

## GUIDE FOR IDENTIFYING CARDIOVASCULAR RISK FACTORS IN PRIMARY HEALTH CARE

### GUIA PARA IDENTIFICAÇÃO DE FATORES DE RISCO CARDIOVASCULAR NA ATENÇÃO PRIMÁRIA À SAÚDE

### GUÍA PARA LA IDENTIFICACIÓN DE FACTORES DE RIESGO CARDIOVASCULAR EN LA ATENCIÓN PRIMARIA DE SALUD

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#### ABSTRACT

**Objective:** elaborate a guide to assist in identifying cardiovascular risk factors in primary health care. **Method:** this is a technology development study with an interface in methodological research, carried out in two phases: Integrative Literature Review and Guide Development. **Results:** the review enabled the identification and categorization of the main detectable risk factors in primary care, such as hypertension, diabetes, physical inactivity, obesity, smoking, dyslipidemia, age, gender, and family history. Based on these findings, the guide was developed with accessible language, scientific foundation, and visual resources that facilitate its use by primary health care professionals, available in both print and digital formats. **Conclusion:** the guide constitutes a useful tool to improve care quality, support clinical decision-making, and strengthen actions for the prevention and control of cardiovascular diseases.

**Keywords:** CoPrimary Health Care; Heart Disease Risk Factors; Cardiovascular Diseases; Risk Factors; Health Personnel; Medical Informatics; Information Technology.

#### RESUMO

**Objetivo:** elaborar um guia para auxiliar na identificação de fatores de risco cardiovascular na atenção primária à saúde. **Método:** trata-se de um estudo de desenvolvimento de tecnologia com interface na pesquisa metodológica, ocorrido em duas fases: Revisão Integrativa da Literatura e Elaboração do Guia. **Resultados:** a revisão permitiu identificar e categorizar os principais fatores de risco detectáveis na atenção primária, tais como hipertensão arterial, diabetes, sedentarismo, obesidade, tabagismo, dislipidemias, idade, sexo e histórico familiar. A partir desses achados, foi elaborado o guia, com linguagem acessível, embasamento científico e recursos visuais que facilitam seu uso pelos profissionais de saúde da atenção primária, disponível em formato impresso e digital. **Conclusão:** o guia constitui uma ferramenta útil para qualificar o cuidado, apoiar a tomada de decisão clínica e fortalecer as ações de prevenção e controle das doenças cardiovasculares.

**Palavras-chave:** Atenção Primária à Saúde; Fatores de Risco de Doenças Cardíacas; Doenças Cardiovasculares; Fatores de Risco; Pessoal de Saúde; Informática Médica; Tecnologia da Informação.

#### RESUMEN

**Objetivo:** elaborar una guía para ayudar en la identificación de factores de riesgo cardiovascular en la atención primaria de salud. **Método:** se trata de un estudio de desarrollo de tecnología con enfoque en la investigación metodológica, llevado a cabo en dos fases: Revisión Integrativa de la Literatura y Elaboración de la Guía. **Resultados:** la revisión permitió identificar y categorizar los principales factores de riesgo detectables en la atención primaria, como la hipertensión arterial, diabetes, sedentarismo, obesidad, tabaquismo, dislipidemias, edad, sexo e historial familiar. A partir de estos hallazgos, se elaboró la guía, con un lenguaje accesible, fundamentación científica y recursos visuales que facilitan su uso por parte de los profesionales de salud de la atención primaria, disponible en formato impreso y digital. **Conclusión:** la guía constituye una herramienta útil para cualificar el cuidado, apoyar la toma de decisiones clínicas y fortalecer las acciones de prevención y control de las enfermedades cardiovasculares.

**Palabras clave:** Atención Primaria de Salud; Factores de Riesgo de Enfermedad Cardíaca; Enfermedades Cardiovasculares; Factores de Riesgo; Personal de Salud; Informática Médica; Tecnología de la Información.

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## INTRODUCTION

Cardiovascular diseases (CVD) represent the leading cause of mortality worldwide, constituting a serious public health problem that demands effective prevention and control strategies, especially in Primary Health Care (PHC)<sup>(1)</sup>. In Brazil, epidemiological data reveal the high burden of morbidity and mortality associated with cardiovascular risk factors, accounting for more than 400,000 deaths per year, with estimates indicating that one in every three deaths is due to cardiovascular causes<sup>(1,2)</sup>. The burden of these diseases is strongly associated with modifiable risk factors such as systemic arterial hypertension (SAH), dyslipidemia, obesity, physical inactivity, smoking, and diabetes mellitus (DM), whose early identification is essential to reduce complications and preventable deaths<sup>(2)</sup>.

Scientific literature indicates that the approach to risk factors should be systematized and evidence-based to enhance the clinical practice of healthcare professionals and promote comprehensive care<sup>(3,4)</sup>. In this context, the development of care technologies, such as clinical guidelines, can contribute to standardizing procedures, rationalizing the management of health conditions, and strengthening health surveillance in PHC, the entry point of the Health Care Network (HCN)<sup>(5)</sup>. These guidelines play a crucial role in addressing various issues related to care and service management, as they are developed based on technical, organizational, and policy directives supported by scientific evidence<sup>(6,7)</sup>.

Despite the extensive production of knowledge on cardiovascular risk factors, gaps remain regarding the translation of this evidence into tools applicable to the daily practice of healthcare services. The lack of systematized and accessible materials compromises the effectiveness of preventive actions, making the development of tools that assist in risk stratification and the planning of timely interventions an urgent need<sup>(8,9)</sup>.

Thus, the need to develop a care technology in the form of a guide aimed at the systematic and evidence-based identification of cardiovascular risk factors is justified. Unlike traditional tools that present limitations in their practical applicability and integration into the daily routine of healthcare professionals, this guide proposes a practical and visual approach that organizes risk factors into categories, facilitating recognition and allowing its use both during initial patient reception and in longitudinal follow-up. This study aimed to develop a clinical guide based on updated scientific evidence, with practical applicability, capable of supporting decision-making

and contributing to the identification of CVD within the scope of PHC.

## METHOD

This is a technology development study with an interface in methodological research, aimed at creating care technology in the form of a guide to assist healthcare professionals in identifying cardiovascular risk factors in adult patients treated in PHC. Methodological research has become a relevant approach among healthcare professionals and researchers, as it enables the development and evaluation of products and procedures with high scientific rigor. This type of study requires a thorough systematization of the steps of data collection, analysis, and interpretation, as well as the application of robust tests to ensure the reliability, effectiveness, and applicability of the proposed technology in clinical practice<sup>(10)</sup>.

The study was conducted in two phases: integrative literature review (ILR) and guide development. The integrative review is a method that provides knowledge synthesis and incorporates the applicability of significant study results into practice, with the potential to promote knowledge construction by producing well-founded and consistent information for professionals to deliver quality clinical practice. This method makes research results more accessible, as it allows readers to access a wide range of knowledge in a single study; in other words, it enables agility in disseminating a current and specific topic, since it is conducted to identify, analyze, and synthesize results from independent studies on the same subject<sup>(10,11)</sup>.

The ILR was conducted in six steps<sup>(12)</sup>: in the first step, the guiding question was formulated based on the PICo strategy, as follows: "What information on identifying cardiovascular risk factors is necessary to compose a guide-type technology to be used by healthcare professionals in primary care during the care of adult patients?" Original articles and guidelines available in full text, in electronic format, in Portuguese, English, and Spanish, published between 2019 and 2024, were included. Editorials, commentaries, reflective essays, experience reports, theses, dissertations, and documents whose title or content was not directly related to the topic were excluded. The second step consisted of defining the search strategy, formulating the string in Portuguese and English using the Boolean operators AND and OR, and defining the databases (Figure 1). This step took place in May and June 2024.

The third step consisted of selecting the studies, with screening and organization carried out using the Rayyan® reference manager, which optimized importation,

Figure 1 - Databases and descriptors used in the RIL. Santarém, Pará, Brazil, 2025.

| Databases                                                                                                                                                                                                                                               | Descriptors                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Virtual Health Library (VHL)</li> <li>Scopus Preview (SCOPUS)</li> <li>Web of Science (WOS)</li> <li>National Library of Medicine (PubMed)</li> <li>National and international guides and guidelines.</li> </ul> | <ul style="list-style-type: none"> <li>"Fatores de Risco Cardiovascular"</li> <li>"Heart Disease Risk Factors"</li> <li>"Pontuação de Risco Cardiovascular"</li> <li>"Atenção Primária à Saúde"</li> <li>"Primary Health Care"</li> <li>"Atendimento Básico"</li> <li>"Basic Service"</li> <li>"Cuidado Primário de Saúde"</li> <li>"First Level of Health Care".</li> </ul> |

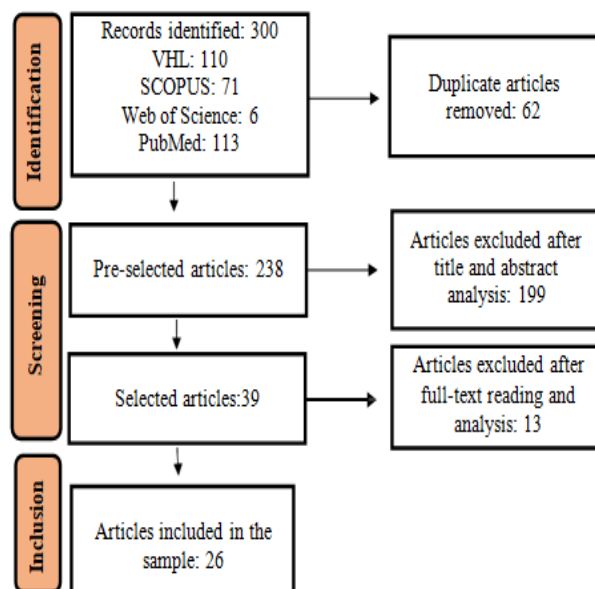
Source: The authors (2025).

duplicate removal, and article analysis. The selection followed the previously defined criteria, with titles and abstracts read independently by two reviewers. Disagreements were resolved by consensus. In the fourth step, a critical appraisal of the included studies was performed, analyzing methodological quality with a focus on the robustness of the evidence and the relevance of the data to the topic. This evaluation allowed the identification of the main cardiovascular risk factors discussed in the literature, as well as the key elements for composing the guide.

Throughout the fifth step, data interpretation was carried out, in which the information extracted from the studies was compared and analyzed, enabling the identification of patterns and relevant contributions to clinical practice in primary care. This step allowed for understanding how the available evidence addresses cardiovascular risk factors and their prevention strategies in the PHC context. Finally, in the sixth step, data synthesis was performed, followed by similarity analysis using the IraMu-Teq software (2025), in order to identify the main CVD risk factors that could be detected in PHC. This synthesis supported the development of the guide to be used by healthcare professionals for screening and managing cardiovascular risk factors in primary care. The search and selection process of the studies is shown in (Figure 2).

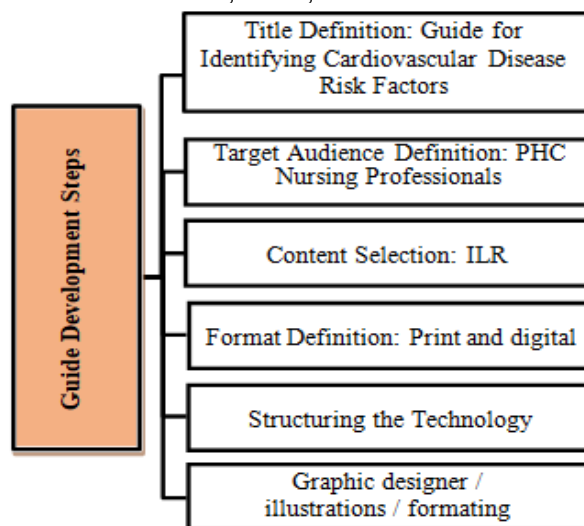
The ILR provided the necessary foundation for developing the technology in the form of a guide, following the elaboration steps<sup>(13)</sup>, as shown in the flowchart below (Figure 3). Furthermore, the ILR allowed the categorization of the guide with the main CVD risk factors, namely:

Figure 2 - Flowchart of manuscript search in the database. Santarém-PA, Brazil, 2025.



Source: The authors (2025).

Figure 3 - Flowchart with the steps for building the Guide. Santarém-PA, Brazil, 2025



Source: The authors (2025).

hypertension, DM, dyslipidemia, physical inactivity, obesity, smoking, age, gender, and family history.

The development of the guide was possible using the digital platform Canva, a cloud-based graphic design tool that offers accessible and intuitive resources for creating visual materials. This platform enables the development of various content formats, such as infographics, posters, presentations, and educational materials. Using Canva allowed the creation of a guide with a clear, organized, and user-friendly visual layout, facilitating reading,

comprehension, and practical applicability of the content by healthcare professionals in Primary Health Care. Moreover, being a cloud-based tool, it provided greater flexibility for collaborative construction and material updates, as it can be accessed and edited on different devices connected to the internet<sup>(14)</sup>.

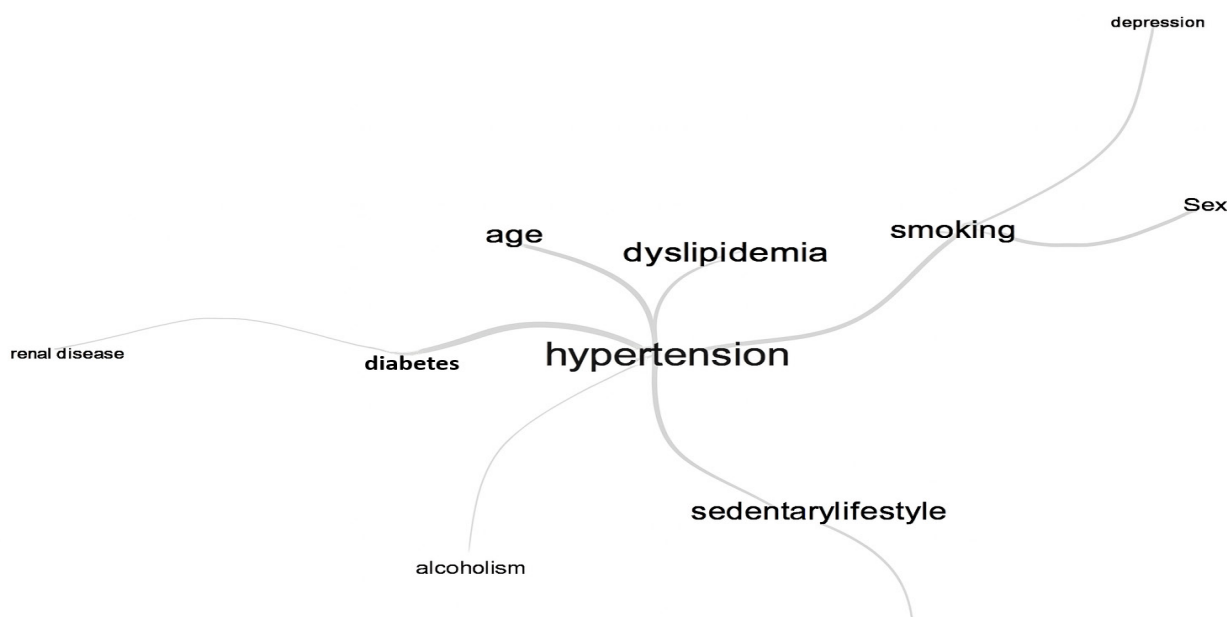
## RESULTS

The main CVDs risk factors that can be identified in PHC, as evidenced in the ILR, were: SAH, DM, age,

(with emphasis on red), while maintaining a clean and professional aesthetic. The technical sheet provides detailed information about the study that was the starting point of the guide and the individuals responsible for its development.

Section 2 contains the Presentation, which aims to provide the reader with context regarding the importance of the guide, including the following main elements: a reasoning briefly explaining the impact of CVDs on public health and the need for a guide for primary care; the guide's objective, which clearly states its purpose of assisting in the identification and management of cardiovascular

Figure 4: Interrelation among the main risk factors for cardiovascular diseases identified in the study through similarity analysis. Santarém, Pará, Brazil, 2025



Source: The authors (2025).

dyslipidemia, smoking, and obesity. These factors often coexist and interact, increasing cardiovascular risk (Figure 4).

The guide (Figure 5) is available in full on the EduCapes Portal via the link: <https://educapes.capes.gov.br/handle/capes/1000374>; and on the website of the Educational Technologies Study Network via the link: <http://retebrasil.com.br/pagina.php?cat=182>.

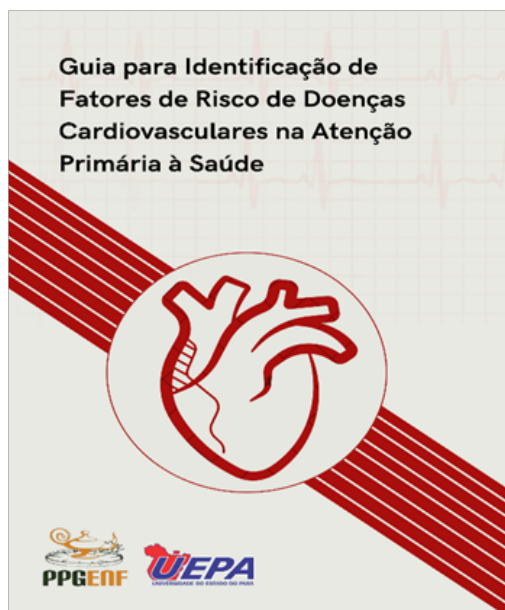
Section 1 of the guide includes the cover and the technical sheet. The cover is the first element and serves to visually present the technology in an objective manner, featuring a visual design and the use of colors that evoke the healthcare field and the cardiovascular theme

risk factors; the target audience, consisting of PHC professionals (physicians, nurses, nursing technicians, and others), emphasizing that the guide was developed based on national and international guidelines and current literature; and the summary, which organizes the content and facilitates navigation through the document by listing the main topics.

Section 3 addresses the general aspects of CVDs and the importance of identifying risk factors.

Section 4 presents SAH as a cardiovascular risk factor, defining it and highlighting its impact on heart and blood vessel health. It includes an explanatory flowchart and guidelines on proper positioning for accurate blood

Figure 5: Cover of the Guide for identifying risk factors for cardiovascular diseases in primary health care. Santarém, Pará, Brazil, 2025



Source: The authors (2025).

pressure measurement, as well as the classification of blood pressure levels according to current guidelines. Illustrative images are also used to demonstrate signs, symptoms, and risks associated with hypertension, as well as the process of atheroma plaque formation.

Section 5 highlights dyslipidemia as a CVD risk factor, based on the Brazilian Guideline on Dyslipidemia and Atherosclerosis Prevention (2017), addressing etiological classification, laboratory classification categorizing the types of dyslipidemia (isolated hypercholesterolemia, isolated hypertriglyceridemia, mixed hyperlipidemia, and low HDL), and emphasizing the importance of cardiovascular risk stratification to determine the need for pharmacological treatment. In addition, it provides recommendations on laboratory tests for lipid profile assessment and their frequency, along with a table showing reference values for the lipid profile.

Section 6 emphasizes obesity as a predominant CVD risk factor and includes the classification of body mass index through an image, highlighting the impact of obesity on hypertension and DM, reinforcing the need for weight control. It also contains a QR Code to facilitate access to the body mass index calculator.

Section 7 addresses physical inactivity and defines it as a condition associated with an increased risk of CVD, diabetes, and cancer. It reinforces the World Health Organization's recommendations for different age groups and highlights the importance of reducing sedentary behavior,

using images to illustrate a sedentary lifestyle and the differences between sedentary and non-sedentary living style.

Section 8 on diabetes addresses the main types (DM1 and DM2), their risk factors, recommended laboratory tests, and reference values for diagnosis, following the guidelines of the Brazilian Diabetes Society, as well as a flowchart to assist in controlling glycemic levels.

Section 9 addresses age, gender, and family history, highlighting advanced age as an unavoidable risk factor and reinforcing the need to intensify prevention in older adults. The gender factor presents the differences in cardiovascular risk between men and women, emphasizing that women are more vulnerable to cardiovascular events after menopause. Regarding family history, it is discussed as an important factor, especially in genetic syndromes such as familial hypercholesterolemia and hereditary cardiomyopathies.

Section 10 addresses smoking and presents its impact on the cardiovascular system, with emphasis on the risks of passive exposure. The guide outlines cessation strategies based on the Clinical Protocol and Therapeutic Guidelines for Smoking, including the Fagerström Test for assessing the degree of nicotine dependence and a flowchart that assists in the care of smokers.

Section 11 presents Risk Stratification and Assessment Tool, discussing the importance of cardiovascular risk stratification, including methods such as the Framingham Risk Score. It emphasizes the need to evaluate multiple factors for better personalization of interventions.

Section 12 presents strategies for implementing preventive measures with practical recommendations for adopting healthy habits, including balanced nutrition, weight control, regular physical activity, and smoking cessation. It also introduces a proposed flowchart to assist in identifying risk factors in Primary Health Care (PHC), contributing to the systematization of care.

Section 13 provides suggestions for additional reading with QR codes that direct readers to documents and guidelines from the Ministry of Health, allowing for deeper exploration, and finally, the bibliographic references used in the development of the guide.

## DISCUSSION

The guide developed in this study is aimed at Primary Health Care professionals, with the objective of supporting the early and systematic identification of risk factors for CVD. It serves as a guiding tool that enhances clinical practice, contributing to health surveillance, risk

stratification, and the adoption of timely interventions, in alignment with comprehensive care.

The Guide for Identifying Cardiovascular Disease Risk Factors in PHC stands out as a valuable tool by providing up-to-date scientific evidence for the identification and management of cardiovascular risk factors, with practicality as its key advantage. In other words, it is easy to use, implement, and apply, as it addresses risk factors in an objective manner. This enables professionals to screen these factors simply, as it offers a compilation of information that encompasses the main guidelines in a single tool, ensuring effective care by PHC professionals.

In this context, the identification and effective management of these factors in PHC are essential for implementing preventive strategies, such as lifestyle changes and pharmacological interventions when indicated. These measures have the potential to significantly reduce the incidence of cardiovascular events, alleviate the burden on health systems, and improve the population's quality of life<sup>(15)</sup>.

Early intervention, combined with health education, is one of the pillars of PHC for reducing cardiovascular morbidity and mortality. Studies indicate that prevention programs based on lifestyle modification and adherence to pharmacological treatment can reduce the incidence of fatal and non-fatal cardiovascular events by up to 50%<sup>(16,17)</sup>. Furthermore, attention directed toward specific groups with a family history allows for more efficient screening and the adoption of targeted approaches. Risk stratification, through the Framingham score and the inclusion of additional parameters such as arterial stiffness and chronic kidney disease, has been proposed as a complementary strategy for personalized prevention by estimating cardiovascular risk<sup>(18)</sup>.

Proactive action in detecting and controlling CVD risk factors in PHC is an essential strategy for primary prevention, contributing to the reduction of morbidity and mortality associated with these conditions. The incorporation of new approaches to risk stratification and the reinforcement of preventive strategies, such as health technologies, are important elements for improving clinical management and global public health<sup>(19)</sup>. Every healthcare professional is constantly challenged to develop and use technologies to facilitate the care process. These resources promote knowledge about CVD and the therapeutic regimen to be followed, while also encouraging self-care by prioritizing targeted and objective guidance on the subject<sup>(20)</sup>, ensuring the systematization of care in an equitable and humanized manner.

The study presents limitations that should be acknowledged. The main one concerns the lack of evaluation of the proposed guide, which currently prevents ensuring its effectiveness, applicability, and comprehension by PHC professionals. Furthermore, the development of the guide was based exclusively on an ILR, without the direct participation of healthcare professionals or health system users, which may limit the content's alignment with the real demands of daily practice. It is also important to consider that the guide was designed with a focus on the context of the Unified Health System (SUS), which may restrict its applicability in other settings. Therefore, future studies are recommended to include evaluation and validation steps of this technology by specialists and the target audience (PHC professionals) to improve the guide and strengthen its contribution to the prevention and management of cardiovascular risk factors in PHC.

The study contributes to the community, education, research, and clinical practice by proposing a technology aimed at the early identification of cardiovascular risk factors in PHC. For the community, it strengthens prevention and self-care actions; in education, it helps as a resource for the training and updating of professionals; in research, it expands knowledge about cardiovascular prevention strategies; and in management, it provides an instrument that promotes care systematization, decision-making, and the delivery of more equitable and humanized assistance.

## FINAL CONSIDERATIONS

The guide is expected to be an appropriate tool for optimizing cardiovascular care in primary health, contributing to the prevention and reduction of morbidity and mortality associated with cardiovascular diseases. Its structure follows a logical and didactic model, ensuring easy access to information for PHC professionals. The guide's composition is based on updated guidelines and combines scientific information with graphic elements such as tables, images, and flowcharts to facilitate clinical practice.

PHC plays a crucial role in the prevention of cardiovascular diseases, serving as the first point of contact for individuals within the HCN. In this way, the guide can assist healthcare professionals in making evidence-based decisions, reducing variability in clinical practices and optimizing available resources. Moreover, the adoption of personalized preventive measures based on risk stratification contributes to more equitable and patient-centered care. Thus, this tool is expected to significantly contribute

to the promotion of cardiovascular health and the improvement of the population's quality of life.

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