



Tuberculosis control in Primary Care: performance and challenges from a management perspective

Controle da tuberculose na Atenção Primária à Saúde: desempenho e desafios na perspectiva da gestão

Control de la tuberculosis en atención primaria: desempeño y desafíos desde una perspectiva de gestión

Ana Cristina de Oliveira Abraão¹ , Girlene Alves da Silva¹ , Erika Andrade e Silva¹ 

ABSTRACT

Objective: To evaluate the orientation of tuberculosis control actions toward Primary Health Care (PHC) attributes from the managers' perspective. **Method:** A quantitative, cross-sectional, and evaluative study conducted with PHC managers in 2024. The PCATool-Brazil adapted for tuberculosis was applied, calculating standardized scores (cutoff ≥ 6.60). **Results:** Most managers were nurses (69%). Essential (7.90) and general (7.49) scores indicated high PHC orientation. First Contact Accessibility (9.48), Care Coordination (8.88), Longitudinality (8.05), and Family Orientation (7.85) stood out positively. In contrast, Access to Treatment (6.49) and Community Orientation (5.59) had unsatisfactory scores. **Conclusion:** Despite the strong orientation toward PHC, supported by first contact, coordination, and continuity of care, limitations persist in access to treatment and community orientation, indicating the need for integrated management interventions to improve these dimensions.

DESCRIPTORS:

Tuberculosis; Management; Primary Health Care; Health Assessment; Health Services.

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Corresponding author:

Ana Cristina de Oliveira Abraão

anacristina_abraao@yahoo.com.br

¹ Universidade Federal de Juiz de Fora. Juiz de Fora, Minas Gerais, Brazil.



RESUMO

Objetivo: Avaliar a orientação das ações de controle da tuberculose aos atributos da Atenção Primária à Saúde (APS) sob a perspectiva dos gestores. **Metodologia:** Estudo quantitativo, transversal e avaliativo realizado com gestores da APS em 2024. Aplicou-se o PCATool-Brasil adaptado para tuberculose, calculando-se escores padronizados (corte $\geq 6,60$). **Resultados:** A maioria dos gestores eram enfermeiros (69%). Os escores essencial (7,90) e geral (7,49) indicaram alta orientação à APS. Destacaram-se positivamente Porta de Entrada (9,48), Coordenação (8,88), Vínculo (8,05) e Orientação Familiar (7,85). Em contraste, Acesso ao Tratamento (6,49) e Orientação Comunitária (5,59) obtiveram escores insatisfatórios. **Conclusão:** Apesar da forte orientação para a APS, sustentada pelo primeiro contato, coordenação e vínculo, persistem limitações no acesso ao tratamento e na orientação comunitária, indicando a necessidade de intervenções gerenciais integradas para qualificar essas dimensões.

DESCRIPTORES:

Tuberculose; Gestão; Atenção Primária à Saúde; Avaliação em Saúde; Serviços de Saúde.

RESUMEN

Objetivo: Evaluar la orientación de las acciones de control de la tuberculosis hacia los atributos de la Atención Primaria de Salud (APS) desde la perspectiva de los gestores. **Método:** Estudio cuantitativo, transversal y evaluativo realizado con gestores de APS en 2024. Se aplicó el PCATool-Brasil adaptado para tuberculosis, calculando puntuaciones estandarizadas (corte $\geq 6,60$). **Resultados:** La mayoría de los gestores eran enfermeros (69%). Las puntuaciones esencial (7,90) y general (7,49) indicaron alta orientación hacia la APS. Se destacaron positivamente Primer Contacto (9,48), Coordinación (8,88), Vínculo (8,05) y Orientación Familiar (7,85). En contraste, Acceso al Tratamiento (6,49) y Orientación Comunitaria (5,59) obtuvieron puntuaciones insatisfactorias. **Conclusión:** A pesar de la fuerte orientación hacia la APS, respaldada por el primer contacto, la coordinación y el vínculo, persisten limitaciones en el acceso al tratamiento y en la orientación comunitaria, lo que indica la necesidad de intervenciones de gestión integradas para mejorar estas dimensiones.

DESCRIPTORES:

Tuberculosis; Manejo; Atención Primaria de Salud; Evaluación de la Salud; Servicios de Salud.

INTRODUCTION

Tuberculosis (TB) remains one of the infectious diseases with the greatest impact on global morbidity and mortality. Caused by *Mycobacterium tuberculosis*, the infection is estimated to affect a significant portion of the world's population, persisting as a major public health challenge closely linked to social determinants of health such as social vulnerability, malnutrition, and comorbidities (e.g., HIV co-infection and diabetes)⁽¹⁾.

In Brazil, the Ministry of Health establishes TB control as a health priority and advocates for the decentralization of diagnosis and management activities to Primary Health Care (PHC)⁽²⁻⁴⁾. Due to its extensive reach, PHC serves as the preferred entry point and coordinator of the Health Care Network, grounded in essential attributes (first-contact access, longitudinality/bonding, comprehensiveness, and care coordination) and derivative attributes (family and community orientation and cultural competence)^(5,6).

While there are evaluations focused on user experiences and the practices of healthcare professionals, the perspective of health unit managers is crucial for understanding structural conditions, care pathways, governance, and resource allocation. Managers possess a broad view of team response capacity, critical bottlenecks in the referral network, and the implementation of programmatic guidelines within the local area, providing indispensable and complementary insights for improving work processes and local decision-making.

In this context, the municipality of Juiz de Fora (Minas Gerais) represents a priority setting for TB control, having faced historical challenges regarding loss to follow-up and a lack of coordination in primary care activities⁽⁷⁾. Given the need to enhance surveillance and continuous care, it is imperative to measure the presence and extent of Primary Health Care (PHC) attributes within disease control activities from the perspective of local managers.

OBJECTIVE

To evaluate the alignment of tuberculosis control actions with Primary Health Care attributes from the perspective of managers.

METHODOLOGY

Design

This is a quantitative, cross-sectional, descriptive-evaluative study focused on assessing the structure and process components of TB care within Primary Health Care (PHC). The study was reported in accordance with the recommendations of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline⁽⁸⁾.

Study scenario

The study was conducted within the primary health care (PHC) network of Juiz de Fora, Minas Gerais, a regional health hub for the state's *Zona da Mata* region with an estimated population of approximately 580,000, which is classified as a priority municipality for tuberculosis (TB) control.

In the municipality, Tuberculosis Control Program (TCP) activities are decentralized to Basic Health Units (BHU) and Family Health Strategy (FHS) teams; within these settings, generalist physicians and nurses identify individuals with respiratory symptoms, order diagnostic tests, provide clinical follow-up, and administer Directly Observed Treatment (DOT). Basic health units distribute supplies (such as sputum collection containers), and samples are processed by the municipal reference laboratory network (using smear microscopy and Rapid Molecular Testing - TRM-TB).

The public health network handles the dispensing of TB medication regimens, while cases involving clinical complications, severe adverse reactions, complex coinfection, or suspected drug resistance are referred to the municipality's specialized secondary outpatient service.

Population, recruitment and eligibility criteria

The target population consisted of professionals serving as managers of Primary Health Care (PHC) units in the municipality during the data collection period (March to August 2024). A non-probability convenience sampling method was adopted. In-person recruitment took place during a regular meeting of the Municipal Health Department's management board, where the research objectives were presented and attendees were invited to participate. On that occasion, subject to prior institutional approval and the professionals' interest, the managers' institutional contact details (e-mail addresses and phone numbers linked to messaging apps) were obtained to facilitate the subsequent distribution of the study instrument.

Inclusion criteria comprised professionals aged 18 years or older who formally held the position of PHC unit manager during the study period. Managers who were formally on medical leave or vacation throughout the entire data collection window were excluded.

The participants invited were 67 eligible managers. Of these, 19 did not participate (classified as non-responses), resulting in a final sample of 48 managers and a participation rate of 71.6%. It is acknowledged that the initial approach within an institutional setting and the use of convenience sampling represent potential methodological limitations regarding selection bias and voluntary participation bias.

Data collection instrument and statistical analysis

Data were collected using a structured electronic form on the Google Forms® platform; the access link was sent to managers via email and messaging apps. The study employed the "Questionnaire for evaluating the performance of primary care services in TB control in Brazil - Managers' Version," developed and validated in the country by Villa and Ruffino-Netto⁽⁹⁾. The instrument is based on Starfield's conceptual framework and the Primary Care Assessment Tool (PCATool) methodology, measuring the presence and extent of Primary Health Care (PHC) attributes regarding tuberculosis control.

The questionnaire consists of thematic sections with items predominantly measured on a five-point Likert scale (1 = "Never"; 2 = "Almost never"; 3 = "Sometimes"; 4 = "Almost always"; 5 = "Always"), in addition to a "Not applicable/Don't know" option (value = 0). The instrument covers: professional and service characteristics; TB on the municipal agenda; point of entry and access to diagnosis; access to treatment; bond (longitudinality); range of services (comprehensiveness); care coordination; family focus; community orientation; and professional training.

Data were organized using Microsoft Excel® software and processed within the R statistical environment. Analytical processing followed these standardized steps:

1. Handling of responses and item reversal: "Not applicable/Don't know" responses were handled according to the instrument's standard protocol. Items phrased negatively or unfavorably regarding attention (questions 11, 19–25, and 31–36) had their scores reversed beforehand to maintain unidirectional alignment with service quality.
2. Readjustment of the "Point of Entry" attribute: In accordance with the guidelines of the National Primary Health Care Policy (PNAB) and the coordinating role of Primary Health Care (PHC) within the Unified Health System (SUS), items 12 and 13 (which assess the first service sought by the user upon suspicion or diagnosis of TB) were rescaled. The maximum score (value = 5) was assigned to the choice of Basic Health Units and Family Health Units (UBS/USF), with scores decreasing progressively for specialized outpatient services (value = 4), private practices (value = 3), public/private hospitals (value = 2), and emergency/urgent care units (value = 1), ensuring that prioritizing PHC represented a high degree of orientation regarding this attribute.
3. Calculation of raw and standardized scores: The raw score for each attribute corresponded to the simple arithmetic mean of the responses to its respective items. Subsequently, the raw scores (1–5 scale) were converted to a continuous standardized scale of 0–10 using the equation: $\text{Standardized Score} = [(\text{Raw Score} - 1) / 4] \times 10$.
4. Composite scores: The following were calculated:
 - Essential Score: arithmetic mean of the essential attributes (First-contact access, Access to diagnosis, Access to treatment, Bond, Range of services, and Coordination);
 - Derived Score: arithmetic mean of the derived attributes (Family orientation, Community orientation, and Professional training);
 - Overall Score: global arithmetic mean of all nine attributes evaluated.
5. Interpretation criteria and descriptive analysis: Standardized scores ≥ 6.60 were classified as indicative of "high PHC orientation," while values < 6.60 indicated "low orientation/unsatisfactory performance." Categorical variables were expressed as absolute (n) and relative (%) frequencies, and continuous scores were presented using measures of central tendency and dispersion (minimum, maximum, median, mean, standard deviation, and coefficient of variation).

Ethical aspects

The research adhered to the guidelines set forth in Resolutions N. 466/2012 and N. 510/2016 of the National Health Council and was approved by the Research Ethics Committee of the proposing institution (Opinion N. 5,977,149; CAAE: 65955617.7.0000.5147). All participants provided their consent by digitally signing the Informed Consent Form (ICF). To ensure participant protection, procedures for data confidentiality and anonymization were implemented.

RESULTS

Professional and labor profile of the managers

Among the 48 participating unit managers, 35 (72.92%) held a higher education degree, and 5 (10.42%) had technical-level training. Nurses predominated ($n = 33$; 68.75%), followed by nursing technicians ($n = 5$; 10.42%), physicians ($n = 1$; 2.08%), pharmacists ($n = 1$; 2.08%), and participants who selected "Other" regarding professional background ($n = 8$; 16.67%).

Regarding the practice setting, 30 (62.50%) managers worked in traditional Basic Health Units (UBS), 13 (27.08%) in Family Health Units with the Community Health Agents Program (USF/PACS), and 5 (10.42%) in Basic Health Units with the Community Health Agents Program (UBS/PACS).

Concerning the length of experience in managing or supervising their current unit, 17 (35.42%) had held the position for less than one year, 9 (18.75%) for between one and two years, 5 (10.42%) for between three and five years, 6 (12.50%) for between five and ten years, and 11 (22.92%) had more than ten years of experience in the same managerial role, as shown in Table 1.

Table 1. Professional profile of managers of Primary Health Care units, Juiz de Fora, Minas Gerais, Brazil, 2024. (N = 48)

Professional category	Absolute frequency (n)	Relative frequency (%)
Nurse	33	68.75
Other health care professions	8	16.67
Nursing technician	5	10.42
Doctor	1	2.08
Pharmacist	1	2.08
Total	48	100.00

Tuberculosis programmatic context and resource allocation

Tuberculosis was identified as a priority health issue within the municipal health landscape by 36 (75.00%) managers. Regarding the perception of resource allocation based on the health needs of the assigned population, 26 (54.17%) participants stated that this principle is always met, and 13 (27.08%) reported that it occurs almost always. Conversely, 2 (4.17%) noted that allocation occurs only sometimes, 1 (2.08%) indicated "almost never," and 6 (12.50%) stated that the item does not apply to their units' operations (Table 2).

Table 2. Managers' perceptions regarding the distribution of resources for tuberculosis control activities based on population needs, Juiz de Fora, Minas Gerais, Brazil, 2024. (N = 48)

Allocation of resources according to needs	Absolute frequency (n)	Relative frequency (%)
Always	26	54.17
Almost always	13	27.08
Not applicable	6	12.50
Sometimes	2	4.17
Almost never	1	2.08
Never	0	0.00
Total	48	100.00

Regarding the provision of direct social incentives to patients undergoing treatment (such as food baskets and transport vouchers), 16 (33.33%) managers stated categorically that such benefits are never offered, while 6 (12.50%) indicated that the item does not apply to their care routine.

Managerial participation in programmatic actions and budget governance

Concerning the involvement of managers in forums for discussing and reaching agreements on tuberculosis control actions, 12 (25.00%) stated they always participate, and 7 (14.58%) almost always do. Another 10 (20.83%) reported participating only sometimes, while 9 (18.75%) indicated almost never participating, and 8 (16.67%) noted they never participate in such decision-making processes. Only 2 (4.17%) participants indicated that the item did not apply to their routine. Specifically regarding the discussion and determination of the allocation of financial resources for disease control in the municipality, 27 (56.25%) managers stated they had never participated in these deliberative forums (Table 3).

Table 3. Participation of managers in discussions and the definition of actions for tuberculosis control, Juiz de Fora, Minas Gerais, Brazil, 2024. (N = 48)

Participation in discussions and the definition of actions	Absolute frequency (n)	Relative frequency (%)
Always	12	25.00
Sometimes	10	20.83
Almost never	9	18.75
Never	8	16.67
Almost always	7	14.58
Not applicable	2	4.17
Total	48	100.00

Primary Health Care attribute scores

The assessment of tuberculosis control actions regarding their alignment with Primary Health Care (PHC) attributes, from the perspective of managers, demonstrated a high overall level of alignment in the municipality. The General Score was 7.49 (SD=0.99) and the Essential Score reached 7.90 (SD=0.75); both were significantly above the cutoff point for strong PHC orientation (≥ 6.60). The Derived Score [6.69 (SD=1.69)] and the Professional Training attribute [6.62 (SD=1.87)] also met the satisfactory criterion, although their values were closer to the reference threshold.

The attributes showing the highest mean scores and confirming a strong PHC orientation were First-Contact Access [9.48 (SD=1.48)], Coordination [8.88 (SD=0.79)], Bond [8.05 (SD=1.21)], Family Orientation [7.85 (SD=2.03)], Access to Diagnosis [7.41 (SD=0.70)], and Range of Services [7.07 (SD=1.28)]. The First-Contact Access attribute stood out with the highest mean and significant response homogeneity [CV=15.60%], reflecting a unanimous recognition of PHC as the priority first-contact service for users in the area.

Conversely, only two domains obtained mean scores below the 6.60 cutoff point, representing the main operational weaknesses in service performance: Access to Treatment [6.49 (SD=0.93)] and Community Orientation [5.59 (SD=2.28)]. The Community Orientation attribute recorded the lowest mean score and the highest Coefficient of Variation (40.80%), highlighting gaps in community engagement and active outreach beyond the walls of the health facilities (Table 4).

Table 4. Description of composite and derived scores and PHC attributes from the perspective of managers. Juiz de Fora, MG, Brazil, 2024 (n=48).

Scores and Attributes	Minimum–Maximum	Median	Mean (SD)	CV (%)
Essential Attributes				
Front door	5.00–10.00	10.00	9.48 (SD=1.48)	15.60
Access to the diagnosis	6.00–9.00	7.25	7.41 (SD=0.70)	9.40
Access to the treatment	4.32–8.41	6.48	6.49 (SD=0.93)*	14.30
Bond	5.28–10.00	8.33	8.05 (SD=1.21)	15.00
List of services	3.12–8.75	7.11	7.07 (SD=1.28)	18.10
Coordination	6.46–10.00	8.95	8.88 (SD=0.79)	8.90
Derived Attributes				
Family guidelines	2.50–10.00	8.75	7.85 (SD=2.03)	25.80
Community guidelines	1.00–10.00	5.50	5.59 (SD=2.28)*	40.80
Other domains				
Professional degree	3.12–10.00	6.56	6.62 (SD=1.87)	28.20
Synthetic Scores				
Essential score	6.15–9.05	7.94	7.90 (SD=0.75)	9.50
Derived score	3.67–9.79	6.93	6.69 (SD=1.69)	25.30
Overall score	5.53–9.30	7.62	7.49 (SD=0.99)	13.20

Caption: SD = Standard Deviation; CV = Coefficient of Variation. (*) Score below the reference cutoff point (≥ 6.60), indicating low orientation towards PHC.

DISCUSSION

The significant representation of nurses in Primary Health Care (PHC) management positions identified in this study corroborates national literature, which highlights the technical relevance and historical leadership role of this profession in organizing services and planning care within the Unified Health System (UHS)⁽⁹⁾. Regarding tenure in the position, the finding that over one-third of managers had been in the role for less than a year points to a dynamic of managerial turnover. Similar cross-sectional studies suggest that instability or turnover in unit leadership can impact the continuity of local planning and the sustainability of programmatic actions addressing chronic communicable conditions, such as TB^(10,11).

Although the majority of managers recognized TB as a priority within the municipal health landscape, there was a discrepancy in relation to the perceived adequacy of resource distribution and social incentives. The reported absence of social support benefits (such as food baskets and transport vouchers) cited by 33.33% of managers aligns with findings from other Brazilian urban settings, where

the lack of social protection measures contributes to difficulties regarding adherence to Directly Observed Treatment (DOT)^(12,13). In contexts marked by social vulnerability, the regular provision of socioeconomic support is a strategic component for mitigating loss to follow-up during treatment⁽¹³⁾.

The inclusion of unit managers in formal spaces for discussion and action planning varied widely. The finding that more than half of the participants had never taken part in decisions regarding the allocation of specific financial resources reflects challenges in local participatory governance. Literature indicates that centralized decision-making processes tend to limit the alignment between the unique needs of each assigned territory and the allocation of resources by central management⁽¹⁴⁾.

Regarding the instrument's composite scores, the General Score (7.49) and the Essential Score (7.90) demonstrated a strong Primary Health Care (PHC) orientation within the services (cutoff point ≥ 6.60), indicating a favorable alignment of municipal primary care in addressing the disease. This satisfactory performance was driven primarily by the consolidation of First-Contact Access (9.48), Care Coordination (8.88), Bond (8.05), and Family Orientation (7.85). Despite the positive overall result, the coexistence of domains with highly favorable ratings alongside attributes with insufficient performance reflects an asymmetry in the program's implementation—a pattern frequently reported in evaluations of PHC performance regarding TB management in medium- and large-sized municipalities^(11,15).

The First-Contact Access attribute stood out with the highest mean score and high homogeneity ($CV=15.60\%$), demonstrating that, from a management perspective, the Basic Health Unit (BHU/FHU) has firmly established itself as the priority first-contact point for users with respiratory symptoms in the area. This finding corroborates the PNAB guidelines on the decentralization of TB care, reinforcing the role of the basic health unit as the network coordinator and the primary entry point for timely diagnosis^(15,16).

Conversely, the program's weaknesses were concentrated specifically in Access to the Treatment (6.49) and Community Guidelines (5.59), both of which scored below the desired threshold. The unsatisfactory score for Access to the Treatment reflects the fact that, although the initial point of entry is recognized, organizational barriers within the care continuum, such as restrictions on scheduling appointments within 24 hours, a lack of flexible scheduling, and transportation difficulties, limit the sustainability of therapy and adherence to Directly Observed Treatment (DOT).

Community Guidelines emerged as the domain with the lowest performance and the greatest dispersion of responses ($CV=40.80\%$), aligning with literature that highlights a disconnect between teams and the structured active case-finding of individuals with respiratory symptoms in social settings, as well as insufficient intersectoral coordination with local community leaders^(17,18). Conversely, the favorable coordination and bonding observed indicate that, once a user is received at the unit, effective channels for interpersonal communication, attentive listening, and longitudinal follow-up are established⁽¹⁹⁾.

Furthermore, the emphasis placed on Family Orientation suggests a commitment by teams to engage household contacts and identify social determinants within the home environment, a strategy recognized in the literature as crucial for breaking the chain of transmission⁽²⁰⁾.

This configuration reveals the operational landscape of local Primary Health Care (PHC): the service operates effectively regarding the initial institutional contact, family reception, and internal clinical coordination, yet faces its greatest bottlenecks in ensuring rapid access throughout the course of treatment and in the scope of community-based outreach activities. Overcoming these obstacles requires management strategies that streamline daily scheduling processes and strengthen active surveillance within the community.

Study limitations

The limitations of this study concern its cross-sectional design, which precludes the establishment of temporal causal relationships between variables, as well as from the sample size, derived through convenience sampling in a single municipality, which restricts the direct generalizability of the findings to other contexts. The study acknowledges the potential for selection bias associated with voluntary participation following an institutional meeting, as well as social desirability bias in responses, an issue mitigated by anonymization procedures and guarantees of data confidentiality. Furthermore, as this was a quantitative descriptive study focused on the managerial perspective, the viewpoints of service users and frontline care professionals were not included; there should be future studies employing mixed-methods approaches or method triangulation.

Contributions to professional practice and public management

The study contributes to the fields of nursing and public health by highlighting the central role of managerial leadership exercised by nurses in Primary Health Care (PHC) and by characterizing the presence of essential and derived attributes in TB control from the perspective of local decision-makers. The data provide diagnostic insights for municipal health planning, guiding interventions aimed at overcoming first-contact access barriers, strengthening community-based active case finding, and structuring continuing health education initiatives for primary care teams.

CONCLUSION

The assessment of TB control activities in PHC, from the perspective of health unit managers, revealed a high overall degree of PHC orientation within the services, as reflected by the essential and general scores. There were higher levels of orientation regarding the attributes of First Contact Access, Care Coordination, Longitudinality (Bond), Family Guidelines, and Access to Diagnosis. Conversely, weaknesses were identified in the attributes of Access to the Treatment and Community Guidelines,

indicating limitations related to continuity of care, active case-finding within the territory, and support for patients. The findings highlight the importance of management strategies aimed at improving therapeutic monitoring and expanding community-based actions, particularly regarding access to treatment and community orientation.

REFERENCES

1. World Health Organization. Global Tuberculosis Report 2020 [Internet]. Geneva: World Health Organization; 2020 [citado em 3 de setembro de 2022]. Disponível em: <https://www.who.int/publications/i/item/9789240013131>
2. Ministério da Saúde (BR). Brasil Livre da Tuberculose: Plano Nacional pelo Fim da Tuberculose como Problema de Saúde Pública: estratégias para 2021-2025 [Internet]. Brasília: Ministério da Saúde; 2021 [citado em 3 de setembro de 2022]. Disponível em: <https://www.gov.br/saude/pt-br/centrais-de-conteudo/publicacoes/svsa/tuberculose/brasil-livre-da-tuberculose/@@download/file>
3. Ministério da Saúde (BR). Boletim Epidemiológico - Indicadores prioritários para o monitoramento do Plano Nacional pelo Fim da Tuberculose como Problema de Saúde Pública no Brasil [Internet]. Brasília: Ministério da Saúde; 2017 [citado em 3 de setembro de 2022]. Disponível em: <https://asmetro.org.br/portalsn/wp-content/uploads/2017/10/2017-V-48-N-8-Indicadores-priorit-rios-para-o-monitoramento-do-Plano-Nacional-pelo-Fim-da-Tuberculose-come-Problema-de-Sa-de-P-blica-no-Brasil.pdf>
4. Santos J. Resposta brasileira ao controle de tuberculose. Rev Saúde Pública [Internet]. 2007 [citado em 3 de setembro de 2022];41(Supl 1):89-93. Disponível em: <https://doi.org/10.1590/S0034-89102007000800012>
5. Starfield B. Atenção Primária: equilíbrio entre necessidades de saúde, serviços e tecnologia. Brasília: UNESCO, Ministério da Saúde; 2002.
6. Mendes EV. O cuidado das condições crônicas na atenção primária à saúde: o imperativo da consolidação da estratégia da saúde da família [Internet]. Brasília: Organização Pan-Americana da Saúde; 2012 [citado em 3 de setembro de 2022]. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/cuidado_condicoes_atencao_primaria_saude.pdf
7. Secretaria de Estado de Saúde (Minas Gerais). Relatório da visita de monitoramento e avaliação do Programa de controle da tuberculose em Juiz de Fora. Belo Horizonte: Secretaria de Estado de Saúde; 2017.

8. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies. *Epidemiol Serv Saude* [Internet]. 2015 [citado em 5 de setembro de 2024];24(3):561-74. Disponível em: <https://doi.org/10.5123/S1679-49742015000300021>
9. Villa TCS, Ruffino-Netto A. Questionário para avaliação de desempenho de serviços de atenção básica no controle da TB no Brasil [Internet]. Ribeirão Preto: Centro de Vigilância Epidemiológica/EERP-USP; 2009 [citado em 5 de setembro de 2024]. Disponível em: <https://sites.usp.br/redetb/instrumentos-de-pesquisa/>
10. Borlina CPV, Antunes FB, Lana LD. Competências do enfermeiro gestor na atenção primária: revisão integrativa de literatura. *Sanare* [Internet]. 2023 [citado em 5 de setembro de 2024];22(2):98-110. Disponível em: <https://doi.org/10.36925/sanare.v22i2.1689>
11. Mateus LC, Condeles PC, Bracarense CF, Parreira BDM, Simões ALA, Goulart BF. Management in the Family Health Strategy: nurses' perceptions. *Rev Enferm UERJ* [Internet]. 2021 [citado em 5 de setembro de 2024];29:e57262. Disponível em: <https://doi.org/10.12957/reuerj.2021.57262>
12. Machado GA, Dias BM, Silva JJ, Bernardes A, Gabriel CS. Assessment of primary health care features: the professionals' perspective. *Acta Paul Enferm* [Internet]. 2021 [citado em 5 de setembro de 2024];34:eAPE00973. Disponível em: <https://doi.org/10.37689/acta-ape/2021AO00973>
13. Tok PSK, Wong LP, Liew SM, Razali A, Mahmood MI, Chinnayah T, et al. A qualitative exploration of tuberculosis patients who were lost to follow-up in Malaysia. *PLoS One* [Internet]. 2023 [citado em 5 de setembro de 2024];18(9):e0289222. Disponível em: <https://doi.org/10.1371/journal.pone.0289222>
14. Costa APB, Guerra MR, Leite ICG. Avaliação dos atributos da atenção primária à saúde sob a ótica dos profissionais médicos. *Rev Bras Med Fam Comunidade* [Internet]. 2022 [citado em 5 de setembro de 2024];17(44):3085. Disponível em: [https://doi.org/10.5712/rbmfc17\(44\)3085](https://doi.org/10.5712/rbmfc17(44)3085)
15. Ferreira MRL, Santos AA, Freitas JLG, Silva LAF, Silva VM, Órfão NH. Vínculo no manejo da tuberculose na Atenção Primária à Saúde: ótica dos profissionais de saúde. *O Mundo da Saúde* [Internet]. 2020 [citado em 3 de setembro de 2022];44:433-44. Disponível em: <https://doi.org/10.15343/0104-7809.202044433444>
16. Brunello MEF, Andrade RLP, Monroe AA, Arakawa T, Magnabosco GT, Orfão NH, et al. Tuberculosis diagnostic pathway in a municipality in south-eastern Brazil. *Int J Tuberc Lung Dis* [Internet]. 2023 [citado em 5 de setembro de 2024];17(10 Suppl 1):S110-S115. Disponível em: <https://doi.org/10.5588/ijtld.13.0010>

17. Lopes FA, Mello FCQ, Barbosa CS, Felipe G, Oliveira RVC, Quintana MSB, et al. Influence of primary care coverage and home visits on the detection of tuberculosis cases in the municipality of Rio de Janeiro, Brazil, 2014-2022. *Cad Saude Publica* [Internet]. 2025 [citado em 5 de setembro de 2025];41(2):e00056324. Disponível em: <https://doi.org/10.1590/0102-311xpt056324>
18. Sheshi M, Odume B, Chukwuogo O, Ogbudebe C, Gordon I, Useni S, et al. Impact of social franchising on TB contact investigation and uptake of TB preventive therapy. *Public Health Action* [Internet]. 2025 [citado em 5 de setembro de 2025];15(3):108-12. Disponível em: <https://doi.org/10.5588/pha.24.0054>
19. Siqueira TC, Bonfim RO, Ferreira MRL, Silva VM, Órfão NH. O tratamento da tuberculose sob a ótica dos profissionais da Atenção Primária à Saúde. *Rev APS* [Internet]. 2020 [citado em 5 de setembro de 2024];23(2):332-45. Disponível em: <https://doi.org/10.34019/1809-8363.2020.v23.27602>
20. Silva Júnior JNB, Guedes HCS, Henriques AHB, Januário DC, Nogueira MF, Barrêto AJR. Registros de enfermeiros sobre orientações aos usuários com tuberculose na Atenção Primária. *Acta Paul Enferm* [Internet]. 2024 [citado em 5 de setembro de 2024];37:eAPE02385. Disponível em: <https://doi.org/10.37689/acta-ape/2024ao00002385>

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