

# Management Flow of Patients with Type 2 Diabetes Mellitus in the Healthcare Network

Fluxo do Manejo de Pacientes com Diabetes Mellitus Tipo 2 na Rede de Atenção à Saúde

Flujo de Manejo de Pacientes con Diabetes Mellitus Tipo 2 en la Red de Atención Médica

## RESUMO

**Objetivo:** Descrever a organização do cuidado ao Diabetes Mellitus tipo 2 na Rede de Atenção à Saúde em Manaus, com ênfase na integração entre os níveis primário, secundário e terciário. **Método:** Acadêmicos do curso de Medicina realizaram visitas observacionais entre março e julho de 2025 a unidades básicas de saúde, ambulatorios especializados e órgãos de gestão municipal e estadual, utilizando roteiro estruturado. **Resultado:** Foram identificadas ações articuladas entre os três níveis de atenção, com destaque para o papel da atenção primária no diagnóstico, acompanhamento e encaminhamento. Observou-se integração funcional com serviços especializados e setores intersetoriais, como o Conselho de Segurança Alimentar. **Conclusão:** A experiência evidenciou um fluxo organizado de cuidado ao Diabetes Mellitus tipo 2, com interconexão entre os níveis assistenciais e valorização da atenção primária como coordenadora do cuidado, fortalecendo práticas contínuas de acompanhamento e promoção da saúde.

**DESCRIPTORES:** Serviços de Saúde; Atenção à Saúde; Diabetes Mellitus Tipo 2; Gerenciamento clínico; Administração dos cuidados ao paciente.

## ABSTRACT

**Objective:** To describe the organization of care for type 2 Diabetes Mellitus within the Health Care Network in Manaus, with emphasis on the integration among primary, secondary, and tertiary levels. **Method:** Medical students conducted observational visits between March and July 2025 to basic health units, specialized outpatient clinics, and municipal and state management bodies, using a structured guide. **Result:** Articulated actions were identified across the three levels of care, highlighting the role of primary care in diagnosis, follow-up, and referral. Functional integration with specialized services and intersectoral bodies, such as the Food Security Council, was observed. **Conclusion:** The experience revealed an organized flow of care for type 2 Diabetes Mellitus, with interconnection between the levels of care and a strengthened role of primary care as the coordinator of services, promoting continuous monitoring and health promotion practices.

**DESCRIPTORS:** Health Services; Health Care; Type 2 Diabetes Mellitus; Clinical Management; Patient Care Administration.

## RESUMEN

**Objetivo:** Describir la organización de la atención al Diabetes Mellitus tipo 2 en la Red de Atención a la Salud en Manaus, con énfasis en la integración entre los niveles primario, secundario y terciario. **Método:** Estudiantes de Medicina realizaron visitas observacionales entre marzo y julio de 2025 a unidades básicas de salud, ambulatorios especializados y órganos de gestión municipal y estado, utilizando una guía estructurada. **Resultado:** Se identificaron acciones articuladas entre los tres niveles de atención, destacando el papel de la atención primaria en el diagnóstico, seguimiento y derivación. Se observó una integración funcional con servicios especializados y sectores intersectoriales, como el Consejo de Seguridad Alimentaria. **Conclusión:** La experiencia reveló un flujo organizado de atención al Diabetes Mellitus tipo 2, con interconexión entre los niveles asistenciales y valorización de la atención primaria como coordinadora del cuidado, fortaleciendo el seguimiento continuo y las prácticas de promoción de la salud.

**DESCRIPTORES:** Servicios de Salud; Atención Médica; Diabetes Mellitus Tipo 2; Gestión Clínica; Administración de la Atención al Paciente.

# Experience Report

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RECEIVED: 10/17/2025 APPROVED: 11/05/2025

**How to cite this article:** Silva ARC, Nogueira AF, Pires AN, Costa GM, Passos VCR, Pereira RCM, Perez JEM, Maciel LHG, Martins FM, Evaristo JSG, Souza CSM. Management Flow of Patients with Type 2 Diabetes Mellitus in the Healthcare Network. *Saúde Coletiva* (Brazilian Edition) [Internet]. 2026 [cited year month day];17(104):19126-19143. Available from: DOI: 10.36489/sau-decoletiva.2026v17i104p19126-19143

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## INTRODUCTION

Type 2 diabetes mellitus (T2DM) is one of the main chronic non-communicable diseases (NCDs), representing a major challenge for health systems, especially in developing countries such as Brazil. According to the World Health Organization (WHO), the number of adults with diabetes has quadrupled in the last 30 years, reaching epidemic proportions. In Brazil, it is estimated that about 16 million

people live with the disease, with a growing trend associated with physical inactivity, obesity, and population aging<sup>1</sup>. Considering its high prevalence, progressive nature, and high social and economic cost, T2DM requires a care model that goes beyond the approach focused on acute and hospital episodes. Continuous monitoring is necessary, with a focus on health promotion, prevention of complications, adherence to treatment, and support for self-care.

The incorporation of educational

and self-care practices into Primary Health Care has proven essential in the management of DM2. As Oliveira<sup>2</sup> points out, the integration of healthy eating, physical activity, educational actions, and multidisciplinary support strengthens patient-centered care and contributes to improved therapeutic adherence, reflecting the importance of teamwork and effective communication in the daily routine of primary care. In this scenario, public health sys-

tems have sought to implement care networks capable of offering comprehensive care, with a focus on coordinating care and improving the effectiveness of Primary Care. The Unified Health System (SUS), established by the Federal Constitution of 1988 (art. 198) and regulated by Law No. 8,080/1990, is organized based on the principles of universality, comprehensiveness, and equity. Within this structure, the Health Care Network (RAS) proposes the integration of health services through a model of continuous care, in which Primary Health Care (PHC) plays a central role in coordinating care<sup>3</sup>.

In view of the above, this study aims to report, based on field experience, how the management flow of patients with Type 2 Diabetes Mellitus (DM2) is structured in the Health Care Network (RAS) of the Unified Health System (SUS) in Manaus, highlighting the performance of the different levels of care and the main challenges faced in the pursuit of comprehensive care. The proposal is to contribute to the understanding of the practices developed in the territory, highlighting aspects that favor or hinder the continuity and effectiveness of care for patients with DM2 in the public health network.

## METHOD

This work is a report on the pedagogical experience of second-year medical students at the Federal University of Amazonas (UFAM), within the scope of the Public Health II course, during the period from March 17 to July 18, 2025. The focus of the study was the line of care related to type 2 diabetes mellitus (DM2), a chronic noncommunicable disease that, according to the World Health Organization (WHO), is characterized by a long-term condition that can be controlled but not cured and requires continuous management.

The choice of topic is justified by the high prevalence of T2DM in Brazil and its clinical, social, and economic impact, requiring an integrated and coordinated approach at different levels of care.

The research adopted a qualitative approach, structured on the basis of a situational diagnosis, with observational visits carried out at five health facilities in Manaus, Amazonas, representing different levels of complexity within the SUS: Basic Health Unit (UBS) in the Japiim neighborhood, South Health District, Stomatherapy Outpatient Clinic at Getúlio Vargas University Hospital (HUGV), National Council for Food and Nutritional Security (CONSEA), Municipal Health Secretariat (SEMSA), and Specialized Endocrinology Care at HUGV. These locations were chosen because they represent care for patients with DM2 in the context of the SUS. During the visits, the students applied a structured questionnaire based on the guidelines of the Ministry of Health, addressing comprehensive care, continuous access, support for self-care, coordination between levels of care, and multidisciplinary follow-up.

The guiding question of the research was: "How is the management flow of patients with type 2 diabetes mellitus structured in the SUS Health Care Network?" The analysis was supported by field diaries, in

which the experiences were recorded and discussed in conversation circles at the Faculty of Medicine. These discussions allowed for a critical analysis of the data obtained during the visits. The visits and analysis of experiences were conducted in accordance with the principles established by Ordinance No. 4,279/2010 of the Ministry of Health, which regulates the organization and integration of services within the SUS. The guidelines of the Clinical Protocol and Therapeutic Guidelines (PCDT) for Type 2 Diabetes Mellitus were also considered, with the aim of comparing the observed practice with the recommended technical parameters. In addition, the Organic Health Law (Laws No. 8,080/1990 and No. 8,142/1990) was used to support the critical analysis between the theory and practice of the health services observed.

The research aimed to understand how care for patients with DM2 occurs at each level of care, analyzing the flow of patient management within the Health Care Network, identifying gaps, challenges, and opportunities to improve care. The results will be presented through tables and flowcharts representing the care pathway, through critical and integrated analysis of the collected data.

## RESULTS

### UBS JAPIIM

**Table 1 – Questions and answers completed during observation of the UBS JAPIIM**

| Guiding Question                                                                                                                                                         | Answer completed                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. How do you identify and confirm new cases of type 2 diabetes at the UBS, what are the protocols for diagnosis, and how does the HIPERDIA program impact this process? | At UBS Japiim, new cases are identified through qualified listening and screening for symptoms and risk factors, with referral for rapid testing and laboratory confirmation. The PEC Electronic Medical Record facilitates registration and follow-up, with a bimonthly update of the patient list. The HIPERDIA program supports registration, monitoring, and risk stratification, assisting in the planning of care for DM2. |

# Experience Report

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|                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2. After diagnosis, what are the main steps in the initial reception and treatment plan—who does what and in how long, and what ongoing monitoring strategies (consultations, groups, home visits, call centers) are used to monitor glycemic control and complications?                         | After diagnosis, the nursing team welcomes the patient and refers them for a medical consultation. The initial plan includes nutritional guidance, prescription of oral antidiabetic drugs (when available), and control tests, such as glycated hemoglobin. The team involves a nurse, doctor, and nutritionist, with regular quarterly or semi-annual follow-ups, home visits in complex cases, and reassessments through electronic medical records. The length of care varies according to demand and professional availability. |
| 3. When and how are patients with DM2 referred to secondary or tertiary levels, and what logistical and/or bureaucratic difficulties do they face in this referral and counter-referral process?                                                                                                 | Referrals are made in cases of complications (nephropathy, retinopathy, diabetic foot), therapeutic failure, or high-risk gestational diabetes, usually to the Codajás PAN or secondary services. Difficulties include SISREG bureaucracy, long waits, lack of specialists, low patient adherence, and absence of a pharmacy at the unit due to the lack of a pharmacist.                                                                                                                                                            |
| 4. What resources for prevention and health promotion and support for self-care and lifestyle changes are available at the unit, and what are the main challenges the team currently faces in maintaining regular follow-up of patients with DM 2?                                               | Health promotion includes guidance on qualified listening, nutritionist services, use of electronic medical records, dressings, and home care guidance such as self-care. The main challenges are lack of medication, low patient adherence, and lack of standardized digital tools for self-care.                                                                                                                                                                                                                                   |
| 5. How is the UBS structured in terms of human, material, and technological resources for the treatment of diabetes, and how does the multidisciplinary team work with Community Health Agents and the community to identify at-risk patients, conduct active searches, and reinforce self-care? | The team consists of nurses, medical specialists, and a nutritionist. The UBS uses the PEC, performs laboratory collections, and prescribes glucometers, test strips, and medications, although there is a lack of pharmacists and medications. There is multidisciplinary coordination for screening and assessing the health of patients in the territory.                                                                                                                                                                         |

Source: Prepared by the authors. Manaus, 2025.

## SOUTH HEALTH DISTRICT (DISA-SUL)

| Table 2 – Questions and answers completed during observation at DISA-SUL                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Guiding question                                                                                                                                         | Answer completed                                                                                                                                                                                                                                                                                                                                                                      |
| 1. Which indicators are regularly monitored in relation to type 2 diabetes (e.g., diagnosis rate, glycemic control, complications)?                      | The main data recorded at the UBS include diagnosis rate, prevalence of registered cases, glycemic control via HbA1c in e-SUS AB, frequency of complications (hospitalizations, amputations, renal failure), and treatment adherence, assessed by medication withdrawal and attendance at appointments.                                                                               |
| 2. Is there a protocol for analyzing or monitoring this data to track the progress of patients with type 2 diabetes?                                     | Ideally, data on DM2 are updated and monitored according to Previne Brasil protocols, recorded in e-SUS AB and SISAB, with monthly, quarterly, and annual assessments for planning purposes. Reports are sent to the coordination team and discussed with the teams for data-based decisions. However, during observation, it was noted that the team was unaware of these processes. |
| 3. How is this information communicated and shared among primary care services?                                                                          | Communication between primary care teams occurs through the integrated e-SUS AB and SISAB systems, in addition to periodic meetings to discuss cases and strategies. However, the data is not disclosed to the public, and in Amazonas, there is a weakness in the integration between riverside and urban units, hindering continuity of care.                                       |
| 4. How does the data collected guide specific actions or strategies in the territory, such as campaigns, training, or changes in the flow of care?       | The data collected by the districts are essential for planning education campaigns, training professionals, preventing complications, improving the monitoring of tests, and reorganizing flows in the UBS, in addition to improving the service in the network. They also help to direct resources and reinforce stocks of medicines and supplies for the control of DM2.            |
| 5. Is the data collected in health services used to feed health information systems at the municipal or state level? Is the data public or not, and why? | Data from health units feed systems such as SISAB, e-SUS APS, and SIVEP. Although there are public dashboards with aggregated data (e.g., TABNET/DATASUS), individualized and clinical information is not accessible to the public due to confidentiality and data protection, being restricted to managers, in accordance with the General Data Protection Law (LGPD).               |

Source: Prepared by the authors. Manaus, 2025.

## NATIONAL COUNCIL FOR FOOD AND NUTRITION SECURITY (CONSEA)

Table 3 – Questions and answers completed during observation at CONSEA

| Guiding Question                                                                                                                                                                               | Answer completed                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. How does CONSEA participate in the supervision and regulation of foods intended for patients with DM2, especially in relation to food supply in public health or social assistance services | CONSEA does not define specific diets for DM2, but influences food policies that affect the quality of food in health and social assistance services. It acts through intersectoral policies and coordination with ministries, contributing to the right to adequate food and promoting healthier environments, which benefits people with chronic diseases such as DM2.                                                     |
| 2. How does the coordination between Consea and the Health Care Network ensure comprehensive care for patients with DM2, considering both clinical and nutritional aspects                     | Inter-sectoral coordination occurs mainly through the National Food and Nutrition Policy (PNAN) and participatory spaces such as councils, conferences, and commissions. Consea contributes by including food guidelines in RAS planning, strengthening strategies for health promotion, DM2 prevention, and clinical and nutritional care.                                                                                  |
| 3. Are there specific Consea initiatives aimed at promoting healthy eating habits and nutritional education for patients with DM2, especially in socially vulnerable regions?                  | Although it does not have specific programs for DM2, Consea promotes structural actions that benefit people with chronic diseases, such as community gardens, solidarity kitchens, food banks, and support for family farming, expanding access to healthy foods in vulnerable regions. It also encourages food education in school, community, and territorial policies, contributing to the prevention and control of DM2. |
| 4. Are there mechanisms for monitoring dietary and environmental risk factors associated with DM2 in Amazonas, and how does this information guide prevention and care actions?                | The main monitoring mechanisms are Vigitel, Sisvan, and the National Health Survey (PNS), which track obesity, food consumption, physical inactivity, and the prevalence of DM2. These systems provide essential data for public policies and prevention and care strategies in primary care and food security councils at the state and municipal levels, such as in Amazonas.                                              |
| 5. How are nutritional guidelines defined in public health services for patients with DM2, and what is the role of health surveillance in this process?                                        | Nutritional guidelines for patients with DM2 in the SUS are based on the PCDT, the Food Guide for the Brazilian Population, and the PNAN. Health surveillance complements these actions by monitoring food quality in health facilities and social programs, including hospital menus and industrialized food labeling, with a focus on controlling added sugars—essential in the management of DM2.                         |

Source: Prepared by the authors. Manaus, 2025.

## STOMATHERAPY OUTPATIENT CLINIC

Table 4 – Questions and answers completed during observation at the clinic

| Guiding question                                                                                                                                                                                                 | Answer completed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Is there a self-care support strategy for patients with type 2 diabetes? How are these actions implemented?                                                                                                   | Strategies include dressings, guidance on diabetic foot prevention, health education, and encouragement of self-care and treatment adherence. They are conducted by the nursing team with the support of stoma therapists. However, there is a shortage of essential materials, such as UrgoClean, in the outpatient clinic.                                                                                                                                                                                                 |
| 2. How are patients with type 2 diabetes monitored at the outpatient clinic, including frequency of visits, home care, preventive measures, and coordination with the emergency medical service in urgent cases? | Follow-up is carried out through regular appointments at the USF and the outpatient clinic, dressings 2–3 times a week at the outpatient clinic or at home, and biweekly reassessments by a nurse specialized in stoma therapy. When necessary, the patient is referred to other specialists. Prophylaxis includes health education at each appointment, with guidance on foot hygiene and early screening for complications. The SAMU (Mobile Emergency Care Service) is called in severe cases of diabetic foot infection. |
| 3. How are severe cases of diabetic foot managed, and how does the referral of patients with type 2 diabetes between primary, secondary, and tertiary care work?                                                 | Initially, the severity of the lesion is assessed, and specialized dressings (with silver or PHMB) are applied. In severe cases or cases with necrosis, the patient is referred for hospital care, and amputation may be performed if there is a risk of generalized infection. After discharge, care is resumed at the USF and outpatient clinic.                                                                                                                                                                           |
| 4. How is the risk assessment of patients with type 2 diabetes performed in the outpatient clinic, including the severity criteria for diabetic foot and its relationship with referral in the care network?     | The history of injuries, amputations, and glycemic control are considered, in addition to the clinical assessment of the wound and the patient's general condition. Mild cases are monitored in primary care or outpatient clinics; severe cases are referred for secondary or tertiary hospital care.                                                                                                                                                                                                                       |

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5. Are there specific actions aimed at minority groups, such as the elderly, riverine or indigenous populations, within outpatient care for type 2 diabetes?

Patients with reduced mobility receive home dressings, humanized and adapted care, priority access for the elderly and people with disabilities, personalized health education, and care according to the vulnerability of the case.

Source: Prepared by the authors. Manaus, 2025.

## HIGH-COMPLEXITY SPECIALIZED HEALTH CARE (HUGV ENDOCRINOLOGY).

Table 5 – Questions and answers completed during observation at HUGV

| Guiding question                                                                                                                                                                                                    | Answer completed                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Which serious complications of DM2 (such as nephropathy, retinopathy, or diabetic foot) are most prevalent among patients who arrive at high complexity centers?                                                 | The most common complications in high complexity centers are diabetic feet. Among others, diabetic retinopathy is also common in UBS, but usually in advanced and irreversible stages.                                                                                                                                                                                                                                                      |
| 2. How do logistical issues and social inequalities influence the worsening of DM2 and delayed access to specialized care?                                                                                          | Logistical challenges and social inequalities hinder the continuous monitoring of type 2 diabetes, especially for populations in peripheral areas and in the interior of Amazonas, where access depends on river routes. The lack of financial resources makes it difficult to travel to health facilities, compromising treatment.                                                                                                         |
| 3. How is the interaction and integration between endocrinology and other specialties (nephrology, cardiology, angiology, ophthalmology) carried out in severe cases of DM2 at HUGV-UFAM or other referral centers? | In severe cases of DM2 at HUGV-UFAM and reference centers, integration between endocrinology and other specialties (nephrology, cardiology, angiology, ophthalmology) occurs via hospital consultations. In the outpatient clinic, referrals are segmented and assisted by electronic medical records. The role of multidisciplinary teams in the care of wounds, metabolic decompensation, and low treatment adherence is also noteworthy. |
| 4. Which tests or therapeutic resources essential for the treatment of advanced DM2 are still difficult to access in high-complexity services in Manaus?                                                            | Although basic supplies are available, there are limitations in access to specialized tests, advanced technologies, and integrated multidisciplinary services, hindering comprehensive care for patients with advanced DM2 and affecting the control of complications and quality of life.                                                                                                                                                  |
| 5. How long, on average, does a patient with diabetic foot need to wait to undergo surgical amputation, and what is the protocol for referral to this procedure?                                                    | The time for amputation referral varies according to the severity of the injury and the response to conservative treatment in primary and secondary care. In less complex cases, prevention is prioritized with continuous interventions and monitoring, which can last weeks or months. The decision for amputation is multidisciplinary, involving doctors, nurses, and other professionals.                                              |

Source: Prepared by the authors. Manaus, 2025.

## DISCUSSION

### UBS JAPIIM (PRIMARY CARE)

The Japiim Basic Health Unit (UBS), a reference in the management of type 2 diabetes mellitus (DM2) in Manaus, faces significant structural and administrative challenges. The absence of a pharmacist makes it impossible for the pharmacy to function, while the bureaucracy of SISREG, the shortage of specialists, and the discontinuity in the supply of medications by the city government compromise therapeutic effectiveness. In addition, limited patient adherence, especially among vulnerable populations, hinders follow-up and treatment success. Despite its

weaknesses, the UBS offers some resources aimed at prevention and self-care, such as guidance during consultations, nutritional support, and monitoring via PEC<sup>4</sup>. However, the lack of standardized digital tools and irregularity in the supply of medications hinder the sustainability of lifestyle changes, negatively impacting patients' autonomy in controlling the disease. According to Mendes<sup>5</sup>, the precarious infrastructure and high demand reduce the capacity of PHC to carry out effective preventive actions, resulting in fragmented care and below-expected health outcomes, contrary to the principles of the SUS. The situation at the Japiim UBS reflects the fragility of Family Health Units (USF) in fully fulfilling their

functions. The shortage of human and material resources overloads the teams, undermining comprehensive, decisive, and continuous care<sup>6</sup>. These limitations compromise the central role of Primary Health Care (PHC) as a promoter of health and organizer of care.

### SOUTH HEALTH DISTRICT (MANAGEMENT)

In the Southern District of Manaus, the absence of standardized clinical protocols and the fragmentation of health records highlight the fragility of DM2 monitoring. The lack of systematic monitoring of essential tests—such as glycated hemoglobin, fasting blood glucose, and renal function—compromises the adequate

assessment of glycemic control and the prevention of serious complications. This deficiency violates national guidelines and prevents strategic planning based on consistent epidemiological data<sup>7</sup>. In addition, limited access to data in the name of privacy protection, although legally supported by the LGPD<sup>8</sup>, hinders social control and the work of researchers. Tools such as TABNET and DATASUS offer little detailed information for local analysis<sup>9</sup>. Given this, it is urgent to strengthen PHC with clear clinical protocols, functional computerized systems, and policies that reconcile transparency and data protection to ensure more effective care for patients with DM2.

## CONSEA

The National Council for Food and Nutritional Security (Consea) plays an essential role in the prevention and control of DM2 through its influence on public food policies. Its work is reflected in the quality of food distributed in schools and SUAS public facilities, directly contributing to the health of vulnerable populations<sup>10</sup>. Integration with programs such as PNAE expands access to nutritionally adequate meals, reducing the risks associated with poor nutrition. CONSEA's role in the Health Care Network is carried out through coordination with policies such as the National Food and Nutrition Policy (PNAN) and the presence of multidisciplinary teams such as NASF. This intersectoral approach allows the specific dietary needs of people with DM2 to be considered in care planning, reinforcing the importance of prevention and nutrition education as public health strategies<sup>11</sup>. Although it does not have specific programs for DM2, Consea promotes structural actions such as community gardens and solidarity kitchens, which have a positive impact on the nutrition of people with chronic diseases, especially in

areas with food insecurity such as the Amazon. Risk factors are monitored by systems such as Sisvan, Vigilal, and PNS, which guide local policies and strategies. Thus, Consea contributes broadly to the construction of healthy environments integrated with health care.

## STOMATHERAPY OUTPATIENT CLINIC (MEDIUM COMPLEXITY CARE)

Specialized outpatient care in stoma therapy is essential for preventing complications such as diabetic foot. The work of stoma therapy nurses is central to this process, through dressing wounds, providing health guidance, and offering ongoing support for self-care<sup>12</sup>. The care routine consists of regular consultations, frequent dressings, and periodic reassessments, with defined flows for severe cases. In urgent situations, patients are referred to the emergency medical service (EMS) and subsequently hospitalized, with a scheduled return to primary care after discharge. This organization allows for a continuous and effective cycle of care, although it is subject to material and logistical limitations. However, challenges such as lack of supplies (e.g., UrgoClean), overload of care, and difficulties in physical and financial access to units negatively impact the quality of care. Many patients miss appointments, and professionals face excessive workdays, with reduced time per patient. Despite these difficulties, the physical and psychosocial results are significant, reinforcing the need to invest in the structure and human resources of the service.

## HIGH COMPLEXITY

The high complexity scenario in Manaus shows that many patients with type 2 diabetes mellitus arrive at specialized services with advanced complications, such as diabetic foot, often leading to amputation. This reality reflects persistent failures in

Primary Health Care (PHC), which does not adequately perform early detection of neuropathies and vasculopathies, compromising the principle of comprehensiveness of the SUS and resulting in avoidable outcomes<sup>13</sup>. In addition, geographic and socioeconomic barriers, especially among riverside and peripheral populations, hinder regular access to health services and the supply of medications, aggravating the fragmentation of care and accelerating the progression of complications<sup>14</sup>. In highly complex services, specialists act reactively, focusing mainly on severe cases, while multidisciplinary teams face limitations in diagnostic and therapeutic resources<sup>15</sup>. In this context, an intersectoral response is essential to strengthen PHC, improve access to remote areas through adequate transportation, and promote effective integration between levels of care. These actions are essential to ensure preventive, coordinated, and humanized care for patients with DM2, reducing complications and optimizing health system resources.

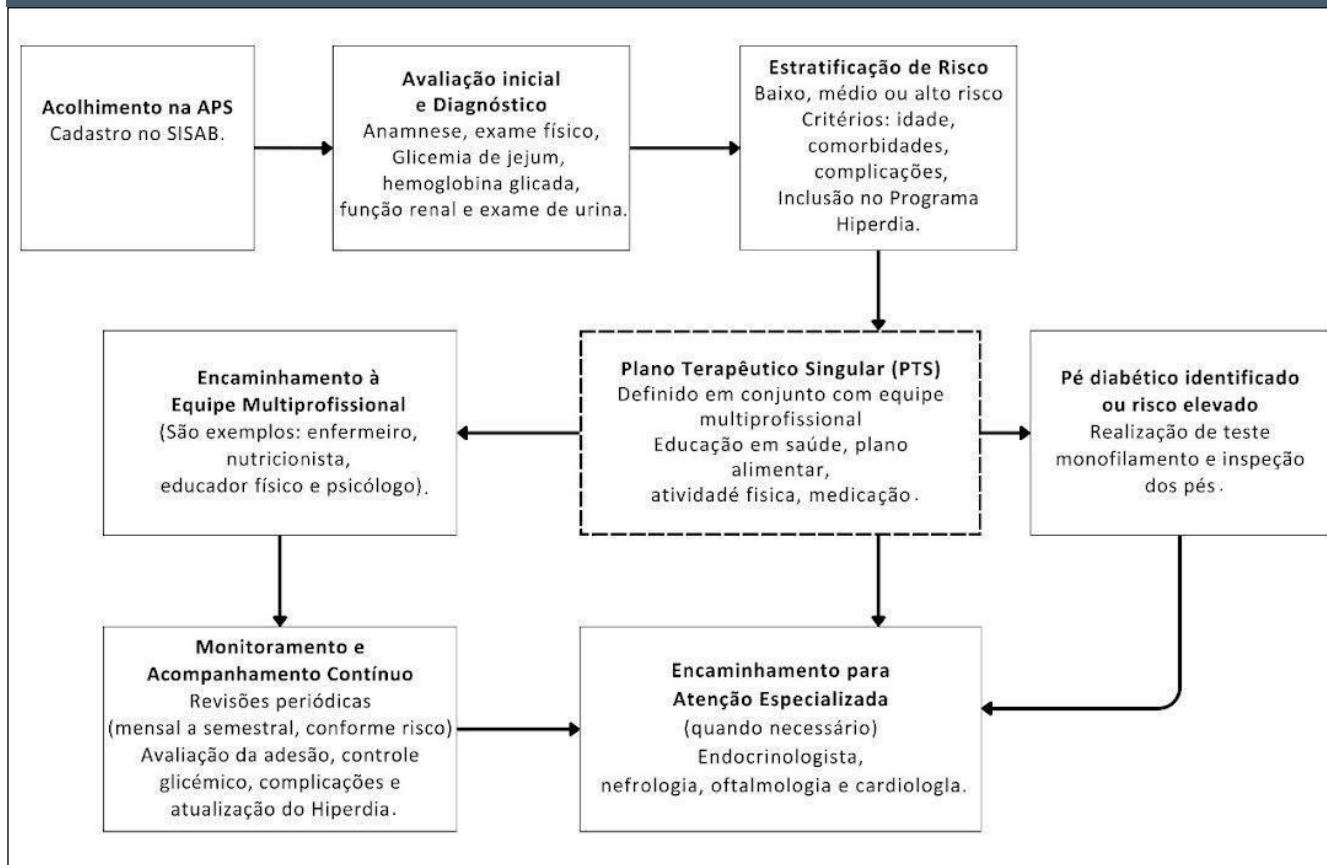
## FLOWCHART

Care for people with diabetes mellitus, especially within the Unified Health System (SUS), requires a comprehensive, continuous, and multidisciplinary approach, focusing on the prevention of complications and the promotion of quality of life. The flowchart (Figure 1) organizes and guides the care pathway, from the first contact with the health service to specialized referrals, ensuring coordinated, person-centered care based on guidelines for chronic conditions.

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Figure 1 - Flowchart of patients with DM2 in the SUS in Manaus/AM



Source: Prepared by the authors. Manaus, 2025.

The care pathway for people with diabetes in Primary Health Care (PHC) begins with reception and registration in SISAB. Next, an initial assessment is performed with medical history, physical examination, and laboratory tests, such as fasting blood glucose, glycated hemoglobin, renal function, and urine. Based on this data, risk stratification (low, medium, or high) is performed, considering age, comorbidities, and complications. Patients at high risk or with identified diabetic foot are subjected to foot inspection and monofilament testing.

Based on the stratification, a Singular Therapeutic Plan (PTS) is developed in conjunction with the multidisciplinary team, including health education, dietary plan, phys-

ical activity, and medication prescription. As needed, the patient may be referred to specialists such as an endocrinologist, nephrologist, ophthalmologist, or cardiologist. Care also includes referral to the multidisciplinary team (such as nurses, nutritionists, psychologists, and physical educators) and continuous monitoring, with periodic reviews, assessment of treatment adherence, and updates in the Hiperdia system, promoting comprehensive and longitudinal care for diabetic patients.

## CONCLUSION

The investigation revealed the complexity of care for patients with type 2 diabetes mellitus in Manaus, highlighting the crucial role of primary care in prevention, monitor-

ing, and promotion of self-care. However, its effectiveness is limited by structural problems, such as lack of supplies, professionals, and integrated systems. In medium and high complexity units, cases with severe complications predominate, reflecting failures in screening and referral. Integration between levels of care is still fragmented, and social, economic, and geographic factors hinder access and continuity of care. There is a lack of standardized protocols, data management, and patient support technologies. It is concluded that it is necessary to strengthen primary care, invest in infrastructure and human resources, improve coordination between services, and formulate public policies adapted to the Amazonian reality.

## REFERENCES

1. SILVA. D.C.L, MAGALHÃES. H.M.F. Rede de Atenção à Saúde ao portador de Diabetes Mellitus: uma análise da implantação no SUS em Recife (PE). *Saúde Debate*. 2015;39(spe):268-282. doi:10.1590/0103-11042015S021.
2. OLIVEIRA, L. M. L.; BARBOSA, L. M.; NEGREIROS, J. H. C.; PENTEADO, L. A. M.; SILVA SANTANA LIMA, V. V. R. Cuidado integrado do paciente periodontal diabético tipo 2 na Atenção Básica: revisão scoping. *Physis: Revista de Saúde Coletiva*, Rio de Janeiro, v. 30, n. 3, e300327, 2020. DOI: 10.1590/S0103-73312020300327.
3. MENDES. E. V. As redes de atenção à saúde. *Ciência & Saúde Coletiva*. 2010;15(5):2297-2305. doi:10.1590/S1413-81232010000500005.
4. BRASIL. Ministério da Saúde. Atenção Primária — Secretaria de Atenção Primária à Saúde (SAPS). Disponível em: <https://www.gov.br/saude/pt-br/composicao/saps>. Acesso em: 04 jun. 2025.
5. Silva, P. R., & Souza, L. M. (2018). Infraestrutura e recursos na Atenção Primária à Saúde: influência na qualidade do cuidado. *Saúde e Sociedade*, 27(3), 789-800. <https://doi.org/10.1590/s0104-12902018171248>
6. Pinto, D. A., Carvalho, M. S., & Costa, M. F. (2020). Sobrecarga e adoecimento dos profissionais da Estratégia Saúde da Família: um desafio para a integralidade do cuidado. *Revista de Enfermagem UFPE on line*, 14, e244123. <https://doi.org/10.5205/1981-8963-v14i244123p>
7. SOCIEDADE BRASILEIRA DE DIABETES (SBD). Diretrizes da Sociedade Brasileira de Diabetes 2023-2024. São Paulo: SBD, 2023.
8. BRASIL. Lei n.º 13.709, de 14 de agosto de 2018. Lei Geral de Proteção de Dados Pessoais (LGPD). Disponível em: [https://www.planalto.gov.br/ccivil\\_03/\\_ato2015-2018/2018/lei/l13709.htm](https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/lei/l13709.htm). Acesso em: 9 jun. 2025.
9. PINTO, L. F.; FREITAS, M. P. S. de; FIGUEIREDO, A. W. S. A. Sistema de Informação em Saúde da Atenção Básica (SISAB): seus desafios e potencialidades enquanto instrumento de gestão e pesquisa. *Cadernos de Saúde Coletiva*, Rio de Janeiro, v. 26, n. 1, p. 99-105, 2018.
10. LEÃO, M. O direito humano à alimentação adequada e o sistema nacional de segurança alimentar e nutricional. *Ciência & Saúde Coletiva*, Rio de Janeiro, v. 18, n. 4, p. 945-954, 2013.
11. SANTOS, J. B.; LIMA, L. L. de; MENEZES, E. L. C. Atuação do profissional de educação física no Núcleo Ampliado de Saúde da Família e Atenção Básica (NASF-AB): uma revisão integrativa. *Revista Eletrônica Acervo Saúde*, v. 13, n. 3, e6446, 2021.
12. HERMENECISIA AGUIAR COSTA et al. Atuação do enfermeiro estomaterapeuta no cuidado à pessoa com doença do pé relacionada ao diabetes. Disponível em: <https://anais.sobest.com.br/cbe/article/view/605>.
13. GIRÃO, F. B. G. et al. Prevalência de complicações crônicas em pacientes com diabetes mellitus tipo 2 em atendimento ambulatorial. *Revista da Associação Médica Brasileira*, São Paulo, v. 64, n. 3, p. 241-248, 2018.
14. GARNELO, L. et al. Acesso e cobertura da Atenção Primária à Saúde para populações rurais e urbanas na região norte do Brasil. *Saúde em Debate*, Rio de Janeiro, v. 42, n. spe1, p. 81-99, 2018.
15. VIANNA, C. M. M. et al. Desafios para a avaliação e incorporação de tecnologias em saúde no Brasil. *Cadernos de Saúde Pública*, Rio de Janeiro, v. 34, suppl. 2, e00085417, 2018.