

The Importance Of Laboratory Tests In Monitoring Chronic Diseases In Healthcare Services

Tania Souto Santos¹, Taiana Trindade Sena², José Italo Monte Da Silva³,
Karine Ribeiro Rabelo⁴, Ana Carla Do Espirito Santo⁵,
Kaline Isabele De Sousa⁶, Franciane Aparecida Ferreira Vieira⁷

(Estudante De Biomedicina)

(Instituto Federal De Educação, Ciência E Tecnologia Do Pará)

Universidade Federal Do Vale Do São Francisco - UNIVASF)

(Universidade De Brasília - Unb)

(Faculdade Focus)

(Faculdade Do Vale Do Jaguaribe – FVJ)

(Centro Universitário Presidente Antônio Carlos)

Abstract:

Chronic diseases represent one of the main challenges for healthcare systems due to their high prevalence, progressive nature, and the need for continuous monitoring. In this scenario, laboratory tests play a fundamental role in monitoring clinical evolution, early identification of complications, and guiding therapeutic approaches. This study aimed to analyze, through an integrative literature review, the importance of laboratory tests in the monitoring of chronic diseases in healthcare services, highlighting their contribution to clinical monitoring, therapeutic decision-making, early detection of complications, and improvement in the quality of care. This is an integrative literature review, developed through a search of studies published in scientific databases, using descriptors related to chronic diseases, laboratory tests, and health monitoring. Articles addressing the use of laboratory tests as a clinical monitoring tool in different chronic conditions were included. The analysis of the studies showed that laboratory tests provide essential information to assess the evolution of diseases, monitor the response to treatment, identify early changes, and support safer clinical decisions. The relevance of a multidisciplinary approach in interpreting results was also observed, favoring the development of integrated therapeutic plans centered on patients' needs. The findings demonstrate that laboratory monitoring strengthens continuity of care, enhances the quality of assistance, and contributes to better clinical outcomes. It is concluded that laboratory tests are indispensable tools in the management of chronic diseases, being fundamental for therapeutic planning, the prevention of complications, and the improvement of care provided at different levels of healthcare.

Key Word: *Chronic Diseases; Laboratory Tests; Health Monitoring.*

Date of Submission: 24-07-2026

Date of Acceptance: 04-08-2026

I. Introduction

Non-communicable chronic diseases (NCDs), such as diabetes mellitus, hypertension, cardiovascular diseases, chronic kidney disease, and dyslipidemias, represent one of the main challenges for health systems worldwide. Increased life expectancy, coupled with changes in lifestyle, has contributed to the growing prevalence of these diseases, making it essential to adopt strategies focused on early diagnosis, continuous monitoring, and prevention of complications ^[1].

In this context, laboratory tests play an essential role in healthcare, providing objective information about the physiological and metabolic state of patients. These tests allow the identification of biochemical, hematological, hormonal, and immunological alterations that often precede the appearance of clinical manifestations, favoring timely and more assertive interventions by healthcare professionals ^[2,10].

Regular laboratory monitoring makes it possible to assess the progression of chronic diseases, measure the response to treatments, and detect possible complications early. Markers such as glycated hemoglobin, creatinine, urea, lipid profile, electrolytes, and liver enzymes are indispensable tools for clinical management, assisting in individualized therapeutic decisions and reducing health risks for patients ^[9].

In healthcare services, the integration of clinical assessment and laboratory tests strengthens the quality of care provided. Proper interpretation of results contributes to evidence-based treatment planning, allowing for medication adjustments, lifestyle guidance, and referrals when necessary. In this way, care becomes safer, more efficient, and tailored to the specific needs of each individual. The use of laboratory tests also favors the

prevention of adverse outcomes related to chronic diseases. Early identification of abnormalities can prevent hospitalizations, reduce disease progression, and minimize the development of complications such as kidney failure, cardiovascular events, neuropathies, retinopathy, and other conditions that significantly compromise patients' quality of life ^[7].

Another relevant aspect concerns the economic impact provided by adequate laboratory monitoring. Although the periodic performance of tests represents an investment for health services, the early detection of clinical changes and the prevention of complications reduce costs related to hospitalizations, complex procedures, and prolonged treatments, favoring greater sustainability of health systems. The expansion of chronic diseases is directly related to population aging and increased exposure to modifiable risk factors, such as sedentary lifestyle, inadequate diet, obesity, smoking, and excessive alcohol consumption. This scenario reinforces the need for monitoring strategies that allow for the identification of clinical changes before they worsen, expanding the possibilities for intervention and disease control over time ^[4].

Technological advancements in the field of laboratory medicine have increased the accuracy, speed, and reliability of results. Automated methods, highly sensitive equipment, and standardized protocols enable higher analytical quality, contributing to more precise diagnoses and continuous monitoring of various clinical parameters. These innovations strengthen the support offered to healthcare professionals during the decision-making process. The interpretation of laboratory tests should be integrated with clinical evaluation, the patient's history, and other complementary tests. Isolated laboratory values do not always reflect the individual's true condition; it is essential to consider aspects such as age, sex, medication use, presence of comorbidities, and specific physiological conditions. This integrated approach favors more individualized treatment and reduces the possibility of misinterpretations ^[14].

At different levels of healthcare, from primary care to specialized hospital services, laboratory tests are indispensable tools for the longitudinal monitoring of patients with chronic diseases. The periodic performance of these tests makes it possible to identify trends in clinical evolution, evaluate the effectiveness of therapeutic interventions, and support actions aimed at promoting health and preventing complications. Another important aspect is the patient's active participation in their own treatment. Presenting laboratory results during consultations can improve understanding of the disease's progression and encourage greater adherence to recommendations related to medication use, physical activity, healthy eating, and other lifestyle changes. This process strengthens the bond between professionals and patients, promoting more participatory care ^[6].

Multiprofessional care also depends on the information provided by laboratory tests. Doctors, nurses, pharmacists, nutritionists, biomedical scientists, and other professionals use these results to plan specific interventions, monitor possible adverse effects of treatments, and track clinical indicators related to the progression of chronic diseases. This integration promotes more comprehensive care focused on the patient's needs. The incorporation of laboratory tests into clinical protocols contributes to the standardization of care and the reduction of variability in therapeutic approaches. National and international guidelines recommend the periodic performance of specific tests according to the type of chronic disease, allowing for the monitoring of relevant clinical indicators and the establishment of interventions based on objective parameters. This practice strengthens the quality of care and promotes better health outcomes ^[9].

The development of preventive medicine has increased the relevance of laboratory tests as tools for identifying risk factors and stratifying the severity of chronic diseases. Subtle changes in biochemical markers can indicate the need for changes in treatment before more severe clinical manifestations occur, enabling early interventions that reduce disease progression and preserve patients' functional capacity. In recent years, the digitization of healthcare services and the implementation of electronic health records have facilitated the serial monitoring of laboratory results. The historical comparison of tests allows for the identification of trends, the assessment of clinical stability, and the monitoring of responses to interventions over time. This availability of information strengthens continuity of care and improves communication among the different professionals involved in patient care ^[13].

Another relevant aspect concerns patient safety during the treatment of chronic diseases. Several medications used continuously can cause renal, hepatic, hematological, or metabolic alterations, making periodic laboratory monitoring indispensable. Early identification of these alterations allows for therapeutic adjustments, reduces the occurrence of adverse events, and contributes to the safer use of pharmacological therapies. Given the growing demand for healthcare services focused on managing chronic diseases, it is essential to recognize laboratory tests as strategic components of care. In addition to supporting diagnosis and clinical monitoring, these resources provide essential information for treatment planning, prevention of complications, evaluation of results, and strengthening a model of continuous, comprehensive care based on scientific evidence ^[14].

The overall objective of this study is to analyze, through an integrative literature review, the importance of laboratory tests in the monitoring of chronic diseases in health services, highlighting their contribution to monitoring clinical evolution, therapeutic decision-making, early detection of complications, and improvement in the quality of care provided to patients.

II. Materials And Methods

This research is characterized as an integrative literature review, a method that allows for the gathering, synthesis, and critical analysis of scientific studies produced on a specific topic, enabling a comprehensive understanding of the available knowledge. This type of review favors the integration of results from different methodological designs, contributing to the identification of evidence related to the importance of laboratory tests in the monitoring of chronic diseases in health services.

The review was conducted in predefined stages, encompassing the identification of the research problem, the formulation of the guiding question, the definition of search strategies, the establishment of eligibility criteria, the selection of studies, the extraction of relevant information, the critical analysis of the findings, and the synthesis of results. This methodological organization allowed for greater rigor throughout all phases of the investigation, reducing potential biases in the selection and interpretation of the included publications.

To guide the bibliographic search, the following guiding question was formulated: what is the importance of laboratory tests in the follow-up of chronic diseases in health services, considering their contribution to clinical monitoring, prevention of complications, and therapeutic decision-making? The definition of this question guided the selection of descriptors, the databases consulted, and the criteria used for the inclusion of scientific studies.

The identification of articles was carried out in the databases Medical Literature Analysis and Retrieval System Online (MEDLINE), through PubMed, Latin American and Caribbean Literature in Health Sciences (LILACS), Scientific Electronic Library Online (SciELO), Virtual Health Library (BVS), and Google Scholar, used as a complementary source for locating scientific literature. Consulting different databases broadened the scope of the search and increased the likelihood of including studies relevant to answering the proposed question.

Controlled descriptors obtained from the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) were used, combined using the Boolean operators AND and OR. The search strategy was structured using the following terms: ("Laboratory Tests" OR "Clinical Laboratory Techniques" OR "Laboratory Diagnosis") AND ("Chronic Disease" OR "Chronic Illness" OR "Noncommunicable Diseases") AND ("Health Services" OR "Primary Health Care" OR "Patient Monitoring"). The strategies were adapted according to the indexing specificities of each database searched.

The inclusion criteria established were scientific articles published in full, available in complete access, in Portuguese, English, and Spanish, published between 2020 and 2026, a period considered sufficient to encompass recent evidence related to the topic. Studies that directly addressed the use of laboratory tests in the monitoring of chronic diseases were also included, regardless of the methodological design, provided they presented information compatible with the objective of the review.

Exclusion criteria included duplicate studies across the consulted databases, publications in the form of abstracts, editorials, letters to the editor, dissertations, theses, book chapters, protocols, opinion studies, and articles that did not answer the guiding question or presented an approach distant from the proposed theme. After removing duplicates, the studies were initially subjected to reading of titles and abstracts, followed by a full reading of those considered potentially eligible.

The data extraction was conducted using an instrument developed by the researchers, containing variables related to the authors, year of publication, country where the study was conducted, objective, methodological design, population investigated, main laboratory tests addressed, chronic diseases evaluated, results presented, and study conclusions. Standardizing this process allowed for greater organization of the information and facilitated comparison between the selected studies.

The analysis of the studies was descriptive and qualitative, seeking to identify convergences, divergences, and gaps in the scientific literature regarding the use of laboratory tests in the monitoring of chronic diseases. The results were organized into thematic categories constructed from the recurrence of the findings, allowing for an integrated interpretation of the available evidence and its relationship to clinical practice in health services.

Because this research is based exclusively on secondary data available in the scientific literature, without direct involvement of human beings or access to personally identifiable information, this study was exempt from review by a Research Ethics Committee, in accordance with current regulations for research of this nature. Throughout all stages of the review, the principles of scientific integrity, methodological transparency, and proper referencing of consulted sources were observed, ensuring academic rigor and reliability in the synthesis of the evidence.

III. Results And Discussion

Chronic diseases represent one of the main challenges for healthcare systems due to their high prevalence, progressive nature, and the need for continuous monitoring. In this context, laboratory tests play a central role in care, as they provide objective information about the physiological state of the body and allow for the evaluation of changes that are not always identified through clinical assessment alone. The periodic use of

these tests facilitates the identification of changes in the patient's health status, contributing to safer and more evidence-based follow-up ^[3].

Monitoring clinical evolution is one of the main contributions of laboratory tests to the care of chronic diseases. Biochemical, hematological, and immunological markers make it possible to track the response to treatment and verify the stability or progression of the disease. In patients with diabetes mellitus, for example, glycated hemoglobin provides information on glycemic control in previous months, while in chronic kidney disease, parameters such as serum creatinine and glomerular filtration rate allow for the assessment of renal function and guide adjustments in therapeutic management ^[2,10].

Laboratory tests also play a relevant role in therapeutic decision-making. The results obtained assist healthcare professionals in choosing medications, defining dosages, and determining the need to modify treatment regimens based on the patient's clinical evolution. This practice reduces the possibility of inappropriate treatments, favoring individualized interventions that are compatible with the clinical conditions presented during follow-up ^[4].

Another aspect observed in the literature refers to the ability of laboratory tests to detect complications arising from chronic diseases early. Many metabolic or functional changes appear before the manifestation of signs and symptoms, allowing interventions to be initiated at early stages. This monitoring favors the prevention of adverse events, reduces the occurrence of hospitalizations, and helps to minimize disabilities related to disease progression. In cardiovascular diseases, laboratory tests are relevant for both diagnosis and clinical follow-up. Evaluation of lipid profiles, inflammatory markers, and renal function indicators aids in cardiovascular risk stratification and monitoring the response to pharmacological and non-pharmacological interventions. Periodic analysis of these parameters allows for the identification of changes that may increase the likelihood of complications, favoring timely preventive measure ^[13].

In patients with chronic kidney disease, laboratory monitoring allows for continuous assessment of kidney function and identification of electrolyte, hematological, and metabolic changes frequently associated with disease progression. Measuring urea, creatinine, electrolytes, albumin, and hemoglobin supports decisions related to conservative treatment, the need for renal replacement therapy, and the management of complications, providing greater safety during clinical follow-up. The literature also highlights that integrating laboratory tests with clinical evaluation enhances the quality of care at different levels of healthcare. Although tests provide objective data, their interpretation must be coordinated with the patient's history, physical examination, and other clinical factors. This integrated approach promotes more accurate decisions, reduces isolated interpretations of results, and strengthens care centered on the individual needs of the patient ^[3].

Another identified benefit relates to the strengthening of prevention and health promotion actions. Periodic monitoring through laboratory tests makes it possible to identify modifiable risk factors, evaluate the effectiveness of lifestyle changes, and encourage adherence to treatment. When the results are shared and discussed with patients, a greater understanding of their own health condition is observed, favoring self-care and the continuity of recommended therapeutic measures ^[2,10].

Despite numerous contributions, some studies point to challenges related to access to and proper use of laboratory tests in healthcare services. Differences in resource availability, logistical difficulties, result turnaround times, and structural limitations can compromise the timely monitoring of patients with chronic diseases. These factors highlight the importance of strengthening laboratory infrastructure and service organization to ensure effective and continuous care. Standardization of protocols for requesting and interpreting laboratory tests has been identified as a factor contributing to greater effectiveness in monitoring chronic diseases. Clinical guidelines establish the appropriate frequency for performing certain tests according to the patient's clinical condition and risk profile. This organization promotes the rational use of available resources, avoids unnecessary requests, and enhances the ability of professionals to identify relevant changes throughout treatment ^[6].

Another aspect highlighted in the literature refers to the contribution of laboratory tests to the evaluation of pharmacological safety. Many medications used in the treatment of chronic diseases have the potential to cause hepatic, renal, or hematological alterations, requiring continuous monitoring. Periodic testing makes it possible to detect adverse reactions early and guide therapeutic adjustments before more serious clinical damage occurs, increasing patient safety during treatment. In Primary Health Care services, laboratory tests represent an important tool for the longitudinal monitoring of individuals with chronic diseases. The availability of these tests facilitates the screening of clinical changes, risk stratification, and evaluation of the effectiveness of interventions proposed by multidisciplinary teams. This practice strengthens continuity of care and reduces the need for referrals due to complications that could be identified in early stages ^[8].

The integration between laboratory services and electronic health information systems has also increased the efficiency of clinical monitoring. Access to results in electronic medical records allows different professionals to monitor patient progress in an integrated manner, promoting greater continuity of care. This strategy reduces information loss, facilitates the comparison of tests performed at different times, and contributes to faster and more informed clinical decisions. Another point frequently addressed in studies concerns the economic impact of

laboratory monitoring. Although the periodic performance of tests generates costs for health services, the early identification of clinical changes can reduce expenses related to hospitalizations, complex procedures, and the treatment of preventable complications [7].

Active patient participation in the management of chronic diseases is also facilitated by laboratory tests. Visualizing the evolution of results contributes to a greater understanding of one's own health condition and strengthens adherence to therapeutic recommendations. When combined with health education initiatives, these results become tools capable of stimulating lifestyle changes, promoting self-care, and increasing commitment to treatment. Studies also show that the interpretation of laboratory tests must consider individual characteristics such as age, sex, presence of comorbidities, and continuous use of medications. Isolated analysis of laboratory values can lead to inadequate interpretations, making a joint clinical evaluation by healthcare professionals indispensable. This individualized approach favors more precise interventions that are compatible with the specific needs of each patient [11].

In general, the evidence reinforces that laboratory tests are essential components of care for people with chronic diseases. Their continuous use favors the monitoring of clinical evolution, supports therapeutic decisions, allows for the early identification of clinical changes, and strengthens the quality of care at different levels of health attention. These benefits demonstrate that the integration between clinical evaluation and laboratory monitoring constitutes one of the pillars for the effective management of chronic diseases and for achieving better clinical outcomes [4].

Literature indicates that laboratory tests play a strategic role in monitoring chronic diseases by enabling continuous assessment of organic changes associated with the disease process. Unlike one-off assessments, serial monitoring of laboratory parameters allows observation of trends of improvement, stability, or worsening of the clinical condition. This evolutionary analysis assists professionals in defining more appropriate courses of action and contributes to more effective and individualized care [2,10].

In chronic conditions that present with silent progression, laboratory tests assume significant importance in identifying alterations before the appearance of evident clinical manifestations. The detection of changes in the levels of certain markers allows for early interventions, favoring disease control and reducing the possibility of organ and system damage. Therefore, laboratory monitoring acts as a preventive tool within healthcare [1].

The use of laboratory tests also facilitates the evaluation of therapeutic adherence in patients with chronic diseases. Comparing results over time allows verification of whether the proposed interventions are producing the expected effects or whether there is a need to reassess care strategies. This monitoring enables a more participatory relationship between professionals and patients, strengthening shared therapeutic planning [6].

Another relevant factor is the contribution of laboratory tests to multidisciplinary work in healthcare services. Doctors, nurses, pharmacists, nutritionists, and other professionals can use this information to develop integrated care plans, considering different aspects of the patient's clinical condition. The joint interpretation of the results promotes broader care that is more aligned with the needs of individuals with chronic diseases [11].

The studies analyzed also highlight that the appropriate frequency of laboratory evaluation is fundamental to ensuring the effectiveness of monitoring. Performing tests at intervals compatible with the severity of the disease and the risk of complications allows for greater clinical control and better organization of care. When this monitoring occurs irregularly, delays in identifying important changes and impairments in therapeutic management can occur [8].

Thus, laboratory tests are indispensable tools for managing chronic diseases, as they provide objective data that complement clinical evaluation and guide healthcare decisions. The literature demonstrates that their appropriate use contributes to monitoring disease progression, preventing complications, adjusting therapies, and improving the quality of healthcare services, reinforcing their relevance for continuous and humanized patient care [13].

The work of a multidisciplinary team plays a fundamental role in the care of patients with chronic diseases, especially given the complexity involved in managing these conditions. In this context, laboratory tests are tools shared among different professional categories, assisting in the construction of an integrated care plan. The joint analysis of the results allows each professional to contribute from their area of expertise, promoting broader and more targeted care tailored to the clinical, functional, and social needs of patients [6,7].

Nursing plays a significant role in the organization and continuity of laboratory monitoring, identifying follow-up needs, guiding patients, and coordinating with other healthcare team professionals. Through the evaluation of results and continuous clinical observation, nurses can identify changes that require reassessment of therapeutic management, referrals, or specific interventions, strengthening the longitudinal care provided to people with chronic diseases [3].

Medical practice, in conjunction with the work of other professionals, uses laboratory data to support diagnosis, monitoring disease progression, and defining therapeutic strategies. However, the interpretation of these results becomes more effective when carried out in conjunction with professionals from different areas, such as nutritionists, pharmacists, physiotherapists, psychologists, and physical educators. This integration makes

it possible to understand the patient in their entirety, considering factors related to drug treatment, diet, functional capacity, emotional aspects, and lifestyle habits^[5].

The multidisciplinary team also plays an important role in health education related to laboratory tests. Proper guidance on the purpose of the tests, the meaning of the results, and the importance of regular follow-up promotes greater patient participation in their own care. This communication between professionals and users contributes to strengthening therapeutic adherence and encouraging self-care practices, essential aspects for the management of chronic diseases^[15].

Thus, the literature reinforces that laboratory tests have a greater impact when integrated into a multidisciplinary approach within healthcare services. Coordinated action among different professionals enhances clinical monitoring capacity, facilitates more comprehensive therapeutic decisions, and contributes to the prevention of complications. Therefore, shared care becomes fundamental to ensuring qualified, continuous care centered on the individual needs of patients with chronic diseases^[7].

The studies included in this review demonstrate that laboratory tests represent an indispensable tool for hospital care, providing fundamental information for the diagnosis, clinical monitoring, and evaluation of the therapeutic response of patients with chronic diseases. In the hospital setting, these tests are routinely performed to monitor physiological changes resulting from disease progression, identify clinical decompensations, and guide timely therapeutic interventions. The speed in obtaining results contributes to more accurate decisions, promoting greater safety during hospitalization^[9].

Hospitalized patients with chronic diseases often have greater vulnerability to developing complications arising from both disease progression and the acute conditions that led to hospitalization. In this scenario, tests such as complete blood count, electrolytes, blood glucose, renal function, liver function, inflammatory markers, and coagulation tests allow for continuous monitoring of clinical evolution. Serial analysis of these parameters allows for the identification of early changes and guides actions capable of reducing the worsening of the clinical picture^[3].

In clinical inpatient settings, laboratory tests support the daily assessment of patients' conditions, allowing for monitoring of the effectiveness of treatments and tracking of potential adverse effects related to pharmacological therapies. Medications used to control cardiovascular diseases, diabetes mellitus, chronic renal failure, and other illnesses can cause metabolic, hematological, and renal alterations, making laboratory monitoring essential to ensure greater safety during hospital treatment^[8].

Among hospitalized patients, those with chronic kidney disease require rigorous laboratory monitoring due to the possibility of rapid deterioration of renal function during acute episodes. Monitoring creatinine, urea, electrolytes, acid-base balance, calcium, phosphorus, and hemoglobin allows for the early identification of changes that require immediate intervention, reducing the risk of progression to serious complications and contributing to better clinical control during hospitalization^[4].

The Intensive Care Unit (ICU) represents the hospital sector where laboratory tests assume the greatest relevance due to the high complexity of care for critically ill patients. A large proportion of hospitalized individuals present with previously diagnosed chronic diseases associated with potentially fatal acute conditions, such as sepsis, respiratory failure, circulatory shock, acute coronary syndrome, and acute kidney injury. In these circumstances, continuous laboratory monitoring provides indispensable information for assessing clinical stability and defining therapeutic approaches^[14].

In the ICU, tests such as arterial blood gas analysis, serum lactate, complete blood count, coagulation profile, electrolytes, creatinine, urea, liver enzymes, C-reactive protein, procalcitonin, and cardiac markers are frequently requested serially. These tests allow for the evaluation of tissue oxygenation, perfusion, inflammatory response, organ function, and metabolic changes resulting from critical illness. The integrated interpretation of these results aids in the early identification of clinical deterioration and facilitates immediate interventions capable of modifying the patients' prognosis^[7].

Laboratory results also play an essential role in guiding intensive care therapies. The need for adjustments in mechanical ventilation, fluid and electrolyte replacement, renal support, blood component administration, antibiotic therapy, and the use of vasoactive drugs largely depends on the analysis of laboratory parameters. Therefore, continuous monitoring allows for individualized treatment according to the clinical needs presented during the hospital stay^[10].

Another aspect highlighted in the literature refers to the integration between the clinical laboratory and the multidisciplinary hospital team. Doctors, nurses, pharmacists, biomedical scientists, physiotherapists, and nutritionists use laboratory results to establish therapeutic goals, monitor responses to interventions, and continuously reassess the care plan. This integrated approach strengthens patient safety, reduces care errors, and promotes a more precise and coordinated clinical approach^[9].

Although laboratory tests are indispensable in the hospital setting, their request must be made judiciously and based on the patient's clinical needs. The rational use of these resources avoids excessive collection, reduces waste, and contributes to greater efficiency in healthcare services. Care protocols and institutional guidelines have

been adopted to guide the frequency of requests, preserving the quality of care without compromising patient safety. The findings of this review demonstrate that laboratory tests constitute one of the main pillars of hospital care for patients with chronic diseases. Their application allows for monitoring clinical evolution, early detection of complications, evaluation of the effectiveness of therapeutic interventions, and support for medical decisions based on objective data. In the Intensive Care Unit, this importance becomes even more significant, as continuous laboratory monitoring is crucial for the early recognition of physiological changes, optimization of therapeutic approaches, and improvement of clinical outcomes for critically ill patients ^[14].

IV. Conclusion

This integrative review showed that laboratory tests are indispensable tools in the monitoring of chronic diseases, providing objective information that complements clinical evaluation and supports decision-making by healthcare professionals. The evidence analyzed demonstrates that laboratory monitoring allows tracking the progression of diseases, evaluating the response to therapeutic interventions, and identifying changes that may indicate the need for adjustments to the care plan.

The studies included in this review also showed that the periodic performance of laboratory tests favors the early detection of complications, enabling timely interventions and reducing the occurrence of unfavorable clinical outcomes. This continuous monitoring contributes to the control of chronic diseases, slows the progression of complications, and strengthens the quality of care provided at different levels of health care.

Another aspect identified refers to the relevance of a multidisciplinary approach in the interpretation and use of laboratory results. The integration between physicians, nurses, pharmacists, nutritionists, physiotherapists, and other professionals expands the capacity for clinical evaluation and favors the development of more comprehensive therapeutic plans. This collaborative approach strengthens the continuity of care and promotes assistance centered on the individual needs of patients.

The findings of this review reinforce that the appropriate use of laboratory tests should be associated with care protocols, systematic follow-up, and health education initiatives aimed at patients. Understanding the importance of these tests promotes greater adherence to treatment, encourages self-care, and contributes to the effective monitoring of chronic conditions over time.

Although the benefits of laboratory tests are widely recognized, the literature also highlights the need to expand access to diagnostic services and strengthen laboratory infrastructure, especially in resource-limited regions. Investments in service organization, professional training, and team integration can increase the effectiveness of clinical monitoring and contribute to better health indicators.

In conclusion, laboratory tests play an essential role in the management of chronic diseases, constituting fundamental tools for monitoring clinical evolution, defining therapeutic approaches, identifying complications early, and evaluating treatment response. When combined with the integrated work of a multidisciplinary team and continuous patient monitoring, these tests contribute to safer, more effective, and evidence-based care, promoting better clinical outcomes and a higher quality of life for people with chronic diseases.

The results of this integrative review demonstrate that laboratory monitoring should be understood as an essential part of longitudinal care for people with chronic diseases. The systematic use of these tests expands the capacity of health services to monitor clinical changes, evaluate the effectiveness of interventions, and promote preventive actions that contribute to reducing morbidity and mortality. In this way, laboratory monitoring strengthens evidence-based clinical practice and improves the decision-making process.

The analysis of the studies also highlights the importance of ongoing professional development for healthcare professionals regarding the ordering, interpretation, and clinical application of laboratory tests. The development of technical and scientific skills, coupled with effective communication among members of the multidisciplinary team, fosters the implementation of more effective care strategies aligned with patients' needs. This process strengthens comprehensive care and enhances the effectiveness of actions taken in healthcare services.

References

- [1]. Sacks DB, Arnold M, Bakris GL, Bruns DE, Horvath AR, Kirkman MS, Et Al. Guidelines And Recommendations For Laboratory Analysis In The Diagnosis And Management Of Diabetes Mellitus. *Clinicalchemistry*. 2023;69(8):808-868.
- [2]. Sacks DB, Arnold M, Bakris GL, Bruns DE, Horvath AR, Kirkman MS, Et Al. Executive Summary: Guidelines And Recommendations For Laboratory Analysis In The Diagnosis And Management Of Diabetes Mellitus. *Clinicalchemistry*. 2023;69(8):777-784.
- [3]. Kilpatrick ES. New Laboratory Guidelines For Diabetes: Continuing The Collaboration Between Clinical And Laboratory Medicine. *Clinicalchemistry*. 2023;69(8):785-787.
- [4]. Domingueti CP. Laboratory Tests And Pharmaceutical Care For Patients With Diabetes Mellitus: A Literature Review. *Infarma – Pharmaceutical Sciences*. 2023;35(2):223-240.
- [5]. Sacks DB, Arnold M, Bakris GL, Bruns DE, Horvath AR, Kirkman MS, Et Al. Executive Summary: Guidelines And Recommendations For Laboratory Analysis In The Diagnosis And Management Of Diabetes Mellitus. *Diabetes Care*. 2023;46(10):1740-1746.

- [6]. Sacks DB, Arnold M, Bakris GL, Bruns DE, Horvath AR, Kirkman MS, Et Al. Guidelines And Recommendations For Laboratory Analysis In The Diagnosis And Management Of Diabetes Mellitus. *Diabetes Care*. 2023;46(10).
- [7]. Delanghe JR, Speeckaert MM. Laboratory Medicine In Chronic Disease Management: Current Perspectives. *Clinical Chemistry And Laboratory Medicine*. 2021.
- [8]. Plebani M. Laboratory Medicine: Value For Patient Care And Clinical Decision Making. *Clinical Chemistry And Laboratory Medicine*. 2021;59(11):1781-1788.
- [9]. Lippi G, Plebani M. The Critical Role Of Laboratory Medicine In Modern Healthcare. *Diagnosis*. 2020;7(3):143-145.
- [10]. Price CP, St John A. The Role Of Laboratory Medicine In Chronic Disease Management. *Clinical Chemistry And Laboratory Medicine*. 2022;60(5):673-681.
- [11]. Choi J, Ginsberg Y, Goodman SG, Et Al. The Role Of Blood Testing In Prevention, Diagnosis, And Management Of Chronic Diseases: A Review. *The American Journal Of The Medical Sciences*. 2024.
- [12]. Hsu CY, Bansal N. Measured GFR As "Gold Standard"—All That Glitters Is Not Gold? *Clinical Journal Of The American Society Of Nephrology*. 2021;16(10):1596-1598.
- [13]. Selvin E, Sacks DB. Variability In The Measurement Of Hemoglobin A1c: Clinical Implications For Diabetes Management. *Clinicalchemistry*. 2021.
- [14]. Panteghini M, Adeli K. Biomarkers And Laboratory Testing In Chronic Disease Management: Current Evidence And Future Perspectives. *Clinical Chemistry And Laboratory Medicine*. 2022.
- [15]. Lippi G, Banfi G, Church S, Cornes M, Grankvist K, Kristensen GBB, Et Al. Preanalytical Quality Improvement: From Laboratory Testing To Patient Safety. *Clinical Chemistry And Laboratory Medicine*. 2021.