Regulatory Teleconsultation in Family and Community Medicine in the Municipality of Contagem, MG: From the Experience in Cardiology to Expansion into Multiple Specialties

Isadora Gonçalves Costa Ribeiro	Bachelor in Nursing. Fundação Educacional Lucas Machado (FELUMA). Coordinator of Telehealth Operations at FELUMA. Email: isadora.ribeiro@feluma.org.br
Humberto José Alves	Doctorate. Fundação Educacional Lucas Machado (FELUMA). Adjunct Professor. Email: humberto.alves@cienciasmedicasmg.edu.br
Marcos Almeida Quintão	Medical Residency. Fundação Educacional Lucas Machado (FELUMA). Superintendent of Telehealth at FELUMA. Email: marcos.quintao@feluma.org.br
Evandro de Souza Queiroz	Doctorate. Faculdade de Ciências Médicas. Adjunct Professor. Email: evandro.queiroz@cienciasmedicasmg.edu.br
Aline Kelly Ramos e Silva	Nursing Student. Faculdade Ciências Médicas de Minas Gerais. Student. Email: aline.kelly@feluma.org.br
Suellen Lorraine Oliveira de Souza	Nursing Student. Faculdade Ciências Médicas de Minas Gerais. Student. Email: ꟽellen.lorraine@feluma.org.br
Mayra Moreira Azevedo	Medical Residency. Secretaria Municipal de Saúde de Contagem. Medical Manager of the Clinic, Distrito Riacho - SAS Contagem. Email: may.m.azevedo@gmail.com
Lucas Néviton Rodrigues de Abreu	Master's Degree. Secretaria Municipal de Saúde de Contagem. Deputy Health Secretary. Email: lucasneviton@gmail.com
Renata Sabrina Rodrigues Barbaro	Medical Student. Faculdade de Ciências Médicas. Student. Email: renatasabrinacl@gmail.com
Alessandra Oselieri Pereira	Degree in Psychology. Fundação Educacional Lucas Machado. Operational Coordinator. Email: alessandra.oselieri@feluma.org.br
Clarissa Santos Lages	***Corresponding author:*** Corresponding author: Master. Fundação Educacional Lucas Machado (FELUMA). Coordinator of Digital Health. https://orcid.org Email: clarissa.lages@feluma.org.br

Date of Receipt: November 4, 2025 | Approval Date: March 10, 2026

Abstract

This article presents an experience report on the implementation of a regulatory teleconsultation strategy involving Family and Community Physicians (FCPs) in the municipality of Contagem, Minas Gerais. The initiative began as a cardiology pilot project in the first quarter of 2025 and was subsequently expanded to multiple specialties. The objective of this initiative was to enhance access to specialized care by facilitating interaction between Primary Health Care (PHC) professionals and Family and Community Physicians through an asynchronous teleconsultation model. This descriptive study, presented as an experience report, is grounded in Joint Technical Note No. 032/2025, which established teleconsultation as a mandatory prerequisite for referral to focal specialties within basic health units. The implementation process was organized into progressive stages, including inter-team agreements, training, and team monitoring, using the digital platform provided by the Lucas Machado Educational Foundation (FELUMA). Between February 10, 2025, and February 20, 2026, a total of 5,072 teleconsultations were conducted. The results highlight the strategy's potential to improve access to specialized care and to provide clinical support to PHC services, with high adherence among participating teams. However, challenges persist regarding the updating of clinical protocols, the completeness of information recorded in consultation requests, and integration with municipal healthcare regulation processes. This experience reinforces regulatory teleconsultation as a promising tool for strengthening Primary Health Care and for organizing access to specialized care within Brazil's Unified Health System (SUS).

Key-words: Teleconsultation; Healthcare Regulation; Family and Community Medicine; Primary Health Care; Telehealth.

Resumen

Teleconsulta regulatoria con Medicina de Familia y Comunidad en el municipio de Contagem/MG: de la experiencia en cardiología a la expansión para múltiples especialidades

Este artículo presenta un informe de experiencia sobre la implementación de una estrategia de teleconsulta regulatoria con médicos de familia y comunitarios (MFC) en el municipio de Contagem/MG. Se inició como un proyecto piloto de cardiología en el primer trimestre de 2025 y posteriormente se extendió a múltiples especialidades. El objetivo era mejorar el acceso a la atención especializada mediante la interacción entre profesionales de Atención Primaria de Salud (APS) y médicos de familia y comunitarios, utilizando un modelo de teleconsulta asíncrona. Se trata de un estudio descriptivo de tipo informe de experiencia, basado en la Nota Técnica Conjunta N° 032/2025, que estableció la teleconsulta como paso obligatorio previo a la derivación a especialidades focales en unidades básicas de salud. El proceso se organizó en etapas progresivas de pactos, capacitación y seguimiento de los equipos, utilizando la plataforma digital de la Fundación Educativa Lucas Machado (FELUMA). Entre el 10 de febrero de 2025 y el 20 de febrero de 2026, se realizaron 5072 teleconsultas. Los resultados resaltan el potencial de la estrategia para mejorar el acceso a la atención especializada y ofrecer apoyo clínico a la Atención Primaria de Salud, con una buena adherencia del equipo. Sin embargo, persisten desafíos relacionados con la actualización de los protocolos clínicos, la exhaustividad de la información registrada en las solicitudes y la integración con los procesos regulatorios municipales. La experiencia refuerza la teleconsulta regulatoria como una herramienta prometedora para fortalecer la Atención Primaria de Salud y organizar el acceso a la atención especializada en el Sistema Único de Salud (SUS).

Palabras clave: Teleconsulta; Regulación sanitaria; Medicina familiar y comunitaria; Atención primaria de salud; Telesalud.

Resumo

Teleconsultoria regulatória com Medicina de Família e Comunidade no município de Contagem/MG: da experiência em cardiologia à expansão para múltiplas especialidades

Este artigo apresenta o relato de experiência da implantação da estratégia de teleconsultoria regulatória com médico de família e comunidade (MFC) no município de Contagem/MG, iniciada como projeto piloto em cardiologia no primeiro trimestre de 2025 e posteriormente expandida para múltiplas especialidades. A iniciativa teve como objetivo qualificar o acesso à atenção especializada por meio da interação entre profissionais da Atenção Primária à Saúde (APS) e médicos de família e comunidade, a partir do modelo de teleconsultoria assíncrona. Trata-se de estudo descritivo do tipo relato de experiência, fundamentado na Nota Técnica Conjunta nº 032/2025, que instituiu a teleconsultoria como etapa obrigatória prévia ao encaminhamento para especialidades focais nas unidades básicas de saúde. O processo foi organizado em etapas progressivas de pactuação, capacitação e monitoramento das equipes, com utilização da plataforma digital da Fundação Educacional Lucas Machado (FELUMA). No período de 10 de fevereiro de 2025 a 20 de fevereiro de 2026 foram realizadas 5.072 teleconsultorias. Os resultados evidenciam o potencial da estratégia para qualificar o acesso à atenção especializada e oferecer apoio clínico à APS, com boa adesão das equipes. Persistem, entretanto, desafios relacionados à atualização de protocolos clínicos, à completude das informações registradas nas solicitações e à integração com os processos de regulação municipal. A experiência reforça a teleconsultoria regulatória como ferramenta promissora para o fortalecimento da Atenção Primária à Saúde e para a organização do acesso ao cuidado especializado no Sistema Único de Saúde.

Palabras-chave: Teleconsultoria; Regulação Assistencial; Medicina de Família e Comunidade; Atenção Primária à Saúde; Telessaúde.

INTRODUCTION

Regulated and high-quality access to specialized care remains one of the major challenges for public health systems in Brazil. Inadequate referrals, fragile flows between levels of care, and a scarcity of specialists are factors that negatively impact the effectiveness of care. In this context, telehealth has been established as an important tool to support regulation, contributing to improving the quality of the relationship between Primary Health Care (APS-Atenção Primária à Saúde) and specialized services.[1,2]

The National Policy on Specialized Health Care (PNAES-Política Nacional de Atenção Especializada à Saúde), established by GM/MS Ordinance number 1,604 on October 18, 2023, recognizes telehealth as a fundamental strategy for enhancing access, highlighting the use of teleconsultations as a mechanism to support clinical decision-making, foster shared care, and organize the care network.[2]

According to Santos et al. (2006), teleconsultation is a tool for clinical support and continuing education, based on clinical interaction mediated by information and communication technologies, that aims to support APS professionals in managing clinical cases, avoiding unnecessary referrals and strengthening their problem-solving capacity.[3]

Experiences within Brazil demonstrate that the involvement of Family and Community Physicians (FCPs) in regulatory processes can enhance clinical prioritization and strengthen communication between different levels of care.

The state of Santa Catarina, for example, pioneered the integration of Telehealth and regulatory mechanisms, utilizing FCPs as teleconsultants to review specialty care requests, a practice that had a positive impact on reducing unnecessary referrals. In Porto Alegre (RS), the Regula + APS project incorporated APS physicians into the analysis of specialty care waiting lists, aiming to refine clinical criteria and ensure greater problem-solving capacity within Primary Care. The

Federal District has also established protocols under which FCPs serve as technical reviewers for waiting lists before the authorization of consultations. In Bahia, Internal Regulation Units (NIRs) in municipalities such as Salvador and Vitória da Conquista rely on APS physicians, fostering expert clinical judgment within regulatory workflows.[4,5,6 7]

Although national experiences have demonstrated promising results regarding the integration of telehealth and care regulation, systematic analyses concerning the implementation of regulatory teleconsulting at the municipal level remain scarce, particularly when institutionalized as a mandatory prerequisite to specialist referral. This gap is particularly significant given the persistent challenges related to inappropriate referrals, the fragmentation of care pathways across different levels of care, and the overburdening of specialized care services, problems that compromise the equity and effectiveness of access within the SUS. Therefore, it is necessary to evaluate, within specific local contexts, whether the structured incorporation of teleconsulting into the regulatory process is capable of enhancing the quality of clinical decision-making, reorganizing care pathways, and rationalizing the utilization of specialized resources. Thus, this study aims to analyze the implementation of Regulatory Teleconsulting in Cardiology within the Riacho Health District in the municipality of Contagem, Minas Gerais, examining its effects on referral patterns, the problem-solving capacity of Primary Health Care, and the organization of access to specialized care

METHODOLGY

This study is a descriptive report of an experience involving a quantitative analysis of operational data regarding regulatory teleconsultations conducted in the municipality of Contagem, Minas Gerais. The project was developed within the scope of the ITFAE-MG Program, coordinated by the Minas Gerais State Health Secretariat, with technical support from the Telehealth Center of the Lucas Machado Educational Foundation (FELUMA). The analyzed data were extracted from the Lucas Machado Educational Foundation's (FELUMA) digital telehealth platform, which is used for the recording and monitoring of regulatory teleconsultations. The initiative in Contagem began with Regulatory Teleconsultation in Cardiology within the Riacho Health District; this service was institutionalized through Technical Note number 032-CONJUNTA/DAP/SAS/SUBAS, published on August 29, 2025 (ANNEX I). This document established teleconsultation as a mandatory prerequisite step for referrals to the cardiology specialty, initially at the Inconfidentes and Monte Castelo UBSs, located within the Riacho District.

It was a pilot initiative, with progressive, phased implementation, aiming to test the model, optimize workflows, identify barriers, and establish a process for fostering qualified engagement among APS professionals regarding the use of teleconsultation. The actions were organized chronologically into planning, training, and monitoring activities. Consequently, a descriptive analysis was conducted regarding the frequencies, proportions, and outcomes of the teleconsultations performed.

Operational Phases and Implementation Schedule

The project schedule (SCHEDULE 1) outlines the structuring of the activities. These were carried out through strategic organizational meetings, followed subsequently by continuous monitoring, and encompass three main stages:

(1) implementation of the cardiology pilot project at two Basic Health Units (UBS);
(2) expansion of the cardiology pilot to the six UBS within the Riacho District; and
(3) expansion of the project to cover multiple specialties across all UBS in the municipality of Contagem.

DOI: 10.32443/2175-2990 (2025)509

Schedule 1 – Activities carried out in the municipality of Contagem leading up to full implementation

Activities	Nov/24	Dec/24	Jan/25	Feb/25	Mar/25	Apr/25	May/25	Jun/25	Jul/25	Aug/25	Sep/25	Oct/25	Nov/25	Dec/25	Jan/26	Feb/26
Monitoring																
Step 1																
Step 2																
Step 3																

Source: Prepared by the authors based on project data

The monitoring meetings involved the FELUMA team and the team from the Municipal Health Secretariat of Contagem, including the management of APS, specialized outpatient care, and regulation. The alignment and follow-up meetings were held on a monthly basis, starting in November 2024. These meetings encompassed operational planning, the drafting and discussion of municipal technical notes for project validation, as well as the training of physicians and teams from the UBS participating in the pilot.

In May 2025, following the initial phase at two UBSs and the testing of the proposed model, the initiative was expanded to encompass all UBS within the Riacho District (Flamengo, Riacho, Novo Riacho, and Durval de Barros) bringing the total to six units participating in the pilot project for regulatory teleconsultation involving Family and Community Physicians in the field of cardiology.

After seven months of operation, during which care workflows and the system were tested, and feedback was gathered from requesting professionals, the number of specialties covered was expanded, and the use of teleconsultation was made mandatory for all UBS throughout the municipality of Contagem. This new workflow for the Health Care Network was officially formalized through Joint Technical Note number 032/2025 (NT/CONJUNTA/DAPS/SAPS/SUBAPS – ANNEX I), published on the City Hall's official website.[8]

Technical-Operational Workflow

1.Requests for teleconsultation are submitted via the FELUMA digital platform, where the Primary Health Care (PHC) professional records the clinical case, including patient history, ICD codes, risk factors, and diagnostic tests. The consulting physician—a specialist in Family and Community Medicine—analyzes the case and responds within 72 business hours, providing recommendations for clinical management, requesting additional diagnostic tests, or, if necessary, confirming the indication for referral to a cardiologist.

2.To guide professionals regarding the workflow for scheduling specialized consultations via the electronic health record system, Technical Note No. 25/2025 has been issued and is attached as Annex II.

Table 1 – Specialties Integrated into the Teleconsultation Flow in the Municipality of Contagem

Specialties	
Adult & Pediatric Allergy	Geriatrics
Angiology	Hematology
Adult Cardiology	Adult Infectious Diseases
Pediatric Cardiology	Adult & Pediatric Nephrology
Head and Neck Surgery	Neurosurgery
Thoracic Surgery	Adult Neurology
Coloproctology	Pediatric Neurology
General Dermatology	Orthopedics
Dermatology – Leprosy	Otolaryngology
Adult Endocrinology	Adult Pulmonology
Pediatric Endocrinology	Pediatric Pulmonology
Pediatric Gastroenterology	Rheumatology
Adult Gastroenterology	Urology

Source: Joint Technical Note 32/2025 Contagem

Surgical specialties, ophthalmology, and prenatal care were excluded, given that referrals in these areas already benefit from well-established care pathways and consolidated access to the relevant specialist, as in the case with prenatal care, or because they offer limited potential for resolution via teleconsultation, due to the frequent need for specific diagnostic tests and in-person evaluation to ensure appropriate clinical management.

When a referral is indicated, the healthcare professional must attach the teleconsultation feedback report (in PDF format) to the VIVVER system. The entire process is recorded in the electronic health record and finalized by completing the "Professional Outcome" field.

This strategy aims to ensure higher-quality clinical decision-making, reduce the burden on specialized care services, and enhance the problem-solving capacity of APS.[9]

Ethical Considerations

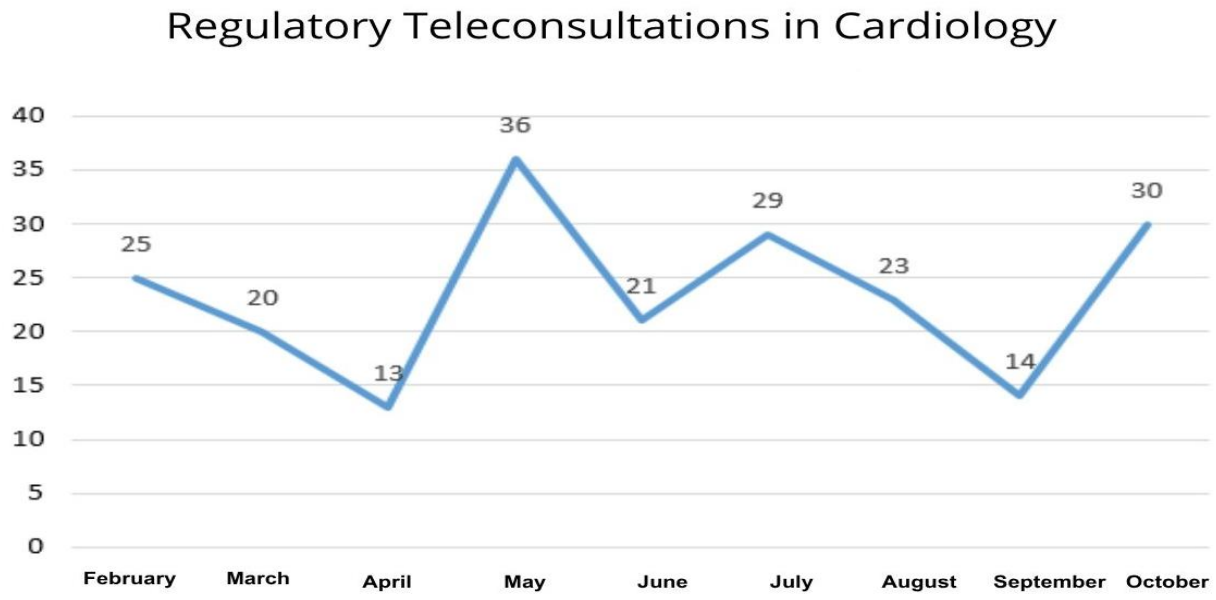
The study was approved by the Research Ethics Committee (CEP) under the Certificate of Presentation for Ethical Appreciation (CAAE) number 83749324.0.0000.5134, in accordance with the ethical principles established in Resolution number 466/2012 and Resolution number 510/2016 of the National Health Council. Secondary data obtained from the institutional telehealth platform were utilized and analyzed in an aggregated manner, without individual identification of users or professionals, thereby ensuring the confidentiality and protection of information.

RESULTS

Pilot Project Results

The pilot project was launched with mandatory teleconsultations restricted to the cardiology specialty. This initiative took place between February and April 2025 at two Basic Health Units (UBS), and from May through October 2025 at all six UBSs within the Riacho District. During this period, 211 regulatory teleconsultations were recorded, involving the following Basic Health Units: Monte Castelo, Inconfidentes, Novo Riacho, Riacho, Durval de Barros, and Flamengo. In February, 25 teleconsultations were recorded; in March, 20; in April, 13; in May, 36; in June, 21; in July, 29; in August, 23; in September, 14; and in October, 30. These data can be visualized in GRAPH I, presented below.

Graph 1 – Monthly volume of regulatory teleconsultations in cardiology in the Riacho District, Contagem/MG, for the period from February to October 2025

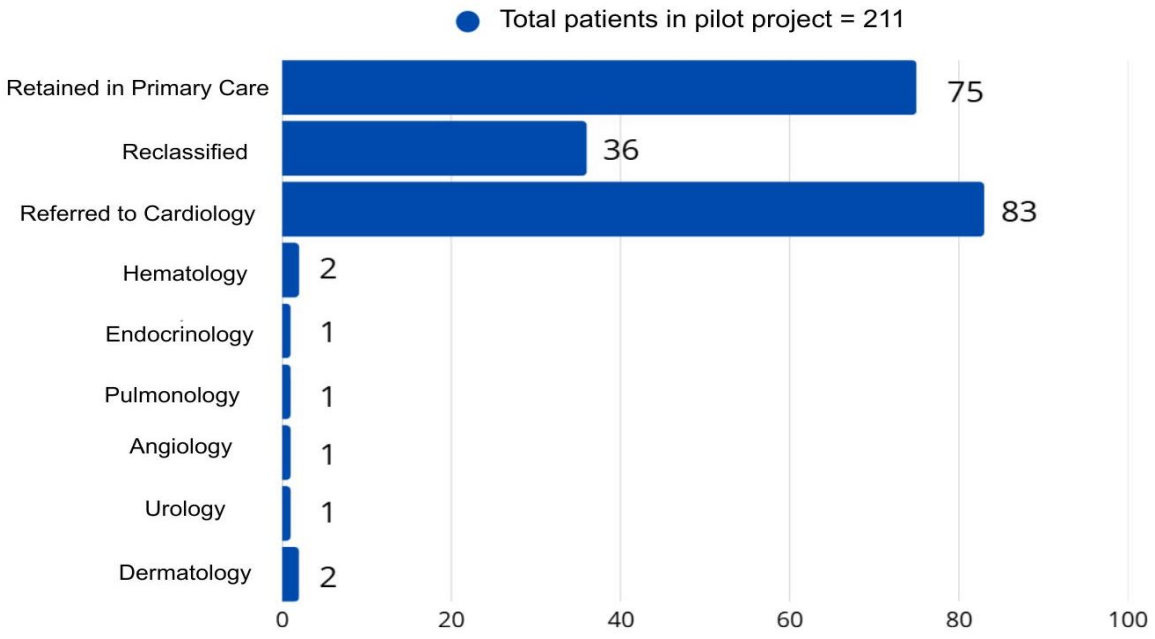


SOURCE: FELUMA Digital Health Platform

DOI: 10.32443/2175-2990 (2025)509

The outcomes of the 211 teleconsultations demonstrated that 75 patients were able to remain within Primary Health Care. Among the remaining cases, 36 underwent priority reclassification: 15 were categorized as high priority (P0), 11 as urgent high priority (urgent P0), 9 as medium priority (P1), and 1 was removed from the cardiology waiting list. In the group of patients seeking a first consultation, 83 were referred to cardiology. of whom 46 were classified as urgent P0, 30 as P0, and 7 as P1. Four patients already had a previously scheduled cardiology appointment before the reclassification, yet were still the subject of discussion on the platform. Furthermore, 4 cases were discussed with other specialties, 2 with hematology, 1 with endocrinology, and 1 with pulmonology. Among the 5 referrals directed to areas other than cardiology, there was 1 to angiology, 1 to urology, 2 to dermatology, and 1 case discussed without a defined destination specialty. Additionally, 2 patients remain awaiting evaluation by the regulating physician. It was further observed that 1 case, which did not previously appear on the cardiology waiting list, was directed to rheumatology, and 1 patient resided outside the service area, thereby precluding care by the facility. These data can be analyzed in GRAPH II.

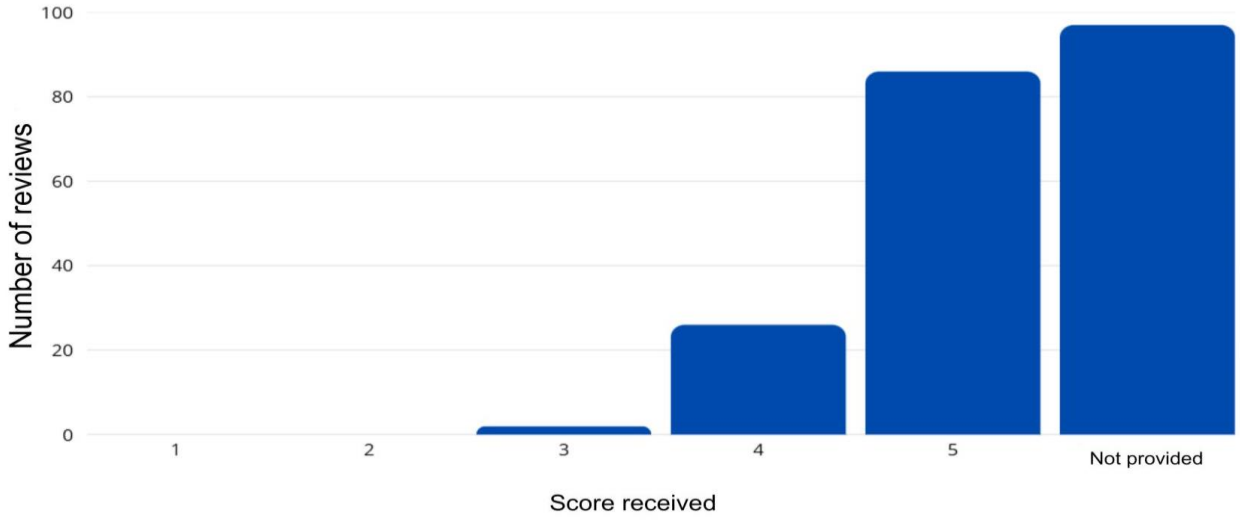
Graph II – Results of the Cardiology Pilot Project – February and October 2025



SOURCE: Graph produced based on data obtained by the authors.

We can also observe the professionals' level of satisfaction regarding the teleconsultations. This evaluation is conducted after the consultations have concluded, directly within the platform, where the requester rates the service received as “very dissatisfied” (assigning a score of 1), “dissatisfied” (2), “indifferent” (3), “satisfied” (4), or “very satisfied” (5). Among the evaluations received, 2 were rated 3, 26 were rated 4, and 86 received the maximum score. Nine outcomes were not recorded. It is important to emphasize that the evaluation of teleconsultations within the system is optional. Consequently, the completion of these evaluation instruments depends directly on the awareness and availability of the requesting professionals following their use of the service. As a result, not all teleconsultations performed are necessarily evaluated, which limits the ability to obtain a complete and systematic assessment of user perceptions regarding the quality of the responses and the strategy's impact on clinical practice. Nevertheless, the recorded evaluations are an important indicator of the professionals' experience with the tool and contribute to the ongoing monitoring and improvement of the service. The data can be analyzed using Graph III below.

Chart III – Satisfaction Level of the Requesting Professional



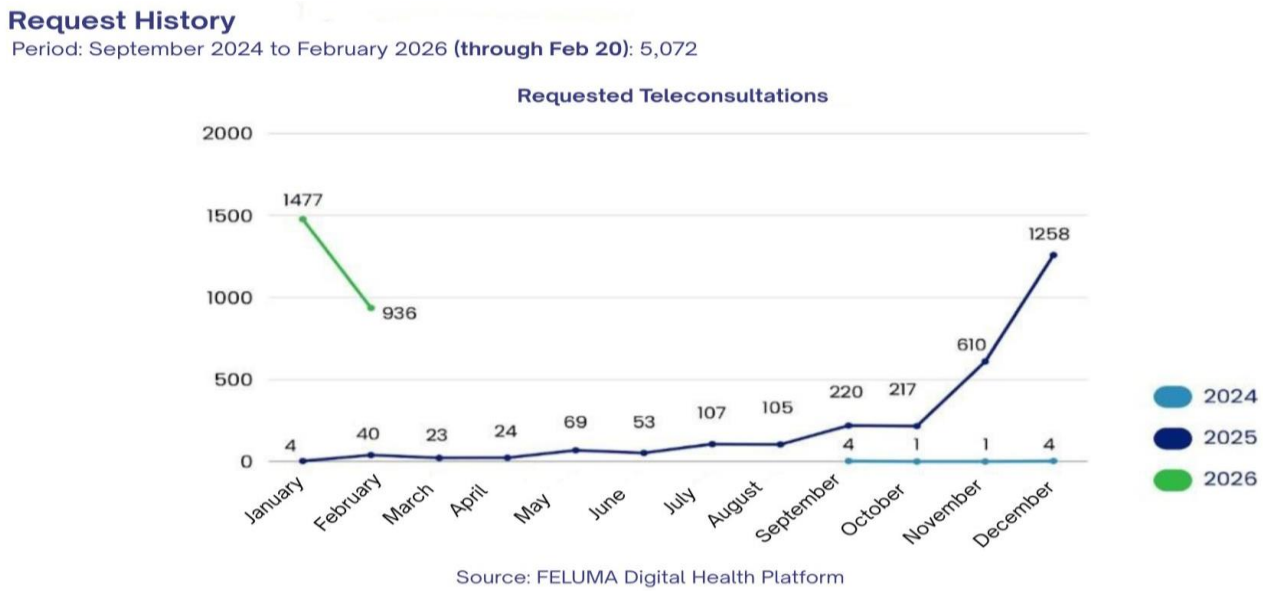
Source: FELUMA Digital Health Platform

The pilot project in the field of cardiology in the Riacho district was completed in October 2025. Subsequently, teleconsultation with Family and Community Medicine physicians was incorporated into the municipality's care and regulatory workflow.

1-Expansion of the Strategy within the Municipality

The results demonstrate a significant increase in the number of teleconsultations performed. From September 2024 to February 20, 2026, a total of 5,072 teleconsultations were recorded. In February 2026 (up to Feb 20), 855 teleconsultations were carried out by 144 requesting professionals, averaging 5.93 requests per professional, distributed across 68 UBSs, with an average of 12.57 requests per unit; this highlights the territorial reach of the strategy. Furthermore, a high degree of user satisfaction stands out, with an average rating of 4.81, predominantly classified as “very satisfied”, reinforcing the acceptability of the intervention. These data can be observed in GRAPH IV below:

Chart IV – Request History – Teleconsultations Requested from September 2024 to February 2026



Source: FELUMA Digital Health Platform

DOI: 10.32443/2175-2990 (2025)509

DISCUSSION

Analysis of the data obtained during the pilot experience of regulatory teleconsulting in cardiology in the municipality of Contagem, MG, reveals both advancements and challenges regarding the integration of this strategy into the local regulatory process. Although the number of cases retained within APS still represents a modest proportion, the data suggest a reasonable level of adherence among the teams, accompanied by strong acceptance from professionals, as evidenced by the high satisfaction rate. These findings align with experiences previously described within the country. In Rio Grande do Sul, the implementation of telerregulation integrated with clinical protocols resulted in an approximate 30% reduction in the volume of individuals on waiting lists for specialized consultations over 360 days, demonstrating a sustained impact in the medium and long term. Concurrently, an 860% increase was observed in the number of spontaneous teleconsultations, indicating a greater integration of this tool into the professionals' daily clinical practice. These results suggest that the effects of teleconsulting tend to intensify as the model matures, reinforcing its potential applicability in contexts similar to that of Contagem.[10]

On a national scale, the Regula Mais Brasil project demonstrated even more significant results, with a reduction of up to 89% in referral waiting lists, a result attributed primarily to the clinical qualification of requests and direct technical support provided to APS. Despite being a comprehensive project grounded in various forms of telehealth, such as the clinical protocol-based assessment of referrals by professionals and the prioritization of cases to be referred, these findings reinforce the hypothesis that a significant portion of the unmet demand for specialized consultations can be adequately managed within the scope of primary care when structured, specialized technical support is available.[11, 12]

A significant finding of this study was the reclassification of priority to a higher severity level in 35 cases following evaluation by a family and community physician, suggesting a possible initial underestimation of clinical severity in the original referral requests. This result is supported by the literature, which describes varying proportions, ranging from 0% to 8% of cases that, following expert consultation, were subsequently deemed to require a referral that had not been previously indicated. This phenomenon may point to limitations in the application of clinical criteria within APS settings. However, it may also be associated with clinical progression resulting from waiting times, reinforcing the importance of active clinical regulation and teleconsulting as mechanisms for correcting distortions in risk stratification.[13]

In addition to supporting regulatory decisions, teleconsultation plays a central role in providing clinical guidance and managing patients while they await specialist appointments. Literature reviews demonstrate the positive impact of teleconsultation on the quality of care by supporting clinical decision-making, reducing the duplication of diagnostic tests, avoiding unnecessary travel, and facilitating the timely management of chronic conditions. APS professionals report increased confidence in managing cases, as well as opportunities for continuous in-service education resulting from their interactions with specialists. This educational effect tends to be cumulative due to continuous exposure to specialist recommendations, expanding the clinical repertoire, boosting confidence in managing complex conditions, strengthening professional autonomy, and, over time, reducing reliance on referrals for recurring situations. Therefore, teleconsultation must also fulfill this educational function, providing the resources necessary to ensure the safety and continuity of care, even in cases where a referral is not avoided.[14]

Additional evidence from the NUTEL/FM/UFMG platform reinforces the role of teleconsulting as a structural mechanism for enhancing the problem-solving capacity of Primary Health Care. An analysis of 28,626 teleconsultations, each with a recorded post-discussion management plan, demonstrated that 72.73% of patients remained within APS, while 25.62% were referred to secondary care and only 1.65% to tertiary care. This finding highlights a substantial reduction in unnecessary referrals and a more rational utilization of the different levels of care. These results indicate that teleconsulting improves not only regulatory decision-making but also longitudinal clinical management, strengthening the coordinating function of APS. Thus, the systematic integration of teleconsulting into local regulatory workflows tends to progressively enhance the problem-solving capacity of APS, optimize referrals, and promote greater equity in access to specialized care.[15]

Along similar lines, experiences conducted in Belo Horizonte, within the scope of NUTEL/FM/UFMG, demonstrated high acceptability and effectiveness of the strategy. Considering the municipality's population size, 24,144 teleconsultations were provided; of these, 62.5% averted referrals, ensuring that patient care

remained within APS, and were associated with professional satisfaction rates exceeding 96%. Similar results were observed in Santa Catarina, where the Telehealth center–UFSC accumulated over 400,000 teleconsultations between 2019 and 2024, demonstrating a potential to reduce waiting lists for specialized care by 51.3% and highlighting a consistent impact on the management of unmet demand and the enhancement of access to specialized care.[15]

In the state of Minas Gerais, the Telehealth Center at the UFMG Hospital das Clínicas has provided teleconsultations since 2007, reaching 728 municipalities and accumulating over 140,000 consultations. The service boasts 95.4% overall satisfaction rate, and data indicate that in 75.3% of cases referred for teleconsultation, a subsequent patient referral was avoided. Professor Fernando Figueira Institute of Integral Medicine (IMIP-Instituto de Medicina Integral Professor Fernando Figueira) in Recife reported high levels of satisfaction regarding its teleconsultation project. From 2015 to 2017, 78% of teleconsultations were rated by users as having fully resolved their queries, and 93% of the requesting professionals reported being satisfied or very satisfied with the service provided. Among requests concerning specific patients for whom there was an initial intention to refer for specialized care, a 75% reduction in such referrals was observed in 2018.15

Even in contexts characterized by significant structural barriers, such as the Amazon region, the experience of the Telehealth Center at the Federal University of Pará (UFPA) has yielded results indicating that teleconsulting can serve as qualified support for the healthcare regulation system. It holds the potential to increase the problem-solving capacity of APS by approximately 15% to 20%, in addition to improving the quality of referral requests. However, integrating this service into local regulatory workflows still faces low uptake from management, a situation largely attributed to difficulties in organizing municipal workflows and to managers' lack of awareness regarding the results stemming from the incorporation of the Telehealth Center into the specialized care network. Although the municipality of Contagem presents a distinct territorial reality and infrastructure, this experience contributes to the interpretation of local findings by demonstrating that the effective integration of teleconsulting into regulatory workflows, coupled with team engagement and institutional support, is a decisive factor for the strategy's success, regardless of the specific context.[15]

These data have been organized in the table below for better understanding:

Table 1 – Proportion of patients retained in Primary Health Care

Center:	Patients who remained in primary care:
NUTEL/FM/UFMG	72,73%
Núcleo Telessaúde–UFSC	51,3%
Centro de Telessaúde (CTS) / Hospital das Clínicas da UFMG	75,3%
Núcleo de Telessaúde at the Universidade Federal do Pará (UFPA)	15-20%
Medicina Integral Professor Fernando Figueira (IMIP)	75%

Table produced by the authors based on data obtained from the book TELESSAÚDE NO SUS: AVANÇOS E DESAFIOS PARA O SÉCULO XXI.

DOI: 10.32443/2175-2990 (2025)509

The experience of the RegulaSUS project, developed by TelessaúdeRS-UFRGS in the state of Rio Grande do Sul, highlights the potential of teleregulation as a strategy to enhance care pathways between APS and Specialized Care within the SUS. This initiative integrates teleconsulting tools with the expert analysis of referrals originating from APS, enabling the review of referral criteria and providing guidance on clinical management directly within the local setting. In this model, every request for a specialized consultation is analyzed by a regulatory team, supported by structured clinical protocols, making it possible to identify cases that can be managed within APS with specialized support. This approach strengthens care coordination and contributes to a more rationalized allocation of access to specialized care.[10]

Evidence from the implementation of RegulaSUS indicates a significant impact on the organization of waiting lists for specialized consultations. Analysis of data from the regulation system demonstrated an average reduction of approximately 30% in the volume of people on the waiting list over a 360-day period, and a decrease in waiting times for consultations in clinical specialties, with a median of 66 days following the implementation of the strategy. These results suggest that the integration of telehealth and care regulation can enhance the clinical prioritization of referrals, increase the problem-solving capacity of APS, and optimize the utilization of the available supply of specialized consultations.[10,18]

In addition to the reorganization of waiting lists, the experience of TelessaúdeRS also demonstrated a significant increase in the use of teleconsultations by APS professionals. The teams' exposure to the teleregulation process was associated with a rise in the spontaneous use of teleconsultations, indicating that continuous interaction between generalists and specialists, mediated by telehealth technologies, can enhance the problem-solving capacity of primary care and strengthen care coordination. These findings reinforce that the institutionalization of teleconsultation within the regulatory process constitutes a key strategy for improving access to specialized care, particularly in large-scale public health systems characterized by significant geographic disparities in service provision.[10,18]

International studies also reinforce this interpretation. In Canada, findings demonstrated that incorporating teleconsultation directly into the referral triage process is a viable and well-accepted strategy, capable of offering rapid specialized guidance and potentially avoiding unnecessary referrals for specialist consultations, aligning with the positive results observed in the regulatory teleconsultations in Contagem.[16]

A literature review shows that the use of these teleregulation tools can contribute to expanding access to health services, enhancing clinical decision-making, and reducing unnecessary referrals to specialized levels of care. Also, the use of these technologies reduces the need for patient travel and can improve the efficiency of the health system. However, the outcomes of telehealth implementation are not uniform and depend on various factors, such as available technological infrastructure, service organization, integration with information systems, and the level of training and engagement among the professionals involved. Although the literature highlights significant benefits of this strategy for primary care, its effectiveness is directly related to how services are structured and integrated into the care workflow.[17]

In this context, an analysis of the local experience becomes fundamental to understanding how structural and organizational elements directly impact the results obtained. When considering the reality of the Municipality of Contagem, it is necessary to move beyond quantitative metrics and examine the institutional mechanisms underpinning the practice of teleconsulting, including the technical frameworks utilized by teleconsultants, interinstitutional agreements, and the normative instruments guiding clinical-regulatory decision-making.

In the teleregulation management experience within the Municipality of Contagem, established through an agreement between the FELUMA Telehealth Center and the Municipal Health Secretariat of Contagem, the consulting physicians utilized the municipal referral protocol as the basis for their responses. Although this standardization contributes to consistency in decision-making, it is important to note that the protocol is outdated, which may introduce bias into clinical opinions. The periodic updating of these normative instruments is essential to ensure that regulatory decisions are grounded in current evidence.

The findings of this study can be interpreted based on an established teleregulation model described in the literature, which frames teleconsulting, when integrated into the regulatory workflow, as an access management tool capable of shifting regulation from a predominantly administrative model to a clinical one, based on protocols, risk stratification, and shared decision-making across different levels of care. In this

model, teleconsulting moves beyond a merely supportive role to function as a structural component of the regulatory process, directly impacting the problem-solving capacity of Primary Health Care, the quality of patient referrals, and the organization of access to specialized care. The study demonstrates that the low uptake observed in voluntary models constitutes one of the primary limitations on the impact of teleconsulting. This limitation is overcome through its mandatory integration into the regulatory workflow, a strategy that resulted in a substantial increase in the use of the tool, a significant reduction in unnecessary referrals, and an effective reorganization of waiting lists.[14]

The findings outlined above are supported by well-established experiences in other national contexts that have also adopted a structured integration between teleconsultation and care regulation. In Santa Catarina, for example, since 2007, Primary Care physicians have served as clinical consultants within the regulation system, supported by the Telehealth Center and utilizing evidence-based protocols. In this arrangement, teleconsultation functions not as an ancillary or optional tool but as a formal stage of the regulatory process, reinforcing the clinical nature of decision-making. The experience in Santa Catarina demonstrates that the institutionalization of this tool, combined with technical standardization and structured support, constitutes a decisive factor in its effectiveness regarding the quality of referrals and the organization of access to specialized care.[4]

Further evidence drawn from the experience in Santa Catarina reinforces the potential of integrating teleconsultation into the regulatory workflow as a foundational strategy for the healthcare network. Following the implementation of a mandatory teleconsultation workflow in that state, a significant increase in the use of the tool was observed, marked by a progressive rise in the number of requests over the years, accompanied by a reduction of over 70% in referrals to Endocrinology and over 50% to Rheumatology within the state regulatory system. Among the cases discussed via teleconsultation, only a fraction required referral to specialized care, while a significant proportion returned to Primary Care for management, resulting in a substantial impact on reducing, and, in some scenarios, eliminating waiting lists. These findings indicate that incorporating teleconsultation as a mandatory step in the regulatory process enhances clinical decision-making, strengthens the coordinating role of Primary Care, and promotes greater equity in access to specialized care. Also, it has a formative role for healthcare professionals, expanding their clinical autonomy and contributing to a sustained reduction in avoidable referrals.[18]

Future Perspectives

Given the current landscape of operational consolidation, widespread adoption, and high levels of professional satisfaction, prospects point toward deepening the strategy through the continuous professional development of Primary Health Care teams. Continuing education plays a central role in this process, not merely as a means of periodic technical updating, but as a structural mechanism for strengthening clinical-regulatory reasoning. When submitting a case for teleconsultation, the Primary Care professional seeks not only specific support for decision-making but also engages in a formative cycle grounded in critical case analysis, the discussion of evidence-based management strategies, and structured feedback from specialists. This favors the progressive refinement of clinical reasoning, enhances diagnostic and therapeutic confidence, and reinforces the professional's decision-making autonomy in similar future situations. Repeated exposure to expert technical opinions reduces uncertainty, standardizes clinical criteria, and promotes cumulative learning, transforming every interaction into an opportunity for professional development. Thus, teleconsultation transcends its regulatory function to establish itself as an in-service pedagogical tool, contributing to the enhancement of individual clinical competence and the sustained elevation of care quality within the Unified Health System.

Concurrently, raising team awareness regarding the proper recording of outcomes within the system becomes a strategic imperative, a fundamental element for the monitoring, impact assessment, and continuous improvement of the initiative. Strengthening a culture of high-quality data recording will facilitate future studies focused on the longitudinal analysis of referrals to specialized care; following the consolidation of this model, a progressive reduction in unnecessary requests and improved clinical appropriateness of demands are anticipated. Subsequent investigations could further assess sustainability, cost-effectiveness, and post-specialist concordance, enhancing the scientific robustness of this experience.

The sustained high level of satisfaction observed suggests a favorable environment for increasing engagement and for the gradual expansion of this strategy to other specialties and

DOI: 10.32443/2175-2990 (2025)509

geographic areas. Based on these consolidated positive results, the replication of this model in other municipalities is envisioned, contributing to the dissemination of best practices in clinical regulation within the scope of the Unified Health System (SUS).

At the institutional level, the Lucas Machado Educational Foundation (FELUMA-Fundação Educacional Lucas Machado) envisions, as an evolutionary phase of its strategy, the incorporation of Artificial Intelligence resources to provide specialized support for regulatory teleconsulting. This proposal entails the development of tools designed to assist the requesting professional in the structured formulation of clinical inquiries, ensuring greater informational completeness, improved organization of diagnostic reasoning, and alignment with current regulatory criteria. Concurrently, the plan calls for the utilization of decision support systems to aid the teleconsultant in formulating responses, drawing upon the municipal referral protocols of Contagem; this approach fosters technical standardization, adherence to local regulations, and increased agility in case analysis. The responsible integration of AI, conducted under clinical supervision and institutional governance, has the potential to enhance the quality of interactions, minimize informational inconsistencies, and bolster the safety of regulatory decisions, all while upholding the primacy of medical judgment and the commitment to scientific evidence.

The experience in Contagem demonstrates that the structured integration of teleconsulting into the regulatory process constitutes a feasible and well-received strategy with the potential for consolidation at the municipal level. Although the expansion and maturation of the model depend on continuous monitoring and systematic evaluation of clinical outcomes, the observed results point to a consistent path toward strengthening Primary Care, improving the quality of referrals, and organizing access to specialized care in a more equitable manner. The continuation of this initiative, coupled with technical and institutional enhancements, could contribute to establishing regulatory teleconsulting as a strategic instrument for clinical management within the Unified Health System.

CONCLUSION

The experience of implementing regulatory teleconsulting in cardiology in the municipality of Contagem, MG, suggests that a structured integration of telehealth into the regulatory workflow can contribute to enhancing the quality of regulatory processes, strengthening the problem-solving capacity of Primary Care, and organizing access to specialized care. This initiative, developed as a pilot project, facilitated the organization of care pathways, the identification of operational weaknesses, and the generation of preliminary data for the continuous improvement of the strategy.

The observed results indicate progressive adoption by healthcare professionals, along with specific feedback regarding the tool's ease of use in daily clinical practice. However, given the observation period and the identified methodological limitations, these findings should be interpreted as preliminary evidence. Further development of this model requires longitudinal monitoring, an assessment of clinical outcomes, and an analysis of post-specialist concordance in order to support more robust conclusions regarding its impact on the diagnostic capacity of Primary Care and the effectiveness of care regulation.

REFERENCES

1.Brasil. Ministério da Saúde. Diretrizes para organização da atenção especializada no SUS. Brasília: Ministério da Saúde; 2014.

2.Brasil. Ministério da Saúde. Política Nacional de Atenção Especializada à Saúde (PNAES). Portaria GM/MS nº 1.604, de 18 de outubro de 2023. Brasília: Ministério da Saúde; 2023.

3.Santos AF, Souza C, Alves HJ, Santos SF, eds. Telessaúde: um instrumento de suporte assistencial e educação permanente. Belo Horizonte: FUMARC; 2006.

4.Brasil. Ministério da Saúde. Telessaúde no Brasil: experiências que conectam e fortalecem o SUS. Brasília: Ministério da Saúde; 2018.

5.Distrito Federal. Secretaria de Estado de Saúde. Relatório de atividades em telessaúde e regulação. Brasília: SES-DF; 2022.

6.Conselho Nacional de Secretarias Municipais de Saúde (CONASEMS). Boletim de boas práticas em regulação. Brasília: CONASEMS; 2021.

7.Maeyama MA, Calvo MCM. A integração do Telessaúde nas centrais de regulação: a teleconsultoria como mediadora entre a atenção básica e a atenção especializada. Rev Bras Educ Med. 2018;42(2):63-72. doi:10.1590/1981- 52712015v42n2RB20170125.

8.Secretaria Municipal de Saúde de Contagem. Nota técnica conjunta nº 032: teleconsultoria e regulação para encaminhamento aos especialistas [Internet]. Contagem (MG): Prefeitura de Contagem; 2025 [citado 2026 mar 4]. Disponível em: https://portal.contagem.mg.gov.br/imgeditor/file/Aten%C3%A7%C3%A3o%20Primaria/INFORMES,%20NORMAS%20E%20NOTAS/NOTA%20TECNICA%20032-%20TELECONSULTORIA%20E%20REGULA%C3%87%C3%83O%20PAR A%20ENCAMINHAMENTO.pdf

9.Minas Gerais. Secretaria de Estado da Saúde. Itinerário Técnico-Informacional da Fila de Acesso à Especialidade (ITFAE-MG). Belo Horizonte: SES-MG; 2023.

10.Katz N, Roman R, Rados DV, Oliveira EB, Schmitz CAA, Gonçalves MR, et al. Access and regulation of specialized care in Rio Grande do Sul: the RegulaSUS strategy of TelessaúdeRS-UFRGS. Cien Saude Colet. 2020;25(4):1389-1398. doi:10.1590/141381232020254.28942019.

11.Gadenz SD, Basso J, Pedrosa PBR, Sperling S, Zuanazzi MVD, Oliveira GG, et al. Telehealth to support referral management in a universal health system: a before-and-after study. BMC Health Serv Res. 2021;21:1012. doi:10.1186/s12913-021-07028-5.

12.Brasil. Ministério da Saúde. Projeto Regula+Brasil reduz fila no SUS [Internet]. Brasília: Ministério da Saúde; 2018 [atualizado 2022; citado 2026 fev 4]. Disponível em: https://www.gov.br/saude/pt-br/assuntos/noticias/2018/junho/o- projeto-regula-brasil-reduz-fila-do-sus

13.Peeters KMM, Reichel LAM, Muris DMJ, Cals JWL. Family physician-to- hospital specialist electronic consultation and access to hospital care: a systematic review. JAMA Netw Open.2024;7(1):e2351623. doi:10.1001/jamanetworkopen.2023.51623.

Statement of responsibility: We declare that all authors participated in the conception and preparation of the work and approved the final version for publication.

Funding: The authors declare that no specific funding was received for this research, authorship, or publication of this article.

Conflict of interest: The authors declare that they are responsible for the content of this manuscript, having participated in its conception, design, analysis, and writing, and approved the final version for publication.

How to cite this article: Lages CS, Ribeiro IGC, Alves HJ, Quintão MA, Queiroz ES, Silva AKR, Souza SLO, Azevedo MM. Regulatory Teleconsultation in Family and Community Medicine in the Municipality of Contagem, MG: From the Experience in Cardiology to Expansion into Multiple Specialties.Latin Am J Telehealth, Belo Horizonte, 2025; 12(1): 015-027 ISSN: 2175-2990.

DOI: 10.32443/2175-2990 (2025)509