Colorectal Cancer in Brazil: The Invisible Challenge of Diagnosis

Author(s): Darlan Henrique Nascimento da Silva; Rejane de Souza Reis; Alfredo José Monteiro Scaff and Fernanda Cristina da Silva de Lima

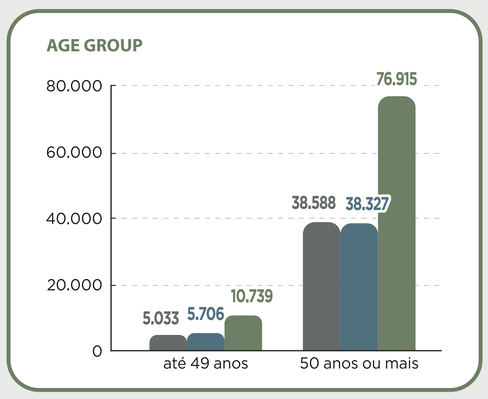
Affiliation: Fundação do Câncer, Rio de Janeiro, Brazil

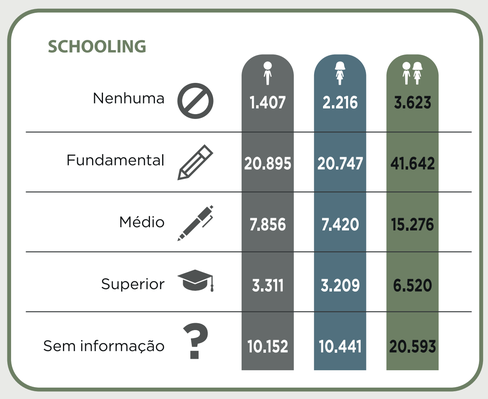
Introduction: Colorectal cancer (CRC) is a major public health problem in Brazil, with increasing incidence and mortality rates. Although screening is effective, most cases are still diagnosed at advanced stages.

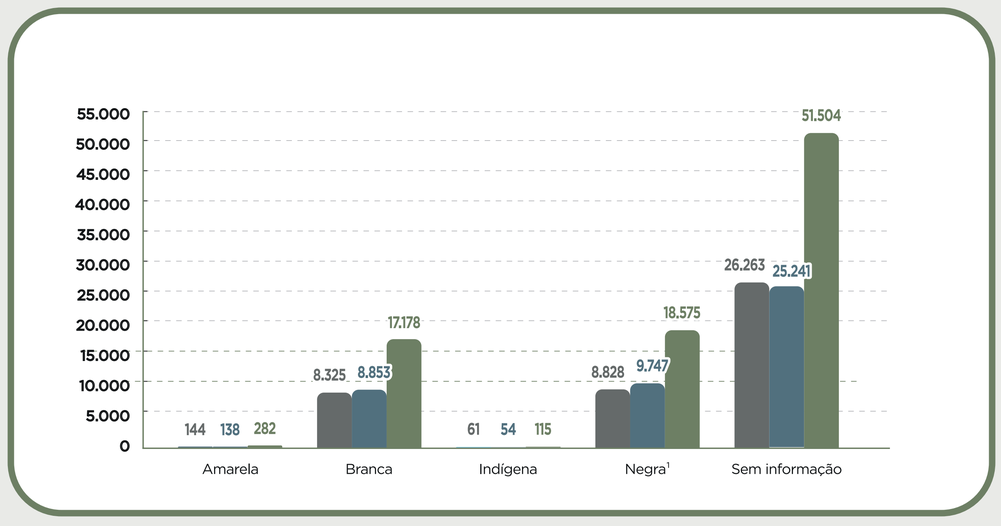
Objective: To describe sociodemographic, clinical, diagnostic, and treatment-related characteristics of CRC cases using data from Brazilian Hospital-Based Cancer Registries (HCR), nationally and by region, from 2013 to 2022.

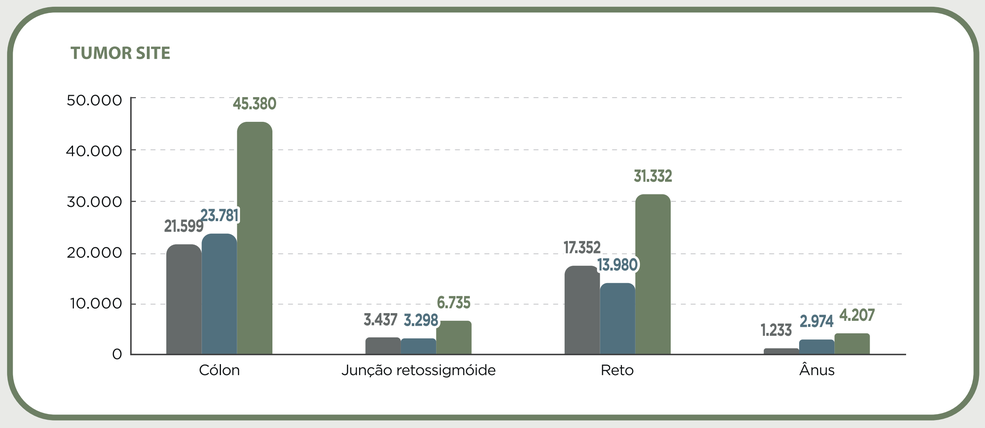
Method: Descriptive study including 177,575 analytical CRC cases (ICD-10 C18–C21) recorded in 340 institutions. Relative frequencies were analyzed by sex, age, education, race/skin color, tumor site, stage at diagnosis, and first treatment. A cluster analysis by state capitals evaluated CRC incidence in relation to obesity and smoking prevalence.

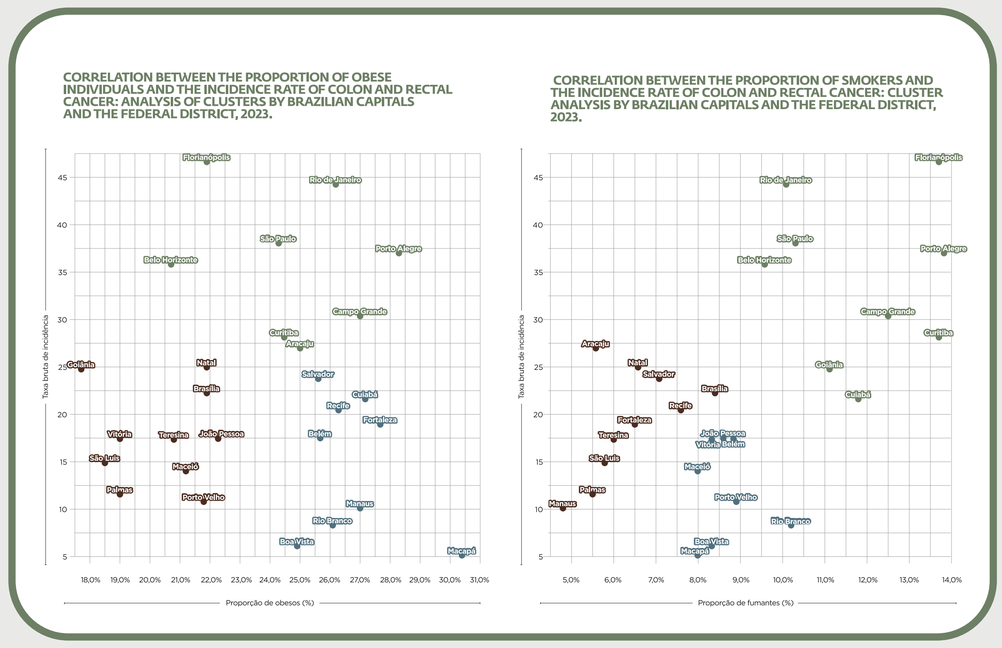
Results: The distribution was similar between genders (50.9% women; 49.1% men), with a predominance of patients aged ≥ 50 years (85.9%), a high proportion with low education (47.7%), and 34.6% identified as White. The Southeast region accounted for 49.4% of cases. The colon was the most frequent tumor site (71.6%). More than 60% of patients were diagnosed with advanced-stage disease. Surgery was the most common initial treatment (61.5%). Regarding patient migration to treatment, 82% received treatment within their region of residence; however, the Central-West region showed a greater need for migration (18%), mainly to the Southeast. Cluster analysis indicated a positive correlation between CRC incidence and the prevalence of obesity and smoking in some capitals specially in the South and Southeast regions.







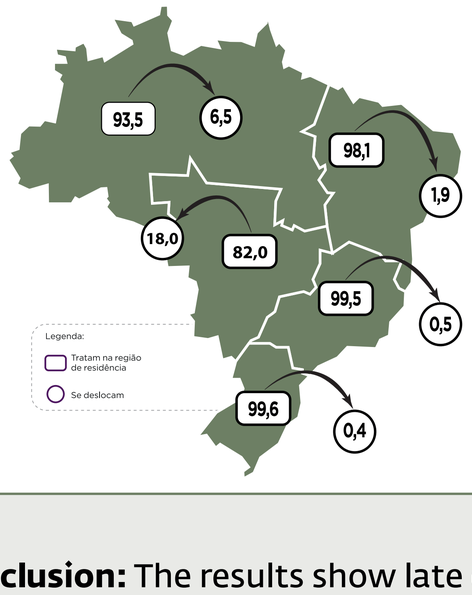




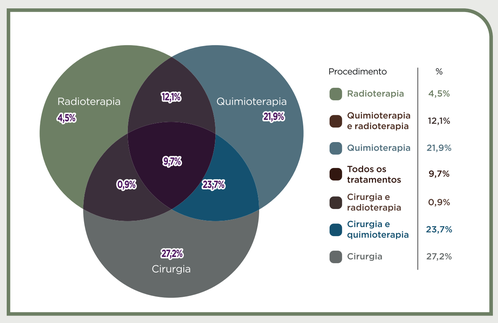
PATIENT DISPLACEMENT ACCORDING TO THE REGION OF RESIDENCE TO THE LOCATION OF CANCER TREATMENT, 2013-2022

MAP OF THE ROUTE

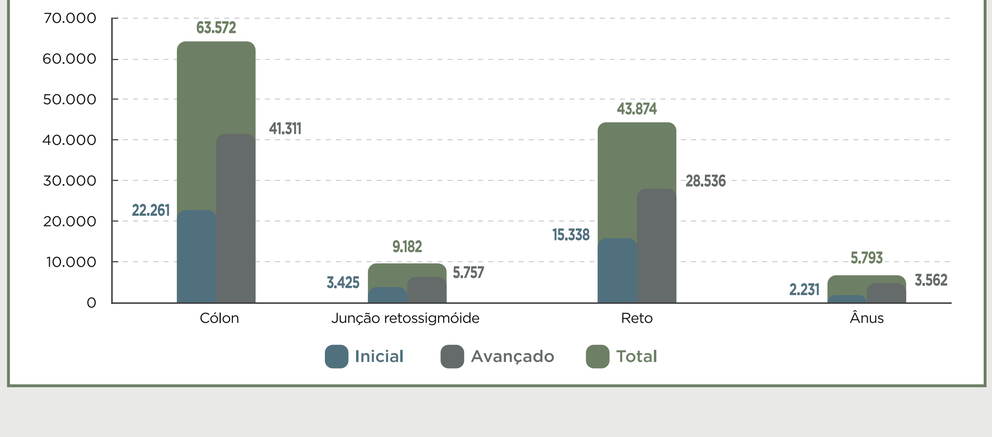
Residence location	Treatment location				
	Norte	Nordeste	Centro-Oeste	Sudeste	Sul
Norte	93,5	0,6	0,38	5,17	0,35
Nordeste	0,14	98,12	0,42	1,02	0,3
Centro-Oeste	0,12	0,04	82,04	16,22	1,58
Sudeste	0,02	0,06	0,19	99,54	0,19
Sul	0,01	0,01	0,09	0,27	99,62



DISTRIBUTION OF TYPES OF FIRST TREATMENT FOR COLON AND RECTAL CANCER, 2013 TO 2022



TUMOR SITE FREQUENCIES ACCORDING TO STAGING, BOTH SEXES, BRAZIL, 2013-2022



Conclusion: The results show late diagnosis, regional inequalities, and barriers to access oncology care in Brazil. Strengthening primary prevention and expanding screening programs are essential to reduce CRC burden and improve early detection.

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Colorectal Cancer Mortality Projections for the Next 15 Years

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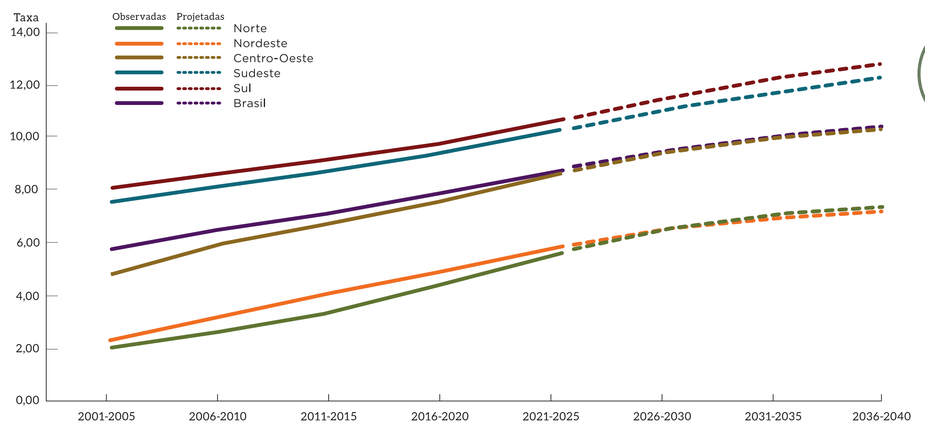
Introduction: Colorectal cancer (CRC) is one of the leading causes of cancer mortality in Brazil, with rates expected to rise in the coming decades. Advanced stage at diagnosis remains the main determinant of high lethality, especially in regions with limited access to screening and diagnostic services.

Objective: To project CRC mortality in Brazil and its regions over the next 15 years (2026–2040) and to characterize the stage at diagnosis among cases that progressed to death.

Method: Data from the Mortality Information System (SIM) and population projections from the Brazilian Institute of Geography and Statistics (IBGE) were used. Mortality projections were estimated using the Nordpred model in R, considering five-year periods. Hospital-Based Cancer Registry data (2012–2021) were analyzed to assess stage at diagnosis among 31,956 deaths, and proportional mortality from CRC, other causes, and COVID-19 was evaluated for 2014–2023.

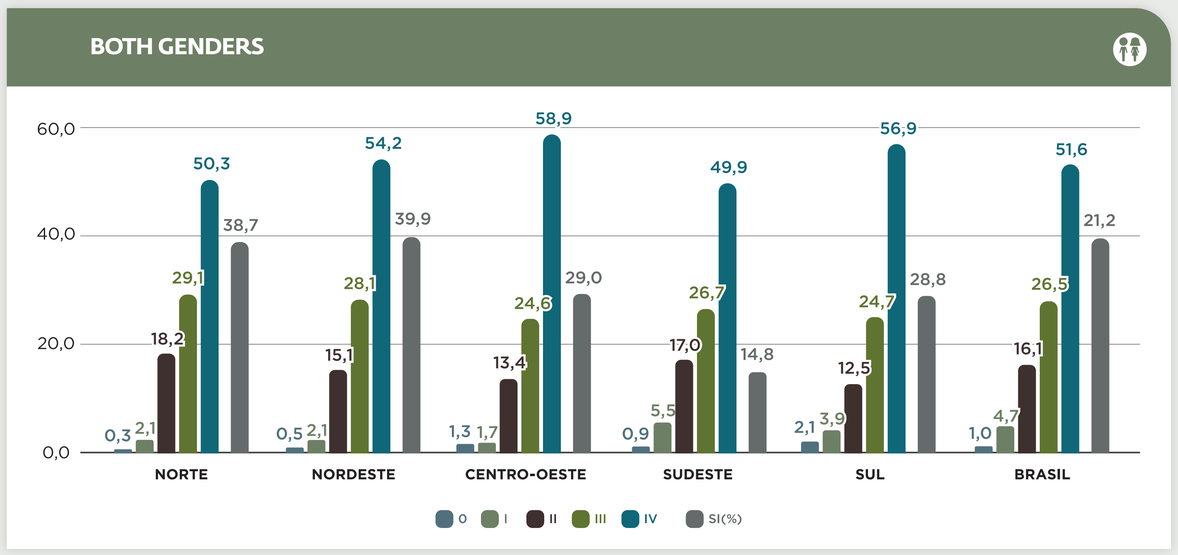
Results: Projections indicate a 36.3% increase in CRC deaths, from 146,441 (2026–2030) to 199,613 (2036–2040), with crude mortality rates rising from 13.52 to 18.07 per 100,000 inhabitants. The Southeast has the highest number of deaths, while the South shows the highest rates. Although the North has lower absolute numbers, it presents the largest relative increase (≈50%). Among deceased patients, 78.1% were diagnosed at stages III–IV, with stage IV predominating across regions. Proportional mortality reflects the impact of the COVID-19 pandemic, with increased COVID-19–related deaths in 2020–2021.

BOTH GENDERS — AGE-ADJUSTED MORTALITY RATES* FOR COLON CANCER BY PEOPLE 100,000, BRAZIL AND REGIONS, 2001 TO 2040.



*População padrão Mundial, 1960/ 100 mil pessoas. Fonte: SIM, 2025.

PERCENTAGE OF DEATHS FROM COLON AND RECTAL CANCER (C18-C21) BY STAGE, BRAZIL AND REGIONS, 2012 TO 2021.



NUMBER OF DEATHS AND CRUDE MORTALITY RATES FROM COLON AND RECTAL CANCER PER 100,000 INHABITANTS, BRAZIL AND REGIONS, 2026 TO 2040.

BOTH GENDERS	NUMBER OF DEATHS			CRUDE RATES		
	2026 - 2030	2031 - 2035	2036 - 2040	2026 - 2030	2031 - 2035	2036 - 2040
NORTE	6.897	8.748	10.322	7,20	8,89	10,30
NORDESTE	25.403	30.699	35.100	8,82	10,60	12,12
CENTRO-OESTE	10.985	13.427	15.750	12,40	14,59	16,59
SUDESTE	75.416	88.484	101.080	16,90	19,71	22,53
SUL	27.740	32.661	37.361	17,46	20,16	22,79
BRASIL	146.441	174.019	199.613	13,52	15,85	18,07

Conclusion: The projections indicate a growing CRC mortality burden in Brazil and emphasize the urgent need for public policies to expand screening, enable earlier diagnosis, and strengthen diagnostic and treatment capacity. The high proportion of advanced-stage disease at diagnosis highlights the importance of organized programs and integrated prevention and early detection strategies to reduce the future burden of CRC.

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Skin Cancer in Brazil: Risk, Incidence, and the Relationship with Ultraviolet Radiation

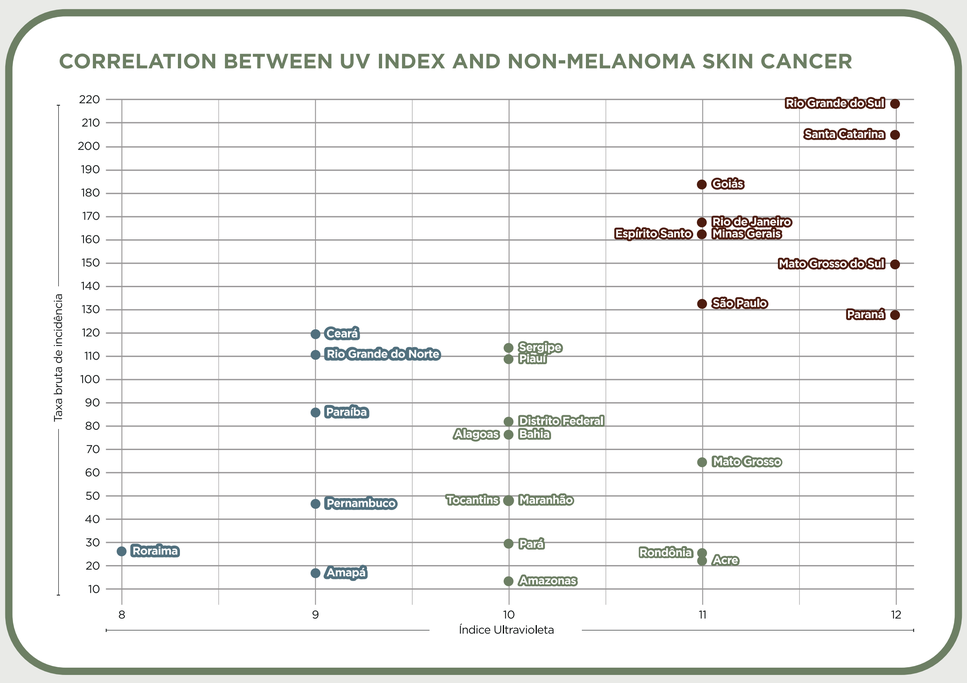
Author(s): Rejane de Souza Reis; Darlan Henrique Nascimento da Silva; Alfredo José Monteiro Scaff and Fernanda Cristina da Silva de Lima

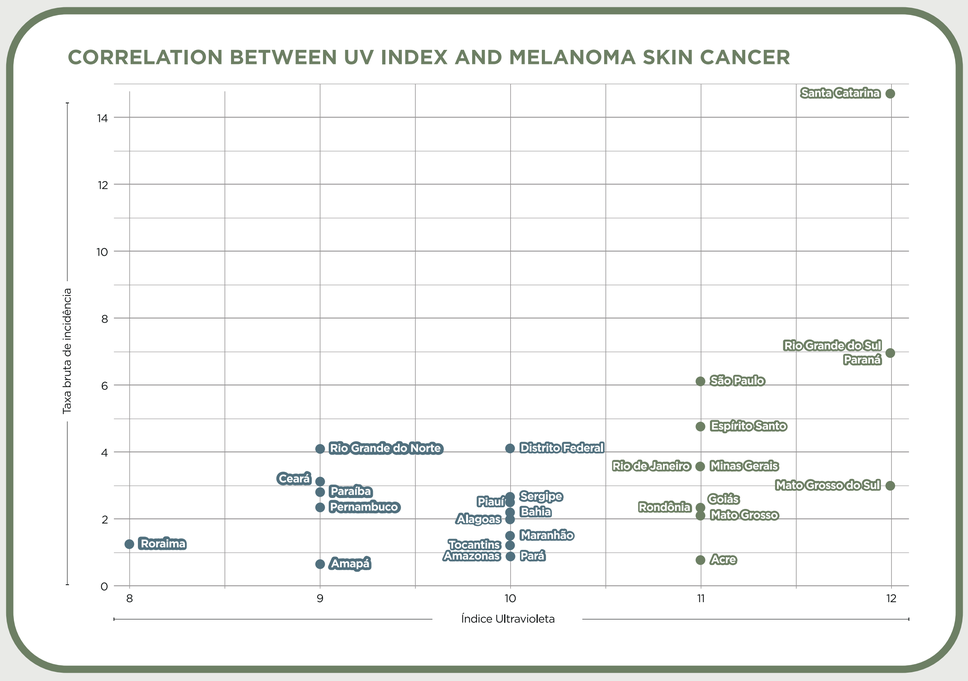
Introduction: Skin cancer is the most common cancer in Brazil, with over 220,000 new non-melanoma cases annually and about 9,000 melanoma cases. Ultraviolet (UV) radiation is the main risk factor and is strongly influenced by the country's climatic and geographic conditions. Southern states and regions with predominantly sunny climates present the highest incidence rates and annual UV indices. Understanding the relationship between sun exposure and skin cancer is essential to guide prevention policies.

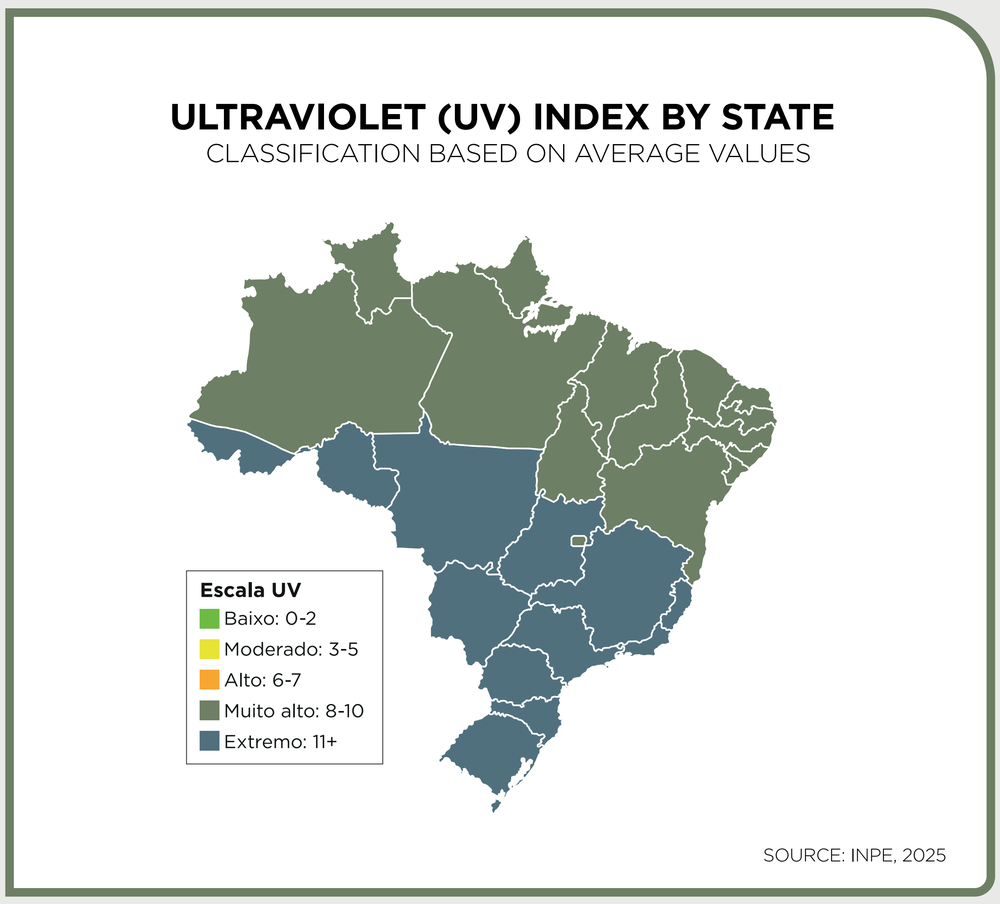
Objective: To describe risk factors, epidemiological characteristics, and the correlation between UV radiation indices and estimated skin cancer incidence in Brazil.

Method: A descriptive analysis based on data from the Brazilian National Cancer Institute's Cancer Estimates (2025) and UV radiation indices from the National Institute for Space Research (2024), focusing on regions and federal units.

Results: Rio Grande do Sul and Santa Catarina showed the highest estimated non-melanoma skin cancer rates for 2025 and the highest annual mean UV indices in 2024. Santa Catarina also had the highest melanoma incidence. Intense, prolonged, or intermittent sun exposure, combined with a predominantly tropical climate, cultural habits, and outdoor activities, contributes to elevated risk. The ABCDE method supports early detection of suspicious lesions.







Conclusion: High UV radiation, warm climate, and sun exposure habits place the Brazilian population at continuous risk for skin cancer. Sustained prevention strategies, including health education, sun protection, policies for exposed workers, and promotion of early detection, are essential to reduce the disease burden in Brazil.

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Temporal Trends in Cancer Incidence Among Younger and Older Adults in Brazil: Evidence from Population-Based Registries

Author(s): Rejane de Souza Reis (1); Alfredo José Monteiro Scaff (1); Darlan Henrique Nascimento da Silva (1); Fernanda Cristina da Silva de Lima (1); Thais Martins Ramos (1); Flávia de Miranda Corrêa (1); Beatriz de Camargo (2); and Gemma Gatta (3)

Affiliation: (1) Fundação do Câncer, Rio de Janeiro, Brazil; (2) Brazilian Renal Tumor Group, Sao Paulo, Brazil.; (3) Department of Statistics and Quantitative Methods, University of Milano-Bicocca, Milano, Italy.

Introduction: Cancer has traditionally been more frequent among older adults; however, an increasing incidence among individuals under 50 years has been reported worldwide. In middle-income countries such as Brazil, understanding age-specific cancer trends is essential to guide prevention and control strategies.

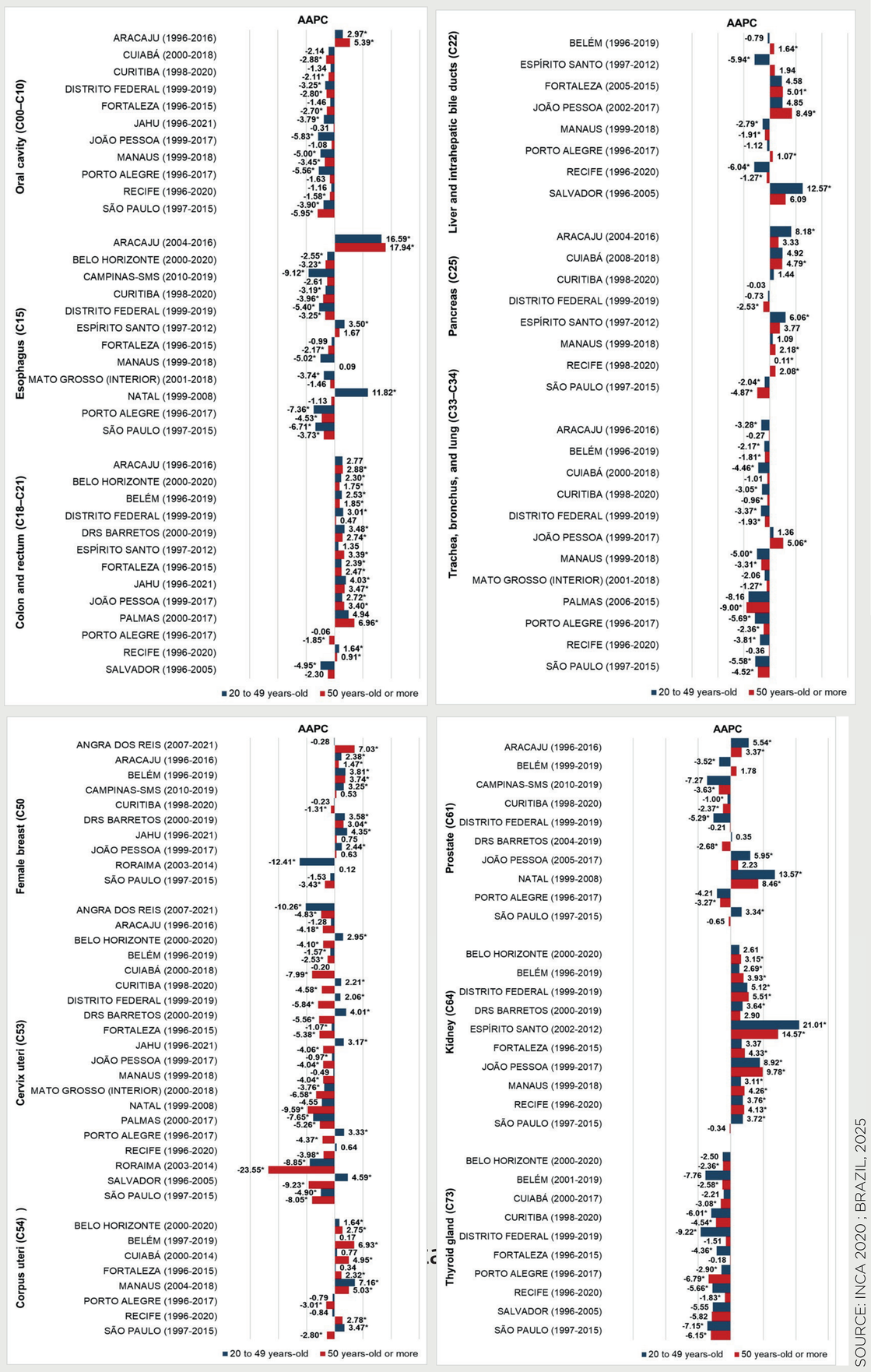
Objective: This study analyzed temporal trends in the incidence of selected cancers among younger (20–49 years) and older (≥50 years) adults using population-based data.

Method: This time-series study analysed data from Brazilian Population-Based Cancer Registries (1996–2021). Twelve cancer types were analyzed according to ICD-10 codes. Age-standardized incidence rates (per 100,000 inhabitants) were evaluated using the world standard population. Trends were assessed through Joinpoint regression, estimating Annual Percent Change (APC) and Average Annual Percent Change (AAPC), with statistical significance set at p<0.05.

Results: Heterogeneous patterns were observed across cancer types and regions. Colorectal and kidney cancers showed consistent increasing trends in both age groups, including younger adults. The incidence of female breast cancer incidence increased in several registries among women aged 20–49 years. Cancer of corpus uteri cancer increased predominantly among older women. In contrast, lung and oral cavity cancers generally exhibited stable or decreasing trends, particularly among older adults. Cervical cancer incidence declined in most registries, especially in women aged ≥50 years. Prostate and pancreatic cancers presented variable patterns across regions.

Conclusion: Cancer incidence trends in Brazil vary according to age group and cancer type, with notable increases in colorectal, breast, and kidney cancers among younger adults. These findings highlight the need to strengthen surveillance systems and to tailor prevention and early detection strategies to address the evolving cancer burden in younger populations.

AVERAGE ANNUAL PERCENTAGE CHANGE (AAPC) IN THE INCIDENCE OF MAJOR CANCER TYPES (1996-2021) BY BRAZILIAN REFERENCE POPULATION AND AGE GROUP.



SOURCE: INCA 2020 ; BRAZIL, 2025

THE MAP OF BRAZIL WITH THE REGISTRY LOCATION AND POPULATION COVERAGE

SOURCE: INCA, IBGE, 2025

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VapeOFF Movement: Digital Communication for the Prevention of Electronic Cigarette Use among Youth in Brazil

Author(s): Darlan Henrique Nascimento da Silva; Rejane de Souza Reis; Alfredo José Monteiro Scaff; Fernanda Cristina da Silva de Lima and Thais Ramos

Affiliation: Fundação do Câncer, Rio de Janeiro, Brazil

Introduction: The use of electronic cigarettes has increased at an alarming rate among Brazilian youth, representing an emerging public health challenge. Recent studies indicate that more than 20% of young people have already experimented with these devices, amid the widespread circulation of misleading information regarding their safety. In this context, the Cancer Foundation launched the VapeOFF Movement in 2024, with support from the National Association of Private Universities (ANUP), aiming to engage young audiences through educational, accessible, and youth-oriented strategies. The initiative seeks to address communication gaps and promote awareness of risks, self-care, and prevention by adopting innovative engagement approaches.

Objective: To promote accessible, evidence-based information on the risks associated with electronic cigarette use, engage young people and other audiences in self-care strategies, and support the strengthening of tobacco control public policies through educational digital communication.

Method: The movement was developed using a multiplatform and inclusive approach. Content was produced based on scientific evidence and translated into simplified language, adapted to different audience profiles. Implementation included interactive materials, videos, partnerships with digital influencers, gamified tools, social media actions, and a dedicated platform for disseminating accessible information. Digital educational resources were made freely available, allowing reuse and adaptation by educational institutions, NGOs, and civil society organizations. The strategy also incorporated advocacy actions, partnerships with universities, and digital amplification to achieve nationwide reach

Results: The VapeOFF Movement demonstrated broad geographic and demographic reach, impacting diverse audiences through digital channels. The use of contemporary language resulted in higher engagement, particularly among young people, a group traditionally difficult to mobilize in health prevention initiatives. The availability of accessible and replicable materials encouraged their adoption by educational institutions and community organizations, strengthening the project's applicability across different contexts. Additionally, the use of influencers, interactive formats, and audiovisual communication increased the attractiveness of the message and expanded its potential social impact, contributing to the debunking of myths surrounding the safety of electronic devices and reinforcing self-care attitudes.

Conclusion: The VapeOFF Movement represents an innovative and disruptive approach to tobacco prevention, integrating scientific evidence, digital communication, and active learning methodologies. Its strong engagement capacity, nationwide scope, and ease of replication position the project as an effective and scalable health education strategy. The initiative demonstrates that combining technology, accessible language, and social mobilization can strengthen preventive public policies and promote behavioral change, contributing to the reduction of experimentation and use of electronic cigarettes among young people.

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Projections of Lung Cancer Mortality in Brazil through 2045: A Regional Analysis

Author(s): Fernanda Cristina da Silva de Lima; Rejane de Souza Reis; Alfredo José Monteiro Scaff; Darlan Henrique Nascimento da Silva and Thais Ramos

Affiliation: Fundação do Câncer, Rio de Janeiro, Brazil

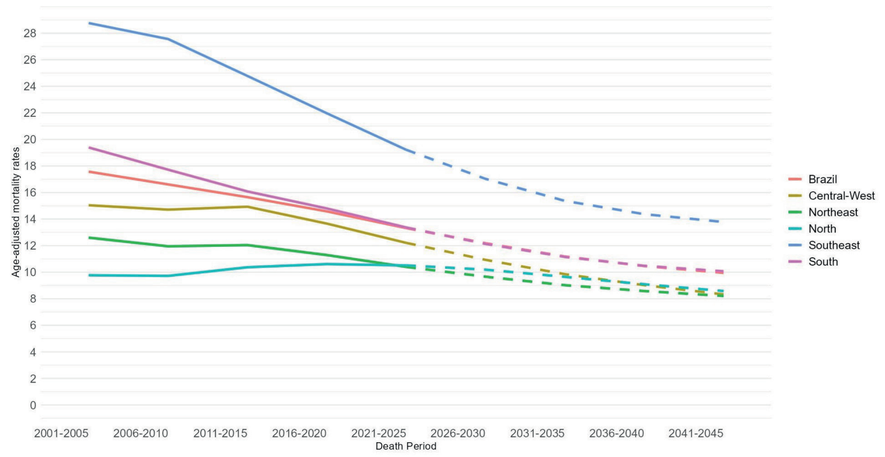
Introduction: Lung cancer remains the leading cause of cancer-related mortality worldwide and represents a major epidemiological challenge in Brazil. Despite the historical decline in smoking prevalence in the country, the disease burden still reflects past exposures, regional differences, and inequalities in access to health care. Considering the demographic transition, rapid population aging, and the need for updated evidence to inform public policies, projecting future trends in lung cancer mortality and identifying regional and sex-specific variations has become essential.

Objective: To estimate temporal trends in lung cancer mortality in Brazil and its regions, stratified by gender and age group, from 2021 to 2045.

Results: A projected increase in the absolute number of deaths was observed in both genders, particularly in the South and Southeast regions. Age-standardized mortality rates indicate a declining trend among men in all regions, although rates remain highest in the South. Among women, an increase is observed until 2025, followed by stabilization or a slight decline through 2045, with the highest rates also in the South. Population aging contributes to rising crude mortality rates, even in the context of declining age-standardized rates.

Method: This mortality projection study was based on lung cancer deaths (ICD-10: C33–C34) recorded in the Mortality Information System between 2001 and 2020, with redistribution of ill-defined causes of death. Crude and age-standardized mortality rates were calculated using the 1960 world standard population. Projections were performed using the Nordpred model in R software, in five-year periods from 2021 to 2045.

Adjusted mortality rates for lung cancer in men *Rates per 100,000 men



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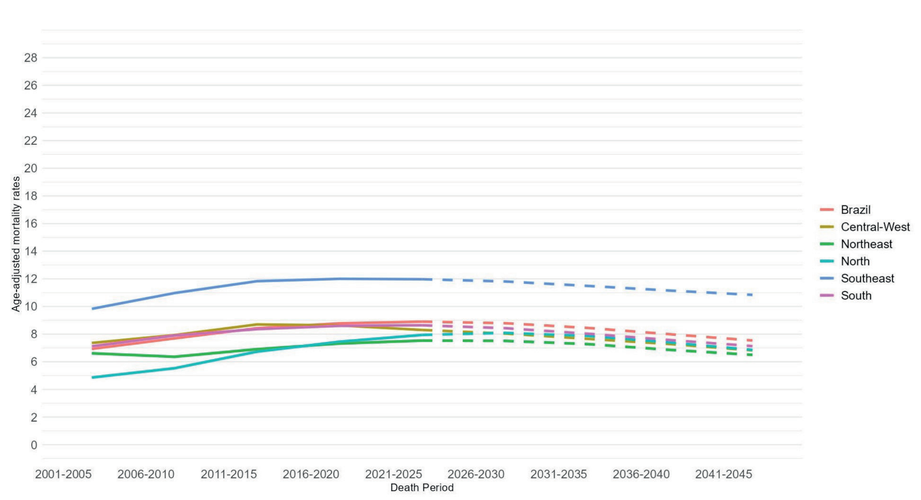
Adjusted mortality rates for lung cancer in women *Rates per 100,000 women



Conclusion: Lung cancer will continue to be a major cause of mortality in Brazil over the coming decades, largely driven by population aging. Regional differences reflect historical inequalities in smoking patterns and access to diagnosis and treatment. These findings reinforce the need for sustained tobacco control policies, monitoring of electronic cigarette use, early diagnosis, and regionally tailored strategies. Population projections based on age–period–cohort models are essential tools for cancer planning and surveillance, particularly in countries undergoing epidemiological and demographic transitions such as Brazil.

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Projection of Colorectal Cancer Incidence in Brazil Until 2040

Author(s): Rejane de Souza Reis; Fernanda Cristina da Silva de Lima; Alfredo José Monteiro Scaff; Darlan Henrique Nascimento da Silva and Thais Ramos

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Introduction: Colorectal cancer (CRC) is the most common malignant neoplasm of the gastrointestinal tract and, in 2022, as the fourth most frequent cancer in terms of incidence among both men and women worldwide. In Brazil, it was the third most incident cancer, with an estimated 45,630 new cases in 2024.

Objective: To estimate the incidence of colorectal cancer (ICD-10: C18–C21) in 2040, stratified by sex and age group.

Results: The projections indicate the occurrence of 71,050 new CRC cases in Brazil in 2040, corresponding to a crude incidence rate of 32.24 new cases per 100,000 inhabitants. More than 90% of cases are expected to occur among individuals aged 50 years and older, while the number of new cases among younger individuals is projected to remain stable.

Method: A methodology similar to that used for GLOBOCAN incidence estimates was applied. The analysis was based on the incidence-to-mortality ratio, which was applied to crude mortality rates estimated for the year 2040 using linear regression. Estimates were produced for Brazil, its regions, and states, stratified by sex and age group.

2030

NEW CASES	Mali	Femali	Total
≤ 49 years	3.080	3.720	6.800
≥ 50 years	25.470	26.560	52.030
Total	28.550	30.280	58.830

CRUDE RATES	Mali	Femali	Total
≤ 49 anos	4,12	5,07	4,60
≥ 50 anos	81,22	70,55	75,34
Total	27,02	27,20	27,11

2035

NEW CASES	Mali	Femali	Total
≤ 49 years	2.790	3.420	6.210
≥ 50 years	28.830	30.160	58.990
Total	31.620	33.580	65.200

CRUDE RATES	Mali	Femali	Total
≤ 49 years	4,22	5,24	4,77
≥ 50 years	81,55	71,17	75,87
Total	29,64	29,80	29,72

2040

NEW CASES	Mali	Femali	Total
≤ 49 years	2.730	3.340	6.070
≥ 50 years	31.720	33.260	64.980
Total	34.450	36.600	71.050

CRUDE RATES	Mali	Femali	Total
≤ 49 years	4,30	5,41	4,88
≥ 50 years	81,93	71,78	76,40
Total	32,17	32,30	32,24

Legend: Mali Femali Total

SOURCE: INCA 2020 ; BRAZIL, 2025

Conclusion: Projections for 2040 indicate an increase in colorectal cancer incidence in Brazil, reflecting both population aging and the country's epidemiological transition with respect to risk factors associated with the development of the disease.

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Impact of Patient Navigation on Time to Oncology Treatment Initiation: a Brazilian case report

Author(s): Rejane de Souza Reis; Fernanda Cristina da Silva de Lima; Alfredo José Monteiro Scaff; Darlan Henrique Nascimento da Silva and Thais Ramos

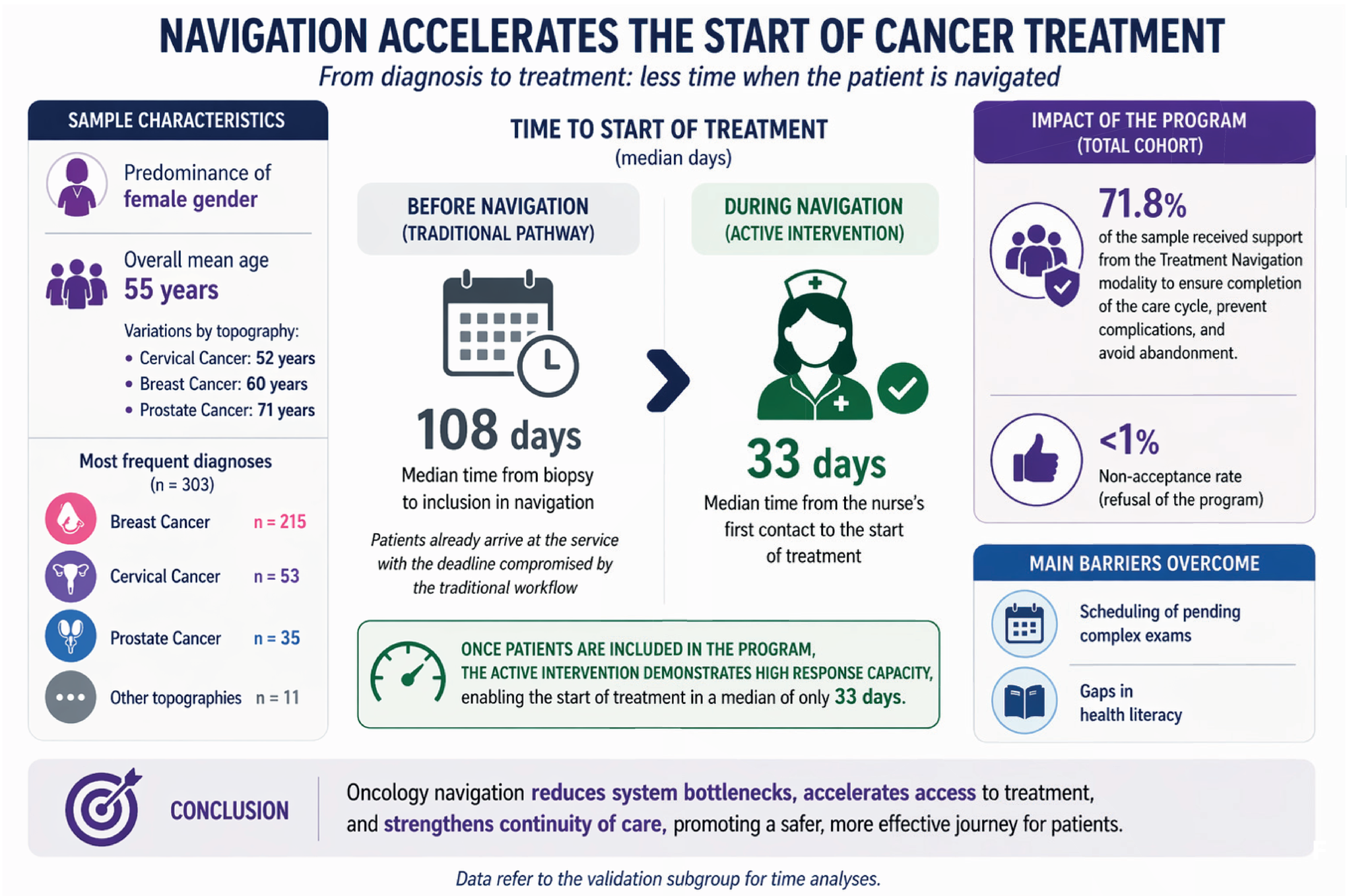
Affiliation: Fundação do Câncer, Rio de Janeiro, Brazil

Introduction: Law No. 12,732/2012, which mandates the initiation of oncological treatment within 60 days of the diagnosis cancer result, establishes a fundamental legal framework in Brazil. However, the fragmentation of the public health service frequently imposes critical delays in the patient's journey.

Objective: To analyze the impact of specialized Patient Navigation on reducing access times to oncological treatment and mitigating systemic barriers in a large municipality.

Method: This proposal analyzes the operational indicators of an Oncology Patient Navigation Program implemented in a municipality in the Metropolitan Region of Rio de Janeiro with approximately 500,000 inhabitants, designed to optimize the transversality of the care line for patients with confirmed diagnoses. This is a descriptive study based on follow-up records of 314 patients recruited through a continuous flow within the municipal network from October 2022 to October 2025. The intervention consisted of longitudinal case management focused on treatment initiation speed and adherence, analyzing demographic profiles and comparing conventional flow waiting times against the efficiency of active intervention.

Results



Conclusion: The findings evidence that Oncology Navigation constitutes a fundamental strategy for the enforcement of current regulations and workflow optimization, transforming a fragmented care pathway into an integrated and temporally efficient line. In this regard, active management proves to be an indispensable tool, ensuring that bureaucratic hurdles do not negatively interfere with clinical prognosis and patient dignity.

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Process Standardization in Oncology Navigation: Experience from a Brazilian Public Health Network

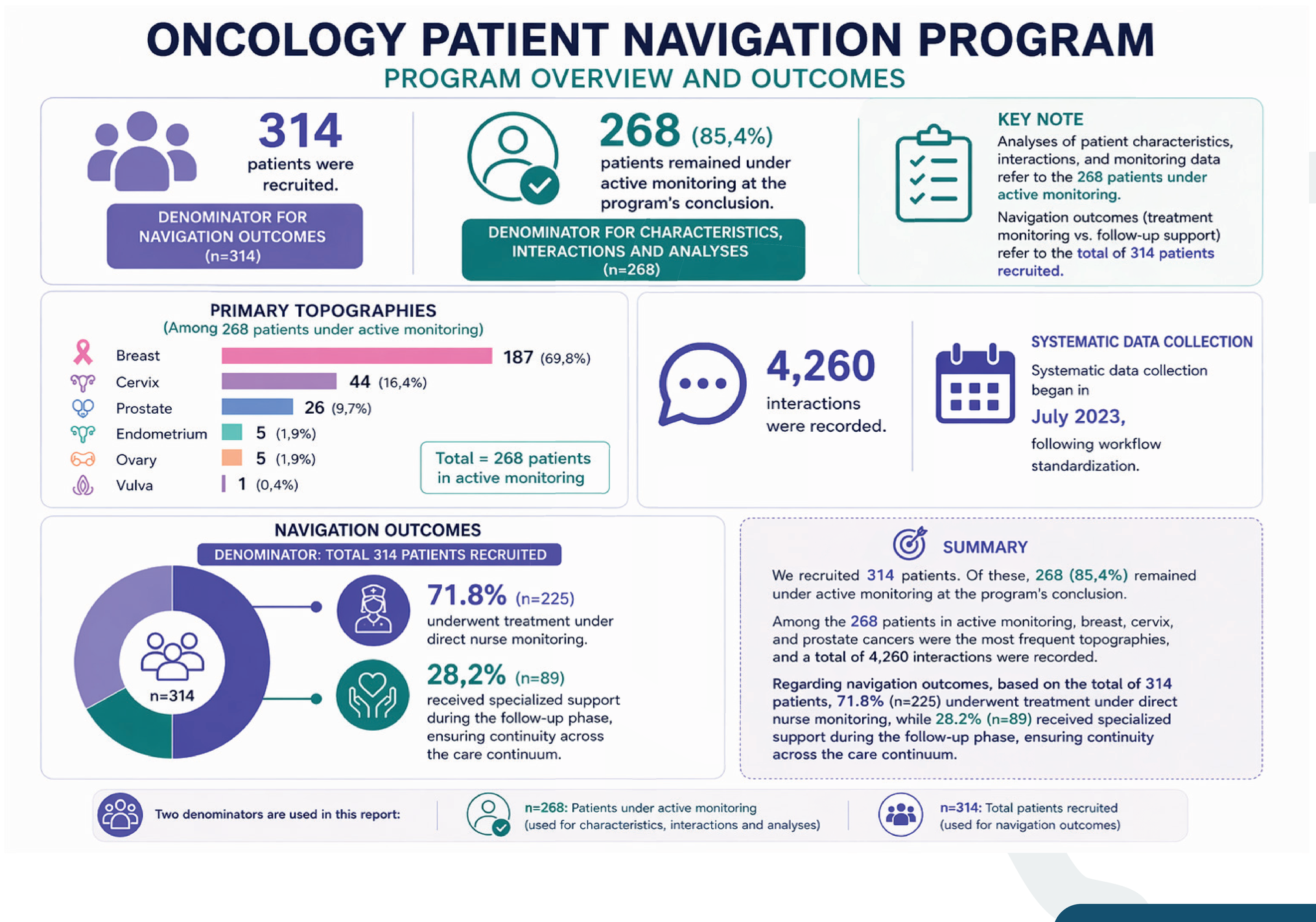
Author(s): Thais Martins Ramos; Fernanda Cristina da Silva de Lima; Alfredo José Monteiro Scaff; Darlan Henrique Nascimento da Silva; Rejane de Souza Reis and Thais Ramos

Affiliation: Fundação do Câncer, Rio de Janeiro, Brazil

Introduction: Professional Patient Navigation has emerged as a promising strategy for person-centered care. Given its international recognition, it is essential to prioritize operational effectiveness in real-world clinical settings. From an implementation science perspective, this effectiveness is linked to the adoption of standardized methodologies, the definition of processes and indicators, and the use of accessible information technologies, enabling continuous monitoring, replicability, and scalability. These elements are fundamental to mitigating bottlenecks, reducing care variability, ensuring equity, and improving the oncology patient journey

Objective: To analyze the methodological structuring and indicators of a professional navigation program implemented in a large city in Rio de Janeiro, focusing on process standardization as a strategic pillar for efficiency and replicability.

Method: This experience report describes the operational structure of an oncology navigation program as a management technology integrated into the Brazilian municipal public health network, implemented by two oncology specialist nurses between October 2022 and October 2025. The workflow was based on a hybrid recruitment strategy, combining weekly active case finding at a referral hospital with the processing of referral lists from specialized polyclinics. After patient inclusion, data collection used specific topographic indicators to identify clinical barriers and



Conclusion: The findings evidence that Oncology Navigation constitutes a fundamental strategy for the enforcement of current regulations and workflow optimization, transforming a fragmented care pathway into an integrated and temporally efficient line. In this regard, active management proves to be an indispensable tool, ensuring that bureaucratic hurdles do not negatively interfere with clinical prognosis and patient dignity.

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