

Strengthening Cancer Care within the Brazilian National Health System: Conception, Implementation, and Initial Results of the Program “Paraíba contra o Câncer”

<https://doi.org/10.32635/2176-9745.RBC.2026v72n4.5652EN>

Fortalecimento do Cuidado Oncológico no Sistema Único de Saúde: Concepção, Implementação e Resultados Iniciais do Programa Paraíba contra o Câncer

Fortalecimiento de la Atención Oncológica dentro del Sistema Único de Salud del Brasil: Concepción, Implementación y Resultados Iniciales del Programa Paraíba contra el Cáncer

Luciana Moura Mendes de Lima¹; Francisco Auber Pergentino Vieira²; Anna Karina Barros de Moraes Ramalho³; Matheus Spricido⁴; Marianna Nogueira Gadelha de Oliveira⁵; Anna Tereza Alves Guedes⁶; Arimatheus Silva Reis⁷; Saulo Wanderley Filho⁸; Michely Almeida Maropo⁹; Lidiane Nascimento Cassimiro Barbosa¹⁰

ABSTRACT

Introduction: Cancer poses challenges to the Brazilian National Health System (SUS) due to its high incidence and mortality rates. In Paraíba, an increase in cases and late diagnosis have been observed. To address these weaknesses, the program “Paraíba contra o Câncer (PBCC)” was created, aiming to strengthen the oncology network by integrating prevention, diagnosis, and treatment actions. **Objective:** To describe the PBCC, its organizational design, legal and institutional foundations, the initial results achieved, and the patient profile. **Method:** An exploratory, descriptive study with a mixed-method approach, conducted between June 2024 and July 2025, which analyzed data from teleoncology and monitoring panels. **Results:** The PBCC was structured around four axes: single regulation, teleoncology, patient navigation, and expansion of the diagnostic and therapeutic network. More than 3,000 consultations were carried out via teleoncology. Patients were predominantly women (57.3%) and aged 25 to 64 years old (52.0%), with requests mainly originating from Primary Health Care (PHC) (91.4%). Among the patients monitored, 70.0% started chemotherapy and 73.0% radiotherapy within the established timeframes. Of the total, 68.1% were still undergoing treatment, 12.7% were discharged with palliative care, and 9.1% died, all accompanied by nurse navigators and an interprofessional team throughout their care trajectory. **Conclusion:** The PBCC contributed to the organization of the Oncology Care Network, favoring the coordination and monitoring of patients, establishing itself as a powerful and innovative initiative within the SUS (Brazilian National Health System). The patient profile consisted mainly of women, older adults, and adults. The origin of requests via PHC confirms its consolidation as an entry point for oncological care.

Key words: Comprehensive Healthcare; Neoplasms/epidemiology; Teleoncology; Patient Navigation; Unified Health System.

RESUMO

Introdução: O câncer impõe desafios ao Sistema Único de Saúde (SUS) pela elevada incidência e mortalidade. Na Paraíba, observou-se aumento de casos e diagnóstico tardio. Para enfrentar essas fragilidades, criou-se o programa Paraíba contra o Câncer (PBCC), visando fortalecer a rede oncológica, integrando ações de prevenção, diagnóstico e tratamento. **Objetivo:** Descrever o PBCC, seu desenho organizacional, fundamentos legais e institucionais, os resultados iniciais alcançados e o perfil dos pacientes. **Método:** Estudo exploratório, descritivo, de abordagem mista, entre junho de 2024 e julho de 2025, que analisou dados provenientes da teleoncologia e dos painéis de monitoramento. **Resultados:** O PBCC foi estruturado em quatro eixos: regulação única, teleoncologia, navegação assistencial e expansão da rede diagnóstica e terapêutica. Realizaram-se mais de três mil atendimentos por teleoncologia. Predominaram pacientes do sexo feminino (57,3%) e na faixa etária de 25 a 64 anos (52,0%), com solicitações majoritariamente da Atenção Primária à Saúde (APS) (91,4%). Entre os pacientes em seguimento, 70,0% iniciaram quimioterapia e 73,0% radioterapia nos prazos estabelecidos. Do total, 68,1% encontravam-se em tratamento, 12,7% evoluíram para alta com cuidados paliativos e 9,1% para óbito, todos acompanhados por enfermeiros navegadores e pela equipe interprofissional na trajetória do cuidado. **Conclusão:** O PBCC contribuiu para a organização da Rede de Atenção Oncológica, favorecendo a coordenação e o acompanhamento dos pacientes, configurando-se como iniciativa potente e inovadora no SUS. O perfil dos pacientes concentrou-se no sexo feminino, idosos e adultos. A origem das solicitações via APS ratifica sua consolidação como porta de entrada para o cuidado oncológico.

Palavras-chave: Integralidade em Saúde; Neoplasias/epidemiologia; Teleoncologia; Navegação de Pacientes; Sistema Único de Saúde.

RESUMEN

Introducción: El cáncer plantea desafíos al Sistema Único de Salud (SUS) del Brasil debido a sus altas tasas de incidencia y mortalidad. En Paraíba, se ha observado un aumento de casos y diagnósticos tardíos. Para abordar estas debilidades, se creó el programa Paraíba contra el Cáncer (PBCC), con el objetivo de fortalecer la red oncológica mediante la integración de acciones de prevención, diagnóstico y tratamiento. **Objetivo:** Describir el PBCC, su diseño organizacional, fundamentos legales e institucionales, los resultados iniciais alcanzados y el perfil del paciente. **Método:** Estudio exploratorio y descriptivo con un enfoque de métodos mixtos, realizado entre junio de 2024 y julio de 2025, que analizó datos de paneles de teleoncología y monitoreo. **Resultados:** El PBCC se estructuró en torno a cuatro ejes: regulación unificada, teleoncología, navegación de la atención y expansión de la red diagnóstica y terapéutica. Se realizaron más de 3000 consultas a través de teleoncología. Los pacientes eran predominantemente mujeres (57,3%) y tenían entre 25 y 64 años (52,0%), y las solicitudes provenían principalmente de la Atención Primaria de Salud (APS) (91,4%). Entre los monitoreados, el 70,0% inició quimioterapia y el 73,0% radioterapia dentro de los plazos establecidos. Del total, el 68,1% seguía en tratamiento, el 12,7% fue dado de alta con cuidados paliativos y el 9,1% falleció, todos acompañados por enfermeras coordinadoras y un equipo interprofesional a lo largo de su trayectoria de atención. **Conclusión:** El PBCC contribuyó a la organización de la Red de Atención Oncológica, favoreciendo la coordinación y el monitoreo de los pacientes, consolidándose como una iniciativa poderosa e innovadora dentro del SUS. El perfil de los pacientes se concentró entre mujeres, ancianos y adultos. El origen de las solicitudes a través de las APS confirma su consolidación como punto de entrada para la atención oncológica.

Palabras clave: Atención Sanitaria Integral; Neoplasias/epidemiología; Teleoncología; Orientación al Paciente; Sistema de Salud Unificado.

¹⁻⁴Escola de Saúde Pública da Paraíba (ESP-PB). João Pessoa (PB), Brasil. E-mails: lumouramendes@gmail.com; auber.biomedico1993@gmail.com; akbmrnalho@gmail.com; matheus.spricido@gmail.com. Orcid iD: <https://orcid.org/0000-0002-0370-2361>; Orcid iD: <https://orcid.org/0009-0006-5407-9684>; Orcid iD: <https://orcid.org/0000-0003-0909-1634>; Orcid iD: <https://orcid.org/0000-0002-1934-1513>

⁵⁻¹⁰Secretaria de Estado da Saúde (SES/PB). João Pessoa (PB), Brasil. E-mails: mariannangoliveira@gmail.com; annaterezag@gmail.com; arimatheusreis@gmail.com; saulowf@gmail.com; michelymaropo81@gmail.com; adilileicia01@gmail.com. Orcid iD: <https://orcid.org/0009-0002-7127-2989>; Orcid iD: <https://orcid.org/0000-0002-9495-4942>; Orcid iD: <https://orcid.org/0009-0002-3838-2553>; Orcid iD: <https://orcid.org/0009-0004-6602-2314>; Orcid iD: <https://orcid.org/0009-0002-0118-4369>; Orcid iD: <https://orcid.org/0009-0004-7988-9080>

Corresponding author: Luciana Moura Mendes de Lima. Avenida Dom Pedro II, 1826 (Anexo do Complexo Psiquiátrico Juliano Moreira) – Torre. João Pessoa (PB), Brasil. CEP 58040-440. E-mail: lumouramendes@gmail.com



INTRODUCTION

Cancer is one of the great public health challenges in Brazil and in the world due to high morbidity and mortality rates associated with the disease. Global estimates indicate that cancer is among the main causes of death in the world with millions of new cases and deaths registered annually, demonstrating its magnitude as a public health problem. According to Globocan, there were close to 20 million new cases of cancer in 2022, alongside 9.7 million deaths from cancer in the world, reinforcing the rising global disease burden¹.

In Brazil, according to the National Cancer Institute (INCA), 705 thousand new cases were estimated for each year of the triennium 2023-2025 with significant impact on the National Health System (SUS) responsible for the majority of the oncologic healthcare. In the state of Paraíba, 11,169 new cases are anticipated with high prevalence of prostate, breast, colorectal, cervix and lung neoplasms².

Data from SUS' hospital information system³ (SIH/SUS) showed that admissions by cancer in the state increased nearly 44% between 2018 and 2023, from 12,430 to 18,236 and to 20,248 in 2024. In the same period, there were 25,804 deaths by cancer according to Chapter II of the International Classification of Diseases and Related Health Problems (ICD 10)⁴, pursuant to the state's health secretary (SES-PB), a 14% rise of annual deaths⁵.

Within the state scenario, the diagnosis of cancer occurs at advanced stages, making treatment difficult and reducing the chances of cure with mean time between diagnosis and beginning of the treatment often beyond the legal time determined by Laws number 13,896/2019 (30-day law) and 12,732/2012 (60-day law)⁷, respectively, negatively affecting the clinical outcomes, in addition to the lack of consolidated data on screening, diagnosis and surgeries revealing operational and registration fragilities⁵.

Despite the advances of national guidelines for integral oncologic care, limitations related to the fragmentation of healthcare, uneven distribution of specialized services, scarcity of professionals and morosity of regulatory flows still persist, compromising the timely access to diagnosis and cancer treatment^{8,9}.

Strategies of coordination of care incorporated into different health services, such as patient navigation in oncology to reduce healthcare barriers, qualification of the flows and integration across levels of attention stand out. However, obstacles related to the measurement of the impact on the results like lack of standardized indicators, fragilities of the information systems and difficulties to utilize data to evaluate the results still remain¹⁰. These

findings reflect the Brazilian reality where difficulties to organize healthcare flows, integration among attention levels and care monitoring are usual.

In Paraíba, these limitations are expressed as inequities of distribution of specialized services and inexistence of integrated technical and regulatory flows for healthcare professionals. This scenario compromises the equitable access by the population, especially in cases requiring continued care like oncologic treatment, contributing for diagnosis delays and discontinuation of healthcare.

The loss of continuity of follow up of oncologic patients aggravated by delays in reaching results and difficulties of access compromises the efficacy of the treatment and the quality of life of the patients¹¹, a scenario that impedes the consolidation of SUS as a regionalized and hierarchic system and negatively affecting the principle of equity.

The PBCC appears as a strategic and unprecedented response to tackle these fragilities guided by the State Oncology Plan implemented in 2024 and approved by the Directive issued by the bipartite inter-managers panel of Paraíba (CIB-PB) number 27/2024¹², later updated by Directive CIB number 05/2025¹³. The program is aimed at strengthening the health attention network to provide integral healthcare to individuals with cancer focused to prevention, early detection, treatment, palliative care and rehabilitation with emphasis in reducing the incidence and mortality by neoplasms. The goal of the plan still includes the regionalized expansion of the oncologic network, promoting improved integration between Primary Health Care (PHC) and Specialized Health Attention.

The scientific evidences on the experiences of oncologic organization are still scarce, especially concerning the functioning and qualification of the attention. In that sense, the investigation of PBCC appears to be relevant because it produces elements that can support replicable strategies within SUS.

The objective of the present study is to describe the PBCC, its organizational design as well as the initial results achieved, including the profile of the patients assisted in the first year of operation.

METHOD

Descriptive, exploratory study with mixed approach, introducing the structure, legal and institutional foundations and operational strategies of implementation and execution of PBCC.

The state of Paraíba located in the Northeast region is bordered to the North by the state of Rio Grande do Norte, to the West by the state of Ceará, to the South by the state of Pernambuco and by the East by the Atlantic ocean, a territory of 56,467.24 km². According to the

Census of 2022¹⁴, its population reached 3,974,687 inhabitants. The state health system encompasses 223 municipalities divided in three health macroregions, 12 regional managements and 16 health regions. The first macroregion is formed by four health regions, headquartered in João Pessoa, the second is formed by five regions, headquartered in Campina Grande and the third, seven health regions headquartered in Patos (*Sertão*) and in Sousa (*Alto Sertão*)¹⁵.

Data were collected from institutional and administrative sources directly associated with PBCC. Normative and institutional documents supporting the conception and operationalization of the program as well as technical and operational reports describing the execution and monitoring were considered eligible. Additionally, administrative databases that allowed the analysis of the medical visits and clinical outcomes of the patients were included. Due to incompleteness of the data, the statistical sample included only those with complete information for the variables of interest.

The documents were organized, categorized and coded according to their type and finality of the study for the documental analysis. The oncology state plan and Directives CIB-PB number 27/2024¹² and number 05/2025¹³ were defined as normative since they establish the bases for the organization and institutionalization of the program. The technical and operational reports of PBCC supported the description of the execution and monitoring of the actions. On the other hand, the administrative databases, including the panel of oncologic analysis (Power BI) and the platform *Saúde Meet e-SUS*, a digital system for digital health developed by SES-PB in partnership with the state's data computer company, CODATA¹⁶ were utilized to analyze the documents, healthcare flows and clinical outcomes of the patients.

The timeframe of the study encompassed the first year of the program from June 2024 to July 2025 and included all the patients assisted. The temporal data were organized into the following dimensions: Conception of the PBCC; Strategies of the program and Results obtained.

The descriptive analyzes were conducted with the software Jamovi¹⁷ 2.7.38 (Solid), the dependent variable was the clinical outcome – treatment, exams, discharge and palliative care or death – and the independent variables were median of age in years, sex, age range, origin of the referral. This article is part of the umbrella study titled “*Paraíba Contra o Câncer: Inovação em Políticas Públicas para o enfrentamento do Câncer no Sistema Único de Saúde*”, approved by the Ethics Committee of the State Health Secretary, approval report number 7,594,548 (CAAE (submission for ethical review): 88895825.9.0000.5186) in compliance with Directives 466/2012¹⁸ and 510/2016¹⁹

of the National Health Council and the Brazilian General Data Protection Law number 13.709/2018²⁰.

RESULTS

The PBCC was created in response to the rising incidence of malignant neoplasms in Paraíba and the significative increase of hospital admissions by cancer in the last years, exposing the urgency to strengthen the oncologic attention network in all levels, most of all to ensure integral and continuous care to the oncologic patient^{5,12}.

The elaboration of the PBCC was based on the analysis of the status of the health network, epidemiologic data and morbimortality extracted from health information systems such as the outpatient records (SIA/SUS²¹), hospital records (SIH/SUS²²), mortality data (SIM/SUS²³), Cancer Information System (Siscan²⁴), Panel Oncology²⁵ and administrative registers, in addition to institutional documents, the state Oncology Plan in order to identify healthcare gaps, fragilities of the installed capacity and critical points of the healthcare flows^{12,13}.

Later, the findings of the current analysis supported the formulation of the program through technical meetings and planning workshops involving the SES-PB, municipal managers of the 223 municipalities, CIB-PB and the Council of Municipal Health Secretaries (Cosems), ensuring an inter-federation pact and shared construction of the priorities of intervention^{12,13}.

The process of the program design included stages of definition of indicators, progressive goals, structuring components, articulation among federative entities and validation by governance instances of SUS. Directive CIB-PB number 05/2025¹³ formalized the program ensuring institutional legitimacy and establishing continuous monitoring and evaluation mechanisms to expand the access and improvement of oncologic care in Paraíba.

PBCC is a novel, structuring program guided by the principles of SUS and aligned to the National Policy of Cancer Prevention and Control (PNPCC)¹³. The unprecedented initiative is expressed as the articulation of a continuous and coordinated state network, grounded in managerial strategies, technological innovation and qualification of the healthcare. Its structure is based on clinical and operational protocols, active and longitudinal navigation and having Primary Health Care as one of the main gateways and important coordinator of the healthcare although not exclusive.

The model incorporates integration of medical specialists, continuous monitoring of exams, decentralization of the treatment and inter-federative articulation, contributing to reduce the fragmentation



of the healthcare, minimization of transportation and expansion of the resoluteness of the medical attention.

The PBCC is based on four strategies deployed in four strategic axes: single regulation at municipal level, implementation of teleoncology, implementation of the model of patient navigation through nurse navigation and expansion of a proprietary network for diagnosis and treatment. These axes establish the organization of the line of oncologic care and instrumentalize the integration across different levels of medical attention.

The flow of access to PBCC is shown in Figure 1, depicting the stages of oncologic care, highlighting the central role of PHC in the coordination and entry of the patient, single state regulation, action of the nurse navigators and articulation among different levels of medical attention consistent with the clinical-operational protocols of the program.

A single state regulation was created²⁶ where all the requests for exams and oncologic treatments are rerouted to a focused central responsible to monitor scheduling, identify bottlenecks and distribute the demand according to clinical criteria and installed capacity. The centralization favors better control of the requests, optimization of resources allotment and continuous monitoring of the queue²⁶.

In order to integrate and improve the quality of the information, expand informatization and strengthen the safety of the data, an online system to register the patients in the program was implemented in November 2025 to replace the manual form. The new tool²⁷ allows fast registration after the first contact with the patient and

suspicion of neoplasm. The registration can be completed when the user attends a basic health unit in the territory and is initially evaluated by a physician, nurse or dentist or a prompt healthcare unit (UPA) and hospitals, if further investigation and specialized follow-up is necessary.

Through the system of medical regulation, health units can be utilized to register suspicious cases, including data about the unit, clinical information, Eastern Cooperative Oncology Group (ECOG)²⁸ performance status, in addition to the possibility of attaching diagnostic exams and imaging. The professional can present different options of days and times when the first teleconsult is requested according to the staff plan and preference of the user. The follow up is made through an electronic panel, favoring the communication among professionals and scheduling of teleconsults.

For that matter, teleoncology in PBCC is utilized through the platform *Saúde Meet e-SUS* for synchronous oncologic teleconsults, involving the PHC's physician or any hospital who demanded the consult, the patient, the nurse navigator and specialists, a clinician, gynecologist, mastologist, onco-hematologist, onco-pediatrics or palliative care professional. This process favors the early definition of conducts, staging and construction of an individualized therapeutic plan.

The insertion of the nurse navigator is one of the structuring differences of PBCC. These professionals actively search suspected cases, monitor the exams and procedures requested, ensure the articulation with the reference services and remain as supporting point to the patient in the course of the whole treatment, they work

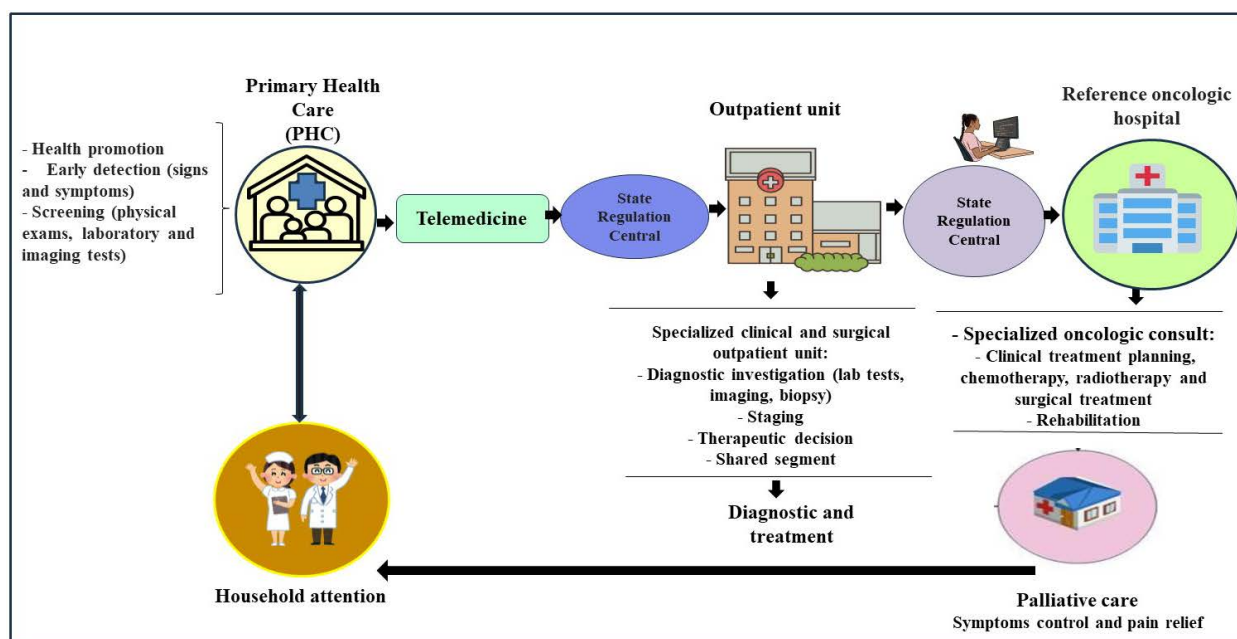


Figure 1. Flowchart of access to medium and high complexity oncologic treatment in Paraíba

Source: Adapted from Directive CIB-PB number 27/2024¹².

in a 12-hour working shift from Monday to Friday in business days.

Chart 1 portrays the main findings of the structuring axes of the program.

From June 2024 to July 2025, the first year of the PBCC, more than 3,393 visits through teleoncology have been registered, with increase of the mean month volume from 163 to 381. The number of observations (n) was variable for the variables analyzed because of incomplete records. Therefore, data of 3,277 patients assisted in the study period have been analyzed.

The statistical analysis indicated non-normal distribution according to the Shapiro-Wilk test ($p < 0.001$), being utilized the median as measure of central tendency. It has been observed difference of the median age between sexes, 59 for women and 67 for men, indicating higher concentration of cases for older men.

Table 1 presents the characterization of the users with predominance of individuals between 25 and 64 years old (52.0%), followed by the age range of 65-80 years (35.2%). There was concentration of consults in the 1st and 3rd health macroregions that, together, account for 78.9% of the users. In regard to clinical outcome, the majority of the patients were referred for treatment (68.1%), followed by palliative care (12.7%), in diagnostic investigation (10.1%) and death (9.1%).

In the period before the implementation of PBCC in Paraíba, it was observed that in 2023, of the 11,522 cases notified, 1,352 (12%) initiated treatment within 60 days²⁹.

In the second semester of 2024, after the implementation of PBCC, it was noticed that 38.6% of the patients did the anatomopathological exam within 30 days and 49.3% initiated treatment within 60 days, according to data of the monitoring panel of the program. In 2025, there was improvement of these indicators with 50.0% of the patients completing the anatomopathological exam within 30 days, excluding those who attended the first

visit already with the exam. In the same period, 70.0% of the users initiated chemotherapy within the legal time and 73.0% submitted to timely radiotherapy. 91.4% of the requests initiated in the PHC while 7.9% originated from hospitals.

In its first operational year, the PBCC sponsored the expansion of hospital services in three state health macroregions with investments in infrastructure and decentralization of high complexity. In this process, actions to strengthen radiotherapy and chemotherapy were implemented through contracts and agreements, in addition to increasing the volume of oncologic surgeries, formalization of partnerships and acquisition of inputs and strategic equipment to offer initiatives and specialized services⁵.

In the initial months, PBCC counted only with three hospitals accredited to offer diagnosis, treatment and surgery. Later, the network expanded with more five hospitals of reference, two in the first macroregion, one in the second and two in the third, as well as eight additional specialized clinics in imaging diagnosis under contract¹³.

Additionally, the renovation and expansion of “Hospital do Bem” in the municipality of Patos, *Sertão Paraibano*, consolidated the hospital as reference in oncology and adopted the frozen section biopsy. In the end of 2025, the first robotic urology surgery was performed in SUS, and later extended to abdominal tract¹³.

DISCUSSION

The findings of this study indicate relevant changes in the organization of oncologic attention in Paraíba after the implementation of PBCC, particularly in regard to restructuring of healthcare flows, the adoption of communication technologies and strengthening of the coordination of network healthcare.

The implementation of a single state regulation is an essential strategy to tackle the fragilities earlier identified,

Chart 1. Main results of the strategic axes of PBCC. Paraíba, 2024-2025

Strategic axes	Main results
Single regulation	Increased control of the requests and continuous monitoring of the queue to contribute for the organization of the access and management of the demand for oncologic services
Teleoncology	The patient with suspicion of cancer is included in the program and within 48 hours, the nurse navigators contact the patient to schedule the first teleconsult to speed up the access to specialized attention
Patient navigation	Active search of suspected cases; follow-up of the patient through the network; articulation with reference services; action as supporting point during the course of the care
Expansion of the network	More agility in the diagnosis and beginning of the treatment, expanding the problem-solving capacity of oncologic care



Table 1. Characterization of the patients assisted in PBCC. Paraiba, 2024-2025

Variables	n	Total frequency (%)
Sex		
Female	1,877	57.3
Male	1,384	42.2
Not reported	16	0.5
Age range		
15 to 24 years	42	1.3
25 to 64 years	1,704	52.0
65 to 80 years	1,155	35.2
81 to 95 years	304	9.3
Older than 95 years	72	2.2
Health macroregion of origin		
1 st macro	1,286	39.2
2 nd macro	691	21.1
3 rd macro	1,300	39.7
Clinical outcome		
Referred for treatment	2,231	68.1
Awaiting exams	332	10.1
Discharge, palliative care	417	12.7
Death	297	9.1
Total	3,277	100.0

Source: Spreadsheet of monitoring and panel of monitoring of PBCC.

most of all in relation to the compliance with the legal-mandated time to begin the oncologic treatment. Regulation of healthcare in SUS is essential to enable the health attention networks to ensure equitable and effective access³⁰. This process organizes the use of resources based on clinical-epidemiologic criteria, installed capacity and territorialization, promoting equity and reasonable use of the services³¹.

The utilization of digital monitoring tools as follow-up panels and computer systems has been described as potential promoter of transparency and effectiveness of the healthcare management. The dashboard allows to follow-up the requests submitted by health professionals and the response to schedule a teleconsult within 48 hours. The submitters communicate regularly with the nurse navigator through the chat. If the patient is under suspicion or in oncologic treatment, a teleconsult is scheduled^{5,12}.

Telemedicine is understood as the technology that allows remote clinical healthcare that has been consolidated as a permanent asset due to its ability to expand the access and meet the population demands^{32,33}. In oncology, teleoncology stands out, a modality involving remote follow-up of patients, shared clinical conducts among specialists and local teams³⁴.

Pinto et al.³⁵ demonstrated the efficacy of telemedicine and care to patients with advanced cancer, allowing the remote follow-up of patients and communication with caregivers even in household environment.

The findings of this study indicate that the utilization of teleoncology in PBCC is a feasible and effective alternative to monitor oncologic post-treatment side effects, corroborating other studies³⁶. Because it is an initiative developed in SUS, it is possible that the program is able to reach more vulnerable populations that usually face barriers of access to full and effective healthcare. Studies showed that teleoncology recommendations applied in patients with cancer and in socioeconomic vulnerability is well evaluated with high rates of satisfaction³⁴.

Consistent with these findings, patient navigation has shown to be an essential component of the program because it helps to overcome the barriers of the health system through individualized follow-up^{37,38}. The navigator acts along the healthcare journey easing the access to full and quality care since the entry in the network up to the continuity of the treatment^{39,40}.

In the Brazilian context, the nurse navigator plays a strategic role in the oncologic network, following up the patient since admission, diagnosis and treatment through outcomes such as discharge, rehabilitation, palliation or death. His/her inter-professional action contributes to the management of healthcare flows, consults and procedures that cause impact on health indicators and patient-centered care, requiring familiarity with the oncologic network and regulation of access^{41,42}.

The study results demonstrate to what extent the PHC team is strategic and helpful to the support and coordination of the longitudinal oncologic attention while receiving the user, stratification of the risk determined by the physician or nurse of the Family Health Strategy and immediate referral utilizing the forms of the PBCC, keeping effective communication with the nurse navigators in the three health macroregions. This strategy is aligned with the guidelines of Law number 14,758/2023⁴³ and Directive GM/MS number 6,592/2025⁴⁴.

The implementation of the PBCC shows positive results in the reduction of healthcare losses and diagnostic celerity in SUS, aligned with the strategy of patient navigation. In this context, Pinto Filho and Carneiro⁴⁵ described a computerized model in the state of Pará that offers individualized care to overcome barriers of the treatment and facilitate the follow-up of the patient through the entire journey in the healthcare network, however, unlike the PBCC, this experience utilizes a self-instructed website with online support without mentioning direct action of the nurse navigator in the health regions.



The trajectory of shared care can potentially lead to a more favorable scenario, reinforcing the consistency of the model adopted in the period, while identifying that 70.0% of the users initiated chemotherapy and 73.0% initiated radiotherapy within the legal timeframe, revealing the impact and evolution of the strategy of integral care when compared to preliminary data of the second semester of 2024, phase of implementation and adaptability where only 49.7% had initiated treatment within the legal timeframe²⁹.

In addition, this signifies important advances in meeting the legal times to initiate the oncologic treatment, a possible evidence of the effectiveness of the program. It has been observed a positive and strategic scenario as organization of the health network that presents the organization through the PHC, revealing the importance of the components of the program while promoting the coordination of the healthcare, an attribution of the PHC, towards an individualized and safe attention⁴⁶.

Furthermore, with the implementation of the expansion of the network through the PBCC, the offer of procedures and territorial capillarity was expanded, reducing transportation and waiting time. These actions aim to promote more equitable, resolute and efficient attention aligned with the national guidelines and with the current legislation in relation to the timely beginning of the oncologic treatment.

The clinical outcome referral, where the majority of the patients was referred for treatment, may indicate adequacy of the identification and referral of the cases demanding therapeutic intervention. Additionally, the data indicate compliance with the legal timeframe determined for oncologic treatment, specifically the 30-day and the 60-day law. Until July 2025, close to half of the patients was submitted to the anatomopathology test within the legal time, excluding those who attended the first consult already with the exam in hands, a common practice of the conventional assistance model.

The epidemiologic profile of the patients assisted by the PBCC is consistent with the national tendencies. The profile of the patients assisted in the first year of PBCC is similar to the estimates of incidence of cancer for the triennium 2026-2028 in Brazil according to INCA, due to the predominance of older adults and adults, respectively, a phenomenon that is likely related to populational ageing and increase of chronic non-communicable diseases (NCD)⁴⁷.

The considerable portion of assistance in the age range of 25-64 years – working-age population – is a strong finding because the identification of this profile in the program reinforces the importance of an agile system.

The predominance of women assisted in the program, that can be explained by the high incidence of female

breast cancer, demonstrates that they are the main users of oncologic services in SUS⁴⁸. However, the number of men who had access to the PBCC was not too different than women considering that prostate cancer is the most incident in men⁴⁷.

The study limitation is the descriptive design and use of secondary data that impedes the possibility of causal inference between the implementation of PBCC and the outcome observed. Additionally, the lack of comparative indicators before the implementation of the program restrains the analysis of the impact and temporal variation of the results.

It is recommended the development of standardized indicators to evaluate the clinical and organizational outcomes in oncology and longitudinal studies for services that wish to implement similar initiatives and future researches.

However, despite these restrictions, the data analyzed showed that the program has many and important potentialities, mostly while improving the coordination of the health care, integration across levels of care and incorporation of technologies that expand the access. The main challenges for its consolidation are the dependence on technological infrastructure, continuous funding and keeping specialized staff, in addition to possible fragilities of the information systems. The importance of strategies of monitoring and evaluation that allow to measure its long-term effects is emphasized.

CONCLUSION

PBCC is an innovative initiative and reproducible within SUS. In its first year of implementation, presented actions to organize the oncologic attention network structured in four axes: single state regulation, teleoncology, nurse navigation and expansion of the proprietary network. The integrated regulation centralized exams and treatments, allowing to monitor the schedules and identification of demands. The teleoncology is utilized for multi-levels teleconsults. Nurse navigation favors active search of cases, follow-up of exams and articulation among the services.

The origin of the requests for consults mainly through PHC ratifies its consolidation as gateway to oncologic care. The expansion of the proprietary network expanded the offer of services of diagnosis and treatment in the health macroregions. The profile of the patients assisted consists of women, older adults and working-age population.

CONTRIBUTIONS

Luciana Moura Mendes de Lima, Francisco Auber Pergentino Vieira, Anna Karina Barros de Moraes



Ramalho, Matheus Spricido and Marianna Nogueira Gadelha de Oliveira contributed substantially to the study design and conception, acquisition, analysis and interpretation of the data, writing and critical review. Anna Tereza Alves Guedes, Arimatheus Silva Reis, Saulo Wanderley Filho, Michely Almeida Maropo and Lidiane Nascimento Cassimiro contributed to the writing and critical review. All the authors approved the final version for publication.

DECLARATION OF CONFLICT OF INTEREST

There is no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

All the data supporting the findings can be found at the repository: <https://app.powerbi.com/view?r=eyJrIjoiMmFjZGZiMTgtNzZiOC00OTBILWFKYjAtMTVhZTVhNTFjYTY5IiwidCI6Ijg5YzUyNzVkLTlxMjMtNDU0Yi1iMjEwLTl4MWI0NjVmZGI4YSJ9>

FUNDING SOURCES

None.

REFERENCES

1. Bray F, Laversanne M, Sung H, et al. Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2024;74(3):229-63. doi: <https://doi.org/10.3322/caac.21834>
2. Instituto Nacional de Câncer (BR). Estimativa 2023: incidência de câncer no Brasil [Internet]. Rio de Janeiro: INCA; 2022 [acesso 2025 jun 5]. Disponível em: <https://www.inca.gov.br/publicacoes/livros/estimativa-2023-incidencia-de-cancer-no-brasil>
3. Ministério da Saúde (BR). Morbidade hospitalar do SUS: por local de internação: Brasil [Internet]. Brasília, DF: Ministério da Saúde; 2025 [acesso 2025 maio 5]. Disponível em: <http://tabnet.datasus.gov.br/cgi/tabcgi.exe?sih/cnv/niuf.def>
4. Organização Mundial da Saúde. CID-10: classificação estatística internacional de doenças e problemas relacionados à saúde. São Paulo: Edusp; 2008.
5. Secretaria de Estado da Saúde (PB). Programa Paraíba contra o Câncer: documento institucional [Internet]. João Pessoa: SES-PB; 2024 [acesso 2025 jun 11]. Disponível em: <https://paraiba.pb.gov.br/noticias/programa-paraiba-contra-o-cancer-avanca-com-regulacao-de-pacientes-oncologicos>
6. Presidência da República (BR). Lei nº 13.896, de 30 de outubro de 2019. Altera a Lei nº 12.732, de 22 de novembro de 2012, para que os exames relacionados ao diagnóstico de neoplasia maligna sejam realizados no prazo de 30 (trinta) dias, no caso em que especifica [Internet]. Diário Oficial da União, Brasília, DF. 2019 out 31 [acesso 2025 set 19]; Seção 1:1. Disponível em: https://www.planalto.gov.br/ccivil_03/_ato2019-2022/2019/lei/l13896.htm
7. Presidência da República (BR). Lei nº 12.732, de 22 de novembro de 2012. Dispõe sobre o primeiro tratamento de paciente com neoplasia maligna comprovada e estabelece prazo para seu início [Internet]. Diário Oficial da União, Brasília, DF. 2012 nov 23 [acesso 2025 set 19]; Seção 1:1. Disponível em: http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/l12732.htm
8. Ministério da Saúde (BR). Portaria nº 874, de 16 de maio de 2013. Institui a Política Nacional para a Prevenção e Controle do Câncer na Rede de Atenção à Saúde das Pessoas com Doenças Crônicas no âmbito do Sistema Único de Saúde (SUS) [Internet]. Diário Oficial da União, Brasília, DF. 2013 maio 17 [acesso 2025 jun 4]. Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2013/prt0874_16_05_2013.html
9. Schäfer AA, Santos LP, Miranda VIA, et al. Desigualdades regionais e sociais na realização de mamografia e exame citopatológico nas capitais brasileiras em 2019: estudo transversal. *Epidemiol Serv Saúde.* 2021;30(4):e2021172. doi: <https://doi.org/10.1590/S1679-49742021000400016>
10. Battaglia TA, Fleisher L, Dwyer AJ, et al. national navigation roundtable evidence-based task group. barriers and opportunities to measuring oncology patient navigation impact: results from the national navigation roundtable survey. *Cancer.* 2022 Jul 1;128 Suppl 13:2568-2577. doi: <https://doi.org/10.1002/cncr.33805>
11. Cunha BB, Oliveira CEC, Brito MB, et al. Avaliação dos desafios de acesso aos serviços de saúde pelo SUS para pacientes oncológicas portadoras de câncer de mama: uma revisão integrativa. *Rev FT.* 2024;28(139). doi: <https://doi.org/10.69849/revistaft/pa10202410161638>
12. Comissão Intergestores Bipartite (PB). Resolução CIB-PB nº 27, de 5 de março de 2024. Aprova a Atualização do Plano Estadual de Oncologia 2024-2027 [Internet]. Diário Oficial do Estado da Paraíba, João Pessoa. 2024 mar 16 [acesso 2025 jun 12]; Edição 18064:7-22. Disponível em: <https://auniao.pb.gov.br/servicos/doe/2024/marco/diario-oficial-16-03-2024-portal.pdf/view>
13. Comissão Intergestores Bipartite (PB). Resolução CIB-PB nº 05, de 27 de janeiro de 2025. Aprova a Atualização do Plano Estadual de Oncologia 2024-

- 2027 [Internet]. Diário Oficial do Estado da Paraíba, João Pessoa. 2025 fev 7 [acesso 2025 jun 10]; Edição 18286:6-21. Disponível em: <https://auniao.pb.gov.br/servicos/doe/2025-1/fevereiro/diario-oficial-07-02-2025-portal.pdf/view>
14. Instituto Brasileiro de Geografia e Estatística (BR). Censo demográfico 2022. Rio de Janeiro: IBGE; 2022.
 15. Secretaria de Estado da Saúde (PB). Plano Estadual de Saúde da Paraíba 2020-2023 [Internet]. João Pessoa: Secretaria de Estado da Saúde; 2020 [acesso 2025 out 7]. Disponível em: https://paraiba.pb.gov.br/diretas/secretaria-de-planejamento-orcamento-e-gestao/institucional/diretorias-2/copy_of_PLANOSESTADUALDESAUDEPB20202023.pdf/view
 16. Companhia de Processamento de Dados da Paraíba. Institucional [Internet]. João Pessoa: CODATA; [data desconhecida] [acesso 2025 set]. Disponível em: <https://codata.pb.gov.br/institucional/a-empresa>
 17. Jamovi [Internet]. Versão 2.7.38. Sydney: projeto Jamovi; 2024. [acesso 2024 jan 23]. Disponível em: <https://www.jamovi.org/>
 18. Conselho Nacional de Saúde (BR). Resolução nº 466, de 12 de dezembro de 2012. Aprova as diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos [Internet]. Diário Oficial da União, Brasília, DF. 2013 jun 13 [acesso 2025 nov 29]; Edição 112; Seção 1:59. Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html
 19. Conselho Nacional de Saúde (BR). Resolução nº 510, de 7 de abril de 2016. Dispõe sobre as normas aplicáveis a pesquisas em Ciências Humanas e Sociais cujos procedimentos metodológicos envolvam a utilização de dados diretamente obtidos com os participantes ou de informações identificáveis ou que possam acarretar riscos maiores do que os existentes na vida cotidiana [Internet]. Diário Oficial da União, Brasília, DF. 2016 maio 24 [acesso 2025 nov 29]; Edição 98; Seção 1:44-6. Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/cns/2016/res0510_07_04_2016.html
 20. Presidência da República (BR). Lei nº 13.709, de 14 de agosto de 2018. Dispõe sobre a proteção de dados pessoais e altera a Lei nº 12.965, de 23 de abril de 2014 (Marco Civil da Internet) [Internet]. Diário Oficial da União, Brasília, DF. 2018 ago 15 [acesso 2025 nov 29]; Edição 157; Seção 1:59. Disponível em: https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/lei/l13709.html
 21. SIA/SUS: Sistema de Informações Ambulatoriais do SUS [Internet]. Brasília (DF): DATASUS. [data desconhecida] – [acesso 2025 fev 19]. Disponível em: <http://sia.datasus.gov.br/principal/index.php>
 22. SIH: Sistema de Informações Hospitalares [Internet]. Brasília (DF): DATASUS. [data desconhecida] – [acesso 2025 jan 25]. Disponível em: <https://datasus.saude.gov.br/acesso-a-informacao/producao-hospitalar-sih-sus/>
 23. SIM: Sistema de Informação sobre Mortalidade [Internet]. Versão 3.2.1.2. Brasília (DF): DATASUS. [data desconhecida] – [acesso 2025 mar 10]. Disponível em: <http://sim.saude.gov.br/default.asp>
 24. SISCAN: Sistema de Informação do Câncer [Internet]. Brasília (DF): DATASUS. [data desconhecida] – [acesso 2025 jan 25]. Disponível em: <https://datasus.saude.gov.br/acesso-a-informacao/sistema-de-informacao-do-cancer-siscan-colo-do-utero-e-mama/>
 25. PAINEL-Oncologia [Internet]. Brasília (DF): DATASUS; ©2008 – [acesso 2026 abr 13]. Disponível em: http://tabnet.datasus.gov.br/cgi/dhdat.exe?PAINEL_ONCO/PAINEL_ONCOLOGIABR.def
 26. Comissão Intergestores Bipartite (PB). Resolução CIB-PB nº 88, de 11 de abril de 2025. Aprova o Plano de Regulação do Estado da Paraíba [Internet]. João Pessoa: Secretaria de Estado da Saúde; 2025 [acesso 2025 ago 18]. Disponível em: <https://iphaep.pb.gov.br/diretas/saude/arquivos-1/cib-2025/resolucao-cib-no-88-2025-plano-estadual-de-regulacao-da-paraiba-1.pdf/view>
 27. Paraíba Contra o Câncer. Paraíba Contra o Câncer [Internet]. João Pessoa: Governo do Estado da Paraíba; [2025] [acesso 2026 ago 13]. Disponível em: <https://insercaopbcc.com/>
 28. Oken MM, Creech RH, Tormey DC, et al. Toxicity and response criteria of the Eastern Cooperative Oncology Group. *Am J Clin Oncol*. 1982;5(6):649-55. doi: <https://www.doi.org/10.1097/00000421-198212000-00014>
 29. Paraíba contra o câncer [Internet]. Oncológica - Paraíba Contra o Câncer. João Pessoa: Governo da Paraíba; [data desconhecida] – [acesso 2025 maio 14]. Disponível em: <https://app.powerbi.com/view?r=eyJrIjoiMmFjZGNIYTgtNzZiOC00OTBILWFkYjAtMTVmZTVhNTFjYTU5IiwidCI6IjgXZyUyNzVkLTlxMjMtN>
 30. DU0Yi1iMjEwLTI4MWI0NjVmZGI4YSJ9 Ministério da Saúde (BR). Secretaria de Atenção Especializada à Saúde. Departamento de Regulação Assistencial e Controle. Curso I: regulação de sistemas de saúde do SUS: módulo 1: Política Nacional de Regulação do SUS [Internet]. 1. ed. rev. Brasília, DF: Ministério da Saúde; 2022 [acesso 2025 set 30]. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/modulo1_politica_nacional_regulacao_sus.pdf
 31. Peiter CC, Lanzoni GMM, Oliveira WF. Regulação em saúde e promoção da equidade: o Sistema Nacional de Regulação e o acesso à assistência em um município de



- grande porte. *Saúde Debate*. 2016;40(111):63-73. doi: <https://doi.org/10.1590/0103-1104201611105>
32. Chávarri-Guerra Y, Ramos-López WA, Covarrubias-Gómez A, et al. Providing supportive and palliative care using telemedicine for patients with advanced cancer during the COVID-19 pandemic in Mexico. *Oncologist*. 2021;26(3):e512-5. doi: <https://doi.org/10.1002/onco.13568>
 33. Nilson LG, Angulo-Tuesta A, Hartz Z, et al. Theory of change in the evaluation of telehealth in care support to primary health care in Brazil. *Braz J Health Rev*. 2020;3(3):3900-920. doi: <https://doi.org/10.34119/bjhrv3n3-001>
 34. Miziara RA, Maesaka JY, Matsumoto DRM, et al. Teleoncology orientation of low-income breast cancer patients during the COVID-19 pandemic: feasibility and patient satisfaction. *Rev Bras Ginecol Obstet*. 2021;43(11):840-6. doi: <https://doi.org/10.1055/s-0041-1739425>
 35. Pinto CS, Borsatto AZ, Vaz DC, et al. Telemedicina em cuidados paliativos oncológicos: um legado da pandemia. *Rev Bras Cancerol*. 2023;69(1):e-142698. doi: <https://doi.org/10.32635/2176-9745.RBC.2023v69n1.2698>
 36. Rolim ALG, Silva RB. Impacto da teleoncologia na qualidade de vida em pacientes pós-tratamento de radioterapia. *Res Soc Dev*. 2025;14(2):e1114248137. doi: <https://doi.org/10.33448/rsd-v14i2.48137>
 37. Smith J. Patient navigator's role definition [Internet]. Boiling Springs: Gardner-Webb University; 2014 [acesso 2025 out 10]. Disponível em: https://digitalcommons.gardner-webb.edu/nursing_etd/37/
 38. Esparza A. Patient navigation and the American Cancer Society. *Semin Oncol Nurs*. 2013;29(2):91-6. doi: <https://doi.org/10.1016/j.soncn.2013.02.004>
 39. Kline RM, Rocque GB, Rohan EA, et al. Patient navigation in cancer: the business case to support clinical needs. *J Oncol Pract*. 2019;15(11):585-90. doi: <https://doi.org/10.1200/JOP.19.00230>
 40. Freeman HP, Rodriguez RL. History and principles of patient navigation. *Cancer*. 2011;117(15 Suppl):3539-42. doi: <https://doi.org/10.1002/cncr.26262>
 41. Lima MERF, Santos CTS, Santos ASL, et al. Atuação do enfermeiro navegador no acolhimento ao paciente oncológico. *RECIMA21 Rev Cient Multidiscip*. 2021;2(10). doi: <https://doi.org/10.47820/recima21.v2i10.815>
 42. Pautasso FF, Lobo TC, Flores CD, et al. Nurse navigator: development of a program for Brazil. *Rev Lat Am Enfermagem*. 2020;28:e3275. doi: <https://doi.org/10.1590/1518-8345.3258.3275>
 43. Presidência da República (BR). Lei nº 14.758, de 19 de dezembro de 2023. Institui a Política Nacional de Prevenção e Controle do Câncer no âmbito do Sistema Único de Saúde (SUS) e o Programa Nacional de Navegação da Pessoa com Diagnóstico de Câncer [Internet]. Diário Oficial da União, Brasília, DF. 2023 dez 20 [acesso 2025 jun 5]; Edição 241; Seção 1:1. Disponível em: https://www.planalto.gov.br/ccivil_03/_ato2023-2026/2023/lei/L14758.htm
 44. Ministério da Saúde (BR). Portaria GM/MS nº 6.592, de 4 de fevereiro de 2025. Altera a Portaria de Consolidação nº 5, de 28 de setembro de 2017, para instituir o Programa de navegação da pessoa com diagnóstico de câncer, no âmbito do Sistema Único de Saúde - SUS [Internet]. Diário Oficial da União, Brasília, DF. 2025 fev 7 [acesso 2025 set 30]; Edição 27; Seção 1:90-1. Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2025/prt6592_07_02_2025.html
 45. Pinto Filho JCS, Carneiro TX. Implementação de um modelo de navegação para pacientes oncológicos no estado do Pará. *Rev Cient Saude Tecnol*. 2024;4(2). doi: <https://doi.org/10.53612/recisatec.v4i2.367>
 46. Ribeiro SP, Cavalcanti MLT. Atenção primária e coordenação do cuidado: dispositivo para ampliação do acesso e melhoria da qualidade. *Cien Saude Colet*. 2020;25(5):1799-808. doi: <https://doi.org/10.1590/1413-81232020255.34122019>
 47. Martins LFL, Silva AGA, Silva AM, et al. Perfil epidemiológico da incidência de câncer no Brasil e regiões: estimativas para o triênio 2026-2028. *Rev Bras Cancerol*. 2026;72(2):e-025587. doi: <https://doi.org/10.32635/2176-9745.RBC.2026v72n2.5587>
 48. Quintão KM, Amorim AS, Costa PT, et al. Perfil epidemiológico dos principais cânceres do Brasil na última década: um estudo epidemiológico descritivo. *Arch Health*. 2025;6(3):e2517. doi: <https://doi.org/10.46919/archv6n3-013>

Recebido em 13/1/2026
Aprovado em 30/4/2026