

As a management and evaluation tool, indicators make it possible to identify priorities, access and use of the services by different segments of the population; favor cooperation between municipalities¹⁹; and improve planning and decision-making with a view to care quality^{20,21}. To enable use of the indicators, it is necessary to appropriate the territory, through the updated mapping of PHC markers, including people with DM; however, this was not carried out by the FHS researched.

Another aspect that is relevant for the care provided to people with DM is organization of the FHS agenda, with prioritization, guarantee of appointments and care for urgencies in case of complications. The Instructions Manual of the Urgency and Emergency Care Network in the Unified Health System (SUS) guarantees that initial care in urgent situations is the responsibility of PHC as a component of the HCN²², which is far from the analyzed reality, as urgency care for people with DM in the FHS is not resolute due to the lack of medications, which are mostly directed to the urgency and emergency service of the municipality.

Early DM diagnosis should be conducted by the professionals based on the clinical evaluation, on the analysis of the risk factors and on the requests for exams. In the FHS unit under study, the search for the risk factors is incipient, which impairs DM screening. Furthermore, the test requests for pregnant women are at the discretion of the physicians from the health center where they are monitored.

Therefore, DM screening through a survey of the risk factors, laboratory tests and health conditions is widely recommended by the scientific societies and by the guidelines of the Ministry of Health^{23,24} and should be carried out by FHS professionals, as it is considered the gateway to the SUS.

In relation to the treatment, the guidelines, preferably written, about changes in lifestyle should be provided due to their ability to sensitize people towards the behavioral changes²⁵. The prescription for adjusting the regular insulin dose through GCSM is not a reality of the FHS, due to the difficulty of people with DM interpreting the test result, with the physician assuming responsibility for the periodic adjustment. A similar result was found in a study that pointed out difficulties in GCSM among people, which impairs surveillance of their actual health status²⁶. The attribution of self-care actions among people with cognitive dysfunction²⁷ should be discussed among the team, as support by the caregiver and/or health professionals is necessary.

The active search among absentees, with adherence difficulties and complications, is necessary for monitoring the team, to motivate them towards healthy behaviors and habits²⁵. However, the search was limited to those that demanded more attention from the team.

The actions to control the disease become indispensable^{24,28}, in view of the severe complications of DM, which result in permanent disabilities, early retirements, prolonged hospitalizations and high costs.

In the FHS researched, the assessment of the oral cavity and the clinical evaluation of visual, musculoskeletal, vascular and neurological capacity for the prevention of diabetic foot fail to systematically integrate the assessment performed by the health professionals.

Although interprofessional performance can promote educational actions with a view to health promotion, prevention, screening and behavioral changes for DM treatment and control, in the FHS researched, health education is not configured as an interprofessional action, which corroborates with a study²⁹ that also identified weaknesses in carrying out health education activities, attributed to the physical structure, interpersonal relationships between professionals and lack of planning for their implementation.

In this context, health services must be prepared to serve the population, in order to offer innovative and integrated care for qualified assistance, which implies better health outcomes, mainly in control of the disease, avoiding complications and costs to the health system^{30,31}.

The contributions of this study reflect on performance of the team, especially FHS nurses, who are responsible for directing the health needs of the population, managing care programs, working in an articulated and interprofessional way with the team, participating in permanent education and in clinical discussions for the construction of PTS.

Study limitations

The unavailability of managers to participate in the study is pointed out as a limitation, given the impacts of the pandemic caused by the new coronavirus 2019 (COVID-19) on the work process. A weakness identified is the fact that the instrument used did not evaluate chronic renal disease, a relevant complication of DM.

FINAL CONSIDERATIONS

This evaluative study allowed assessing as unsatisfactory the degree of implementation corresponding to the assistance provided to people with *Diabetes mellitus* in Primary Health Care services from the municipality. The Political-Organizational and Technical-Assistance dimensions were evaluated, respectively, as critical and unsatisfactory, which led to proposing recommendations, with a view to supporting decision-making to improve care for people with *Diabetes mellitus*.

This local portrait seems not to differ from the national panorama and makes relevant contributions to new and resolute ways of organizing the services and producing health in participative management. Proposal of the recommendations can exert an impact of the quality of the assistance provided to people with *Diabetes mellitus*, with contribution that may be extended to similar contexts.

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